



Catarina Carneiro de Sousa

VIRTUAL CORPOREALITY AND SHARED CREATIVITY

EMBODYING AVATARS IN THE METAVERSE

Supervisors:

Doctor Manuel Portela

Doctor Elif Ayiter

PhD thesis in Contemporary Art presented to the College of Arts
at the University of Coimbra



UNIVERSIDADE DE COIMBRA

College of Arts
Coimbra University

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Abstract

The aim of this study is to understand how a shared creative process of construction of virtual corporeality in collaborative virtual environments becomes an aesthetic experience. The research is divided into two main but correlated themes: virtual corporeality and shared creativity. It is my purpose to find the relationship between the constitution of a virtual corporeality and the new processes of creative sharing and creation in collaborative virtual environments. I also aim to relate these two aspects to the new forms of aesthetic experience emerging from these virtual contexts.

Meta_Body is the main practical artwork that sustains this investigation, an ongoing project since 2011. This is a participatory art project. Initiated in Second Life and in a tangible art exhibition (*All My Independent Women 6th edition*, at Vienna), it now continues in the collaborative virtual environment's creative flux. *Meta_Body* focuses on two aspects: first, the avatar as expressive body, open to experimentation and potency; second, avatar building as a shared creative process and as aesthetical experience. Through the practice of avatar creation, distribution, embodiment and transformation, I aim to understand the processes of virtual corporeality constitution. I interrogate the role of the body in the virtual environment, its importance in engaging with the world and in self-expression, exploring its metaphorical aspects. The method used to implement this project is a shared creative process, in which multiple subjects come to be authors along different phases of the project. Through the embodiment and transformation of avatars, the artwork's aesthetical experience becomes itself a creative process. This research is therefore grounded on an art-based and project-based methodology, whose results can be seen not only in this written thesis, but also in the artworks themselves, and their derivatives.

I accomplished my intended goals and came to a new understanding of virtual corporeality and its connection to shared creativity and aesthetical experience. I believe this

work to be an important starting point for new investigations that will arise with the new turn to virtual reality.

Keywords: avatar embodiment; collaborative virtual environments; Metaverse; produsage; artistic practice; aesthetic experience.

Resumo

O objetivo desta investigação é compreender como é que um processo criativo partilhado de construção de uma corporeidade virtual em ambientes virtuais colaborativos se pode tornar numa experiência estética. Este estudo está dividido em dois temas principais, mas correlacionados: corporeidade virtual e criatividade partilhada. O meu propósito é encontrar a relação entre a constituição de uma corporeidade virtual e os novos processos de criação e de partilha criativa em ambientes virtuais colaborativos. Também pretendo relacionar estes dois aspectos com as novas formas de experiência estética que emergem destes contextos virtuais.

Meta_Body é a principal obra prática que sustenta esta investigação, um projecto desenvolvido desde 2011. Trata-se de um projeto de arte participativa, iniciada no Second Life e numa exposição tangível de arte (*All My Independent Women 6ª edição*, em Viena), e que agora continua no fluxo criativo dos ambientes virtuais colaborativos. *Meta_Body* centra-se em dois aspectos: primeiro, o avatar como corpo expressivo, aberto à experimentação e potência; segundo, construção do avatar como um processo criativo partilhado e como uma experiência estética. Através da prática de criação de avatares, da sua distribuição, incorporação e transformação, pretendemos compreender os processos de constituição da corporeidade virtual: questionando o papel do corpo no ambiente virtual, a sua importância na relação com o mundo, na a auto-expressão e na explorar dos seus aspectos metafóricos. O método utilizado para implementar este projecto é um processo criativo partilhado, em que múltiplos sujeitos vêm a ser autores ao longo de diferentes fases do projecto. Através da incorporação e transformação de avatares, a experiência estética da obra de arte torna-se um processo criativo.

Este estudo é, portanto, fundamentado numa metodologia baseada na arte e projetual, cujos resultados podem ser comprovados não apenas por esta tese escrita, mas também pelas próprias obras de arte em si e seus derivados. Consegui atingir os objetivos pretendidos chegando a uma nova compreensão da corporeidade virtual e da sua relação com a criatividade

partilhada e com a experiência estética. Acredito que este trabalho seja um importante ponto de partida para novas investigações que surgirão com o novo rumo da realidade virtual.

Palavras chave: corporização de avatares; ambientes virtuais colaborativos; Metaverso; produtividade; prática artística; experiência estética.

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My final acknowledgement is to the producers, the participants in our artworks, the ones who give meaning to it all, the ones we do it for!

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(cover *The grief birnger*, virtual photography by CapCat Ragu 2012)

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List of Abbreviations

AKA: also know as

AMIW: All My Independent Women

AO: Animation Overrider.

CVE: Collaborative Virtual Environment

CCVE: Creative Collaborative Virtual Environment

DIY: Do it your self.

HUD: heads-up display.

LSL: Linden Scripting Language

OS: OpenSimulator.

SL: Second Life.

WIMP: windows, icons, menus, pointer. This acronym stands for this part of the user interface.

VR: Virtual Reality

Introduction

This study reflects upon the constitution of a virtual corporeality in the Metaverse and the relation of this constitution to a shared creative process. This shared creative virtual embodiment is analyzed as an aesthetic experience. The overall research question can be formulated as follows: How does a shared creative process of construction of virtual corporeality within collaborative virtual environments become an aesthetic experience?

This research aims to understand the relationship between art and new digital platforms, new processes of creative sharing and creation of a virtual corporeality. The experience of the body in virtual environments is not exactly an experience of the flesh, at least with regard to the avatar. Of course many virtual experiences have a physical dimension of the senses, but these feelings continue to be experienced by the body before the monitor, not through the avatar's body. The virtual body is an expressive body and as such becomes an open platform for potential new meanings, but also new mediated experiences. The metaphorical appropriation of the digital body becomes at this point a key area of new languages and aesthetic experiences on one hand, and for an inevitable reconstruction of concepts on another. Moreover, this manipulation of the digital body is dependent on the use of creations of different origins and authors: textures, 3D materials, animations, scripts, etc. The creative process of building a virtual corporeality thus involves the appropriation and often the transformation of these items, giving them new contexts and meanings. It is therefore a shared creative process, which questions the concepts of individual authorship and artwork. The construction, reconstruction, and embodiment of avatars, by virtue of its collaborative, distributed and networked nature raises specific questions about aesthetic experience in digital media.

To understand the importance of how avatars are embodied in the Metaverse, how this corporeality shapes presence in virtual worlds, and, most significantly, how it relates to aesthetic experience, this study has addressed the following objectives:

- To determine whether one can talk about corporeality in the context of virtual worlds.
- To understand the process of setting up a digital corporeality.
- To relate corporeality, perception and signification in the context of collaborative virtual environments.
- To understand if the building of a virtual corporeality can be a creative process.
- To understand what constitutes a shared creative process.
- To describe the specificity of the creative process in the context of collaborative virtual environments.
- To distinguish different forms of creative sharing in the context of collaborative virtual environments.
- To understand if it is possible to retain the concept of authorship in the context of shared creativity.
- To understand if it is possible to retain the concept of the work of art in the virtual and transitory context of the Metaverse.
- To investigate how an aesthetic experience can relate to the creative process in the context of contemporary art and collaborative virtual environments.

Collaborative Virtual Environments (CVE) are digital, distributed virtual spaces that support collaborative activities (Churchill, Snowdon and Munro 2001, 4). In this study I will focus on the Second Life (SL) platform, as well as others that use the same data communication protocol, based on OpenSimulator (OS), since their visual and procedural aspects are very similar. These platforms have been chosen because they allow any number of users to collaborate on the creation of very diverse artefacts and, at the time of writing, both SL and OS Grids house an abundantly productive artistic community.

I speak of collaboration and creation, and it is important to stress the creative affordances of the virtual environments under discussion, as well as the collaborative ones. As I shall demonstrate, these affordances set them apart from other popular virtual environments. For, while many virtual environments, such as *World of Warcraft* or *League of Legends*, allow some forms of collaboration, users there are largely limited to performative activities within pre-set contexts, narratives and settings. SL and OS platforms, on the other hand, are open worlds where users can build everything from the ground up quite literally, as the landscape itself is reducible to a void. Here, users can create their own narratives and redefine their virtual self.

CVE are often referred to as virtual worlds or as the ‘Metaverse’. The term Metaverse was coined by the writer Neal Stephenson in his 1992 novel, *Snow Crash*. There, the Metaverse was a fully immersive three-dimensional space where people interacted through avatars. Today the term is used to refer to collective online space as a whole, particularly with regard to graphical three-dimensional virtual worlds. I speak of Metaverse, virtual worlds or synthetic worlds when I refer to a “computer-generated physical space, represented graphically in three dimensions, that can be experienced by many people at once” (Castronova 2005, 22). Boellstorff suggests three fundamental elements in “virtual worlds: they are (1) places, (2) inhabited by persons, (3) and enabled by online technologies” (Boellstorff 2010, 17).

The methodological approach of this study is practice-based research oriented towards artistic practice, since theoretical approaches inform practice, but they are also informed by praxis. The main lines of research concern the creation of a virtual corporeality and a shared creative process.

Art-oriented research can use any method of research whose aim is to inform an artistic practice, both from a conceptual and a technical point of view. This is an instrumental perspective of research, which provides tools and knowledge necessary to develop a project (Boellstorff 2010). This approach is essentially exploratory and theoretical. Research is

conducted through traditional secondary research and observation in the collaborative virtual environments, where art experiences are conducted, and built according to project methodology.

Art-based research assumes that art can be viewed as a form of representation and understanding of knowledge (Sullivan 2010) and, accordingly, its practices and methodologies can be an alternative or complement to traditional forms of research, thus expanding the qualitative paradigm of research (Leavy 2009). In this type of investigation there is an integration of research with art practice, making the latter an essential component of both the research process and the results presentation (Borgdorff, 2005).

This can also be considered project-based research, because my collaborative works begin with a problem (from the world or from within), and then research and practice follow an oriented plan that embeds research, practice, and observation in a cycle (see in Figure 1). To

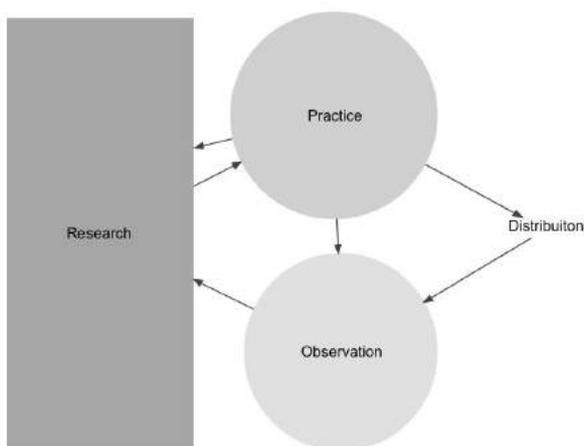


Figure 1 - Project-based method scheme.

this cycle I added distribution, as our projects begin with theoretical and visual research, followed by the building of the project itself and avatar distribution. The observation of my own collaborative work, other people's interaction with it, and their derived work, prompts new investigations. The problems suggested by the work and audience usually are the ones that need more thorough research.

From that research new problems arise, and I began another project.

Throughout the investigation informal conversation was maintained not only with the derivative authors, but also with many other artists, anthropologists, engineers, educators, and so on. Direct access to an international creative community is possible in virtual

environments, not only in the virtual worlds, but also through groups and chats on social media, which had a great impact on my work.

The phenomenological method (first developed by Edmund Husserl) was also of use in this study; my ordinary relation to the world (*natural attitude*) was “put between brackets” (*epoché*), i.e. I had to put aside all judgments about the world that derive from the assumption of its independency from experience (Varela, Thompson and Rosch 1991).

I also used the Maurice Merleau-Ponty’s idea of phenomenological reduction that continued Husserl’s research in another direction:

The reduction, as Merleau-Ponty conceives of it, disrupts our absorption in the world, thereby destroying its “ordinary character.” [...] It is in this sense that Merleau-Ponty wishes to retain a version of Husserl’s notion of ‘reduction’. Writing on painting in the last published article in his lifetime, “Eye and Mind,” in *The Primacy of Perception* (Northwestern Univ. Press, 1964) Merleau-Ponty employs this conception of the reduction. He tells us that ‘the vision of the painter’ shows us what “profane vision” overlooks (literally) in its rush to posit objects. (Flynn 2011)

Merleau-Ponty saw art as a form of phenomenological reduction. In this sense, it is also possible to think of embodiment in virtual worlds as a form of disrupting our absorption in the world, and therefore, a phenomenological reduction. This reduction happens in my own work and in the derivative work. This prompted our analytical research of the historical path of the virtual world, as well as our investigation of the concept of corporeality. The going-back to the virtual world and the observation of derivatives provoked new problems and new investigations.

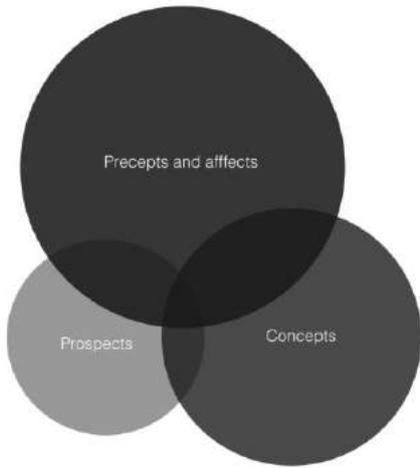


Figure 2 - Art, philosophy and science in this work.

Deleuze and Guattari align art with precepts and affects, philosophy with concepts, and science with prospects. These three planes intersect and intertwine, without, however, making a synthesis or identification (Deleuze and Guattari 1994). In this thesis it is possible to see these plans, like in Figure 2 (roughly, because this is only a 2D schematic image of a far more complex matter).

Beyond this, a shared creative process of building avatars and virtual environments is implemented in the

practical aspect of this work. This process will be described in Chapter 5.

This thesis is divided into three parts, each of which contains three chapters, as follows

Part I: Virtual Corporeality — in this first part I will be discussing the constitution of a virtual corporeality and its connections with actual corporeality.

Chapter 1: Virtuality, corporeality and simulation — in this chapter I trace the concepts of *virtual*, *corporeality* and *simulation*. These are unstable and multi-dimensional concepts, and their meaning can change greatly in different contexts. One needs to trace how and why these terms bare meaning in different contexts so we can understand the different ways in which they can relate to CVE. While some authors, like Gilles Deleuze (2002; Deleuze and Guattari 1987) or Pierre Lévy (1998; 2001) relate the virtual to *potency*, Charles Peirce (1902) relates it to *efficiency*. So for the former a virtual tree can be a seed that holds the potency to become a tree, for the latter a parasol can be considered a virtual tree because it casts a shadow, it has the efficiency of a tree in this particular context. These two perspectives are historically traced to the present and its importance in CVE. In what concerns the concept of corporeality we can distinguish a phenomenological approach, developed by authors like Maurice Merleau-Ponty (2005), Gail Weiss (1999) or Elizabeth Grosz (1994), and a discursive one, adopted by Michel

Foucault (1995), Susan Bordo (2003), and Judith Butler (1990; 1993). Although these approaches are not mutually exclusive, they do tend to think the mind-body split in different ways, and authors like Moira Gatens (1996) go so far as to accuse these discursive approaches to the body, e.g. in the sex-gender split, of being continuation of a Cartesian dualism in which body and mind are treated separately. On the other hand, authors like Donna Haraway (1991) and Katherine Hayles (1999) begin to take the cyborg and the digital body into this equation. It would be overly ambitious to attempt solving the mind-body split, but I shall try, in the strict context of CVE, to conciliate virtual as potency *versus* virtual efficiency and the phenomenological versus symbolic aspects of corporeality under the category of simulation. I will also be considering very different approaches like Jean Baudrillard's (1994) and Sherry Turkle's (2009), where I will include virtual corporeality.

Chapter 2 - Embodiment — I start by discussing the concept of consciousness drawing especially on António Damásio's (2000) studies on the subject, as this is important for an awareness of the relations between mind and body occurring in the brain. In the next section I follow the studies by Francisco Varela, Evan Thompson, Eleanor Rosch (1991) and Alva Noë (2004) in order to understand the embodied mind and its relation with perception, and the studies by George Lakoff and Mark Johnson (1999) on the metaphorical aspects that our bodily experience imprints in our language, proving the argument that reason is not extra-corporeal. Then I focus on the phenomenal body, especially (but not only) through the study of Maurice Merleau-Ponty's (2005) perspective. The next section is dedicated to a thorough overview of the literature about presence and mediation: Carrie Heeter (1992); Jonathan Steuer (1993); Frank Biocca (1997); J. A. Waterworth, G. Riva and E. L. Waterworth (2003); Beth Coleman (2011).

All this background study led me to my main focus: embodiment in CVE. I continue to draw on the previous authors but also on Tom Boellstorff (2010) and Celia Pearce's (2009)

ethnographical approaches to virtual worlds, Nick Yee, N. Jeremy Bailenson's, and Nicolas Ducheneaut's findings, whose studies demonstrate that behaviour can change according to the avatar's body constitution, not only online but also in offline interactions, e.g. users of taller avatars performed better in negotiating with shorter avatars, with this effect persisting outside the virtual context. Referring to these and other changes in behaviour resulting from the handling of avatars, the authors coined the 'Proteus Effect' (Yee, Bailenson and Ducheneaut 2009). Maeva Veerapen's studies (2011) on the constitution of a phenomenal body when using CVE propose four ways in which the avatar can be taken into account: the avatar as an object, the avatar as prosthesis, the avatar as a phantom limb, and the avatar as an equal. However, I argue it is possible that the user's body and the avatar by itself are not enough to constitute a phenomenal body, and that the rest of the platform interface should also be considered, discussing here the affordances of several CVE viewers' interfaces.

Chapter 3: The avatar as expressive body — I argue, as the title indicates, that the avatar is the user's expressive body in CVE. There are multiple affordances in WIMP viewers' interface, but the avatar's main affordance is expressiveness. I built on what was discussed in previous chapters to define what a symbolic body is and what are its metaphorical aspects. I turn to Janet Murray (2012) to explain the importance of metaphors in computer interaction, she draws on the notion of *conceptual models* by Donald Norman (1998) to ground that idea. I argue that the avatar has several metaphorical aspects that are not actually affordances, e.g. its legs, although they may have a walking-like animation, are not what allows the avatar to move. There are some interactions in CVE that would not be possible without the avatar. Ridding a vehicle, hugging a friend, dancing in a party... Almost all of them imply the animation of the avatar by an object or other avatar. These are not abilities that the avatar has itself, but what it can be used for. Through its image and performance the avatar might express actual thoughts and feelings, or fictions elaborated by the user

Part II: Shared Creativity — the second part of the thesis will focus on shared creative processes and the way they became prevalent in CVE.

Chapter 4: Art, collaboration and participation — this chapter begins with an historical overview of artistic collaboration. Drawing on Michel Foucault (2002) and René Huyghe (1986), I argue that collaboration in art is not something new, in fact one could say that it is the autonomous author that is something relatively new, possibly an embryonic idea from the Renaissance that would only become dominant in the 18th century. Monumental enterprises in the past, as well as theatre, cinema and today's multimedia productions, require the division of specialised tasks, making this kind of artwork always works of collaboration. This will be complemented by a brief illustration of co-authorship, and examples of collective creativity. Then the focus will change towards the post-modern reassessment of authorship, theorized by Roland Barthes (1977) and Michel Foucault (1998); and towards the rise of the audience, from Marcel Duchamp's statement of the spectator as constitutive of the work of art, to Umberto Eco's (1962) open work, and relational and participatory aesthetics, vindicated by Nicolas Bourriaud (2002), Claire Bishop (2012; 2006) and Grant Kester (2007), among others. Then I will reference the aspects of cyberculture that promote participation and collaboration, drawing mostly on Pierre Lévy (1998), Axel Bruns (2007; 2010), and Lawrence Lessig (2004). I will then agree with Pierre Lévy (2001) that art in cyberculture embodies Gilles Deleuze and Felix Guattari's (1987) concept of the rhizome. I demonstrate this using several examples of contemporary NetArt. For this I also rely on works by Lev Manovich (2003) and Juan Martin Prada (2012).

Chapter 5: Shared creative processes in CVE — in this chapter I will focus on shared creativity particular to CVE. I start by arguing that not all CVE are alike. Some CVE support creative affordances that others do not, i.e. they afford users to build or upload their own content and avatars. I propose, then, that these must be referred to as Creative Collaborative Virtual

Environments (CCVE), for clarification. Then I describe the affordances of CCVE — creation, collaboration, and distribution. In order for a CVE to be considered a CCVE, it must afford creative input and action. For creativity to be considered collaborative, users must be able to distribute and modify in-world content. This requires built-in platform features for collaborative creation, modification and distribution of content, to a degree that empowers users to collectively shape the virtual world itself. Besides the authors previously referred, I also draw on Dave Snowdon, Elizabeth F. Churchill and Alan J. Munro's studies on the definition of CVE (Churchill and Snowdon 1998; Churchill, Snowdon and Munro 2001). Then I describe a particular creative process that emerges from CCVE, which I call shared creativity, in which creation cannot be reduced to a single author. Several components of a project are built by different authors and producers, working together towards a flexible, unstable and always unfinished body of work; a creative flux fed by many streams that work in different creative processes, whose fluidity, in time, becomes independent and uncontrolled by the project's initiators. I distinguish three different shared creative processes — collective creation, distributed creation, and collaborative creation.

Chapter 6: Art Practice in Metaverse — This chapter describes the particular aspects of art in CCVE. I start by referring the importance that *play* has in the creative process in these environments; I distinguish *ludus* (games, with losers and winners) from *paidia* (to play without defined goals or rules). Play in CCVE, refers mostly to its *paidia* dimension. I draw primarily on Brian Sutton-Smith (2001), Gonzalo Frasca(2007), and D.W. Winnicott (2009). The latter defends play as localized in a *potential space* that emerges between an individual and the environment. I relate that to the concept of *liminoid spaces* by Victor Turner (1974), as in CCVE events social norms are suspended, opening a space for experimentation and transformation of the social order and offering a breach for cultural metamorphosis. I also draw on studies by Mike Molesworth, Janice Denegri-Knott (2007), and Rob Shields (2003). The remainder of the

chapter aims to describe the types of artworks one can find in CCVE. Most artworks in CCVE resist being compartmentalised into a taxonomic classification given their unstable and fluid nature, which is often open and participatory. While demonstrating why the division of such practices in rigid and specific typologies is in essence a fruitless toil, I will provide a succinct description of the various art forms that can be found in CCVE. One can start by dividing artistic manifestations into two main groups: works developed in the Metaverse — Metaverse-based; and those derived thereof — Metaverse-derived. Within the former, we can identify environments and objects, avatars, and performance. In the latter group, derived works include virtual photography and machinima. It is important to point out, however, that it is common for an art project to span more than one of these categories since they often develop asynchronously and vary in both appearance and process throughout the project's development. They present hybrid features and often circulate through several instances of reality, e.g. virtual environments, social media, tangible world. I provide several examples of artworks developed by other artists in CCVE to illustrate our point. I finish by considering CCVE artistic aspects like creativity and play as aesthetic experience, but also the tension between detachment and immersion as aesthetic experiences, drawing on Bertolt Brecht (1961; 2015), and Walter Benjamin (1969).

Part III: Praxis — this part describes the art practice on which this thesis was built .

Chapter 7: The Delicatessen Sim — this chapter focuses on my collaborative work with Meilo Minotaur in our region on SL, Delicatessen. The aim is to describe and analyse the development of our cooperative creative process, walking through the beginning of our creative input in CCVE and discussing two artworks *De Maria, de Mariana, de Madalena* and *Petrified*.

Chapter 8: The Meta_Body Project — this chapter is exclusively dedicated to analysing *Meta_Body*, which is the main project that sustains this investigation, an ongoing project since 2011. This is a participatory art project initiated in SL and in a tangible art exhibition (All My

Independent Women 6th edition, at Vienna), it now continues in the CVE creative flux. *Meta_Body* focuses on two aspects: first, the avatar as body/language, open to experimentation and potency; second, avatar building as a shared creative process and as aesthetic experience. Through the practice of avatar creation, distribution, embodiment and transformation, I aim to understand the processes of virtual corporeality constitution: to question the role of the body in virtual environments, its importance in engaging with the world and in self-expression, and the exploration of its metaphorical aspects. The method used to implement this project is a shared creative process, in which multiple subjects come to be authors along different phases of the project. Through the embodiment and transformation of avatars, the artwork's aesthetic experience becomes itself a creative process.

Chapter 9: Other projects, productions and events — this chapter will focus on the other artworks and collaborations described earlier: *Kromosomer*, *Liquid Song*, *Sheherazade*, *The Brooder*, *Becoming* and *The Virtual Garden of Time*. These projects will enable me to reiterate several problems and address aesthetical and theoretical issues similar to those raised by the artworks discussed in Chapters 7 and 8. Taken together, the artworks described in Part III constitute the artistic practice that informed my research on virtual corporeality and shared creative processes in virtual environments.

Part 1 — Virtual Corporeality

1. Virtuality, corporeality and simulation

Is there a place for the term ‘corporeality’ in a study about art in virtual environments? When thinking about the corporeal one tends to think about the body, but also about its materiality, its physicality. Is not ‘virtual’ the exact opposite? How can one think about a ‘virtual corporeality’ at all?

One of the main aspects of this research is the study of the avatar as an expressive and aesthetic form. In Sanskrit the word refers to the incarnation of a deity, the materialisation of an intangible being. In cyberculture its meaning is reversed and the avatar is seen as the virtualisation of the body. For the new media studies researcher and electronic music composer, Beth Coleman (2011), however, the avatar is not a virtualisation but an actualisation, extending the concept of avatar to refer to all digital extensions of the subject that actualise it in real time in the telecommunications network. The author proposes a notion of co-presence and *reality-x* to account for this distributed mode of relocation of the subject.

In order to understand what an avatar can be in the digital age it is necessary to understand the concepts of *virtual*, *corporeality* and *simulation*. These are unstable and multi-dimensional concepts, and their meaning can change greatly in different contexts. It is important to highlight that the context of this study is the artificial digital collaborative environments, known as collaborative virtual environments (CVE), so one needs to trace how and why these terms became important in the definition of such environments and our human relations with them.

1.1. The virtual

In order to understand the contemporary uses of the term *virtual*, it is relevant to briefly trace its route in western philosophy. Sociologist and Cultural Studies academic Rob Shields (2003) dates the origin of the word *virtual* to the Latin term *virtus*, which means power or strength. In

the Middle Ages this word transformed into *virtualis* and gained a connotation of moral strength — “a ‘virtual person’ was what we might today call a morally virtuous person or good person: a person whose *actual* existence reflected or testified to a moral and ethical *ideal*” (Shields 2003, 3).

German philosopher Wolfgang Welsh (2000), however, thinks the idea of the virtual is older, in the concept of potency, and dates it back to classical antiquity and the Greek philosopher Aristotle, who thought of entities in terms of actuality (*enérgeia*) or potential (*dynamis*). Potentiality did not contrast with reality, on the contrary, it was a thought of as the part of reality that preceded actualisation — a seed has the potential of becoming a tree, when it grows it becomes an actual tree. According to American philosopher and director of the Virtual Art Initiative, Gary Zabel (2014), this is the process of transition from latency (potency, *dynamis*) to full presence (actuality, *energeia*). A being that exists here and now, and is the object of perception, is an actual being; if the being needs an “efficient cause” to become actual, then it is a potential being (Tonner 2007, 132).

The translation by the Romans, of *energeia* to Latin was *actus*, and *dynamis* was split into two words *virtus* and *potentia*, but Zabel accounts them as synonyms. This author thinks that it was only in the Middle Ages that the concept itself was split (Zabel 2014, 410-411).

According to Welch, medieval philosopher and theologian Saint Thomas Aquinas turned the Aristotelian concept of potency into virtuality, gaining a more active meaning, as also an inner force of being. Zabel, however, thinks that:

[M]edieval thinkers who followed the Romans made the distinction that Aristotle and his Roman translators had not. In particular, Duns Scotus and Thomas Aquinas introduced the technical term *virtualiter* to signify that which has being in a virtual, though not in a potential manner. (Zabel 2014, 411)

Christopher B. Gray (2012) seems to corroborate Zabel's opinion, stating that Aquinas' explanatory use of virtuality distances the term from potentiality (Gray 2012, 407). Zabel's understanding of Aquinas is that the "being is virtual when it does not fully and explicitly appear, and yet is the locus of a real power or efficacy" (Zabel 2014, 411). According to Gray one can find five different forms of virtuality in Aquinas: *authorative virtuality*, i.e. the presence of a ruler's power (*virtute*) in all their domain, without being actually present (Aquinas cited in Gray 2012, 410); *divine virtuality*, i.e. God's virtual presence by power — "In answering that God is in all things; not, indeed, as part of their essence, nor as an accident; but as an agent is present to that upon which it works" (Aquinas cited in Gray 2012, 410); *angelic virtuality*, i.e. angels acting as agents of divinity, are located where they act, without the need for the "usual determinants of location" (Gray 2012, 411) — "it is not necessary on this account for the angel to be contained by a place; because an incorporeal substance virtually (*virtualiter*) contains the thing with which it comes into contact, and is not contained by it" (Aquinas cited in Gray 2012, 411-412); *human virtuality*, whereby, according to Aquinas, intellectual substance cannot contact the body in a corporeal way because quantitative touch belongs only to bodies, the contact of the body with intellectual substance is a touch by power (*virtutis*), unlike quantitative touching that is confined to the surfaces of bodies, the touch by power extends to the interior (*intima*), and this is the only way of connection between intellectual substance and the body (Aquinas cited in Gray 2012, 412-413); and *cognitive virtuality*, i.e. the virtual presence of a known object in the knower's mind (Gray 2012, 414). The term 'virtual' in these examples seems more related to incorporeal power than to potency.

Dutch philosophical writer and lecturer, André Nusselder (2009), on the other hand, corroborates Welsh's claim that Aquinas used the term virtual as a translation of the Aristotelian potency, namely in the concept of *virtualis continentia*. This notion indicates that an effect can

be already present or contained in a cause — the tree is virtually present in the seed (Nusselder 2009, 33).

According to philosophy scholar Philip Tonner, it was Aquinas that matched actuality with existence — sensible beings are form and matter, made actual by their existence, dependent on God’s efficient causality. In turn, God is an essential being, pure actuality and infinite existence (Tonner 2007, 135). To Aquinas there is an insurmountable chasm between God and his creatures, as God is an absolutely transcendent being. However, he considered that each effect is like its cause, and this is the likeness between God and his creatures — the thesis of analogy (Tonner 2007, 139).

Medieval philosopher and theologian John Duns Scotus, on the other hand, defended the thesis of the univocity of being — “being can be said of God and creatures in the same sense in terms of their respective opposition to nothingness” (Tonner 2007, 145). According to American philosopher Michael Heim (1993) it was Scotus who gave the term virtuality its traditional connotations, as virtuality was central to his theory of reality. Scotus thought one could know a thing apart from empirical observation — conceptually, or, virtually. The term reconciled what he believed was the formally unified reality (conceptual) and the actual experience of the world (Heim 1993, 132). According to Nusselder, Scotus extended the concept of *virtualis continentia* from metaphysics to epistemology by applying it to knowledge, stating “the conclusions are already present in the premises” (Nusselder 2009, 33).

The status of virtuality became problematic during Reformation and Counter-Reformation. Shields claims that in the case of the mystical transubstantiation in Christian Eucharist, while Protestants claimed that the presence of Christ was *virtually real*, Catholics believed and insisted it was *actually real* — material body and blood of Christ (Shields 2003, 5). In fact, beliefs about Christian Eucharist vary from church to church. For the Catholic Church (after the standardisation of the Mass ritual, through the Council of Trent in the

sixteenth century) the real presence of Christ “occurs when bread and wine are changed in their substance into Body and Blood of the Lord” (Sokolowski 1994, 17). Not all the Protestant churches, however, were against the *reality* of Christ’s presence; their differences resting upon the manifestation of this real presence. Martin Luther considered the presence of Christ real, but didn’t believe in transubstantiation — the transformation of the “substance” of wine and bread into the blood and body of Christ. The basis for the transubstantiation thesis are the Aristotelian concepts of *substance* and *accident*, the first regarding the essential nature of things, while the other regards its appearance. Hence the changes were just in the substance of wine and bread but not on its accidents (McGrath 2013, 164). Luther disregarded the Aristotelian basis of transubstantiation, he did not consider that a change of substances occurred:

In order for the divinity to dwell in a human body, it is not necessary for the human nature to be transubstantiated and the divinity contained under the accidents of the human nature. Both natures are simply there in their entirety. (Luther cited in McGrath 2013, 165)

Huldrych Zwingli, the leader of the Swiss Reformation was influenced by the writings of Cornelius Hoen, who considered that Christ’s words “this is my body” were metaphorical, and that the Eucharist was symbolic — bread and wine were representations of body and blood (McGrath 2013, 166).

French reformist theologian John Calvin, however, also believed in the real presence of Christ. Calvin’s focus was on communion — Eucharist enabled a spiritual communion with Christ. Presence was real, in a spiritual manner (Kibble 1980, 46).

17th century Dutch philosopher Baruch Spinoza believed there was only one substance, and that substance was God. Spinoza defined *substance* as “what is in itself and is conceived

through itself” and an *attribute* as “what the intellect perceives of a substance, as constituting its essence” (Spinoza cited in Nadler 2013). Things that are in God’s attributes are called “modes”; there are *infinite modes*, which are the eternal aspects of the world, like geometry, logic or the laws of physics; and *finite modes*, that are the expression of God’s attributes. The known attributes of God are *extension*¹ and *thought*, for Spinoza, these are two distinct essences. The modes of expression of extension are bodies, while the modes of expression of thought are ideas (Nadler 2013). Even though for Spinoza matter and mind are two closed systems, with no causal interaction between bodies and ideas, he regards thought and extension as just two different ways to conceive nature — “a mode of extension and the idea of that mode are one and the same thing, but expressed in two ways” (Spinoza cited in Nadler 2013). As it will be described later, Spinoza’s metaphysics was crucial for the Deleuzian concept of virtual.

The philosophy of Gottfried Wilhelm Leibniz disputed the Cartesian conception of the body or corporeal substance (Look 2014). For René Descartes, mind and body were distinct substances. He believed that it is possible to doubt the existence of the body and of the material world, but it is impossible to doubt one’s own existence as thinking individuals (Hatfield 2015). His conclusion was:

From this I knew I was a substance whose whole essence or nature is simply to think, and which does not require any place, or depend on any material thing, in order to exist.
(Descartes cited in Hatfield, 2015)

If the mind does not occupy a space then it is not extended. Descartes considered “that the essence of mind is thought and that a thinking thing is unextended; and that the essence of matter is extension and that extended things cannot think” (Hatfield 2015). In this perspective,

¹ Extension can be referred as the three dimensional nature of bodies in space (Abbagnano 2000, 421).

mind and body are forever apart. This position is, of course, problematic concerning the interaction between mind and body. Descartes' followers from the Cartesian philosophical school (e.g. Nicolas Malebranche, Louis La Forge, Géraud de Cordemoy, etc.), argued that the interaction between mind and body is mediated by God — only God's will can have an effective cause over mind and body. This is known as the occasionalist position.

Leibniz, however, disputed that the essence of the body was simply extension, for this would mean that matter was infinitely divisible, and he believed that simple units had to exist at an ontological level (Look 2014). To Leibniz everything can be reduced to simple substances. However, each substance has a *complete individual concept* — this is a necessary condition for something to be considered a substance. The complete individual concepts of each substance cohere among each other, what Leibniz calls *pre-established harmony*. As stated before, Leibniz rejected occasionalism, the theory which defends that God, as the only infinite substance, is the only origin of causation; however, he also did not corroborate the theory of physical influx which states there is intersubstantial causation within finite substance (cause and effect). Leibniz did not believe in intersubstantial causation, but he did believe in intrasubstantial causation, in his perspective changes in the state of substances are due to the substances themselves. For Leibniz substances always and forever act and the cause of their action lies in their own nature created by God (Bobro 2013). The denial of casual interaction of finite substances implies that experience cannot be the cause of ideas (Look 2014).

The *principle of identity of indiscernibles* defended by Leibniz, states that if two things share all their properties they are identical, however, each substance is unique. This means that minds cannot be born as blank slates, because then they would be identical (Look 2014). Hence, ideas must be innate.

For Leibniz ideas were innate as virtualities that needed to be made explicit, not acquired. This perspective understands cognition as actualisation of the intellect's virtual inner content.

According to Welsh the main contribute made by Leibniz to the concept of the virtual was the shift from an ontological perspective to an epistemological one (although Nusselder considers this shift had already been made by Scotus). For Welsh, this marks an important step to a modern take on the concept of the virtual such as can be found on Peirce (1902), leading towards a more dynamic approach (Welsch 2000).

For Immanuel Kant, one can only experience appearances and not things in themselves, what he calls transcendental idealism (Rohlf 2014).

We have therefore wanted to say that all our intuition is nothing but the representation of appearance; that the things that we intuit are not in themselves what we intuit them to be, nor are their relations so constituted in themselves as they appear to us; and that if we remove our own subject or even only the subjective constitution of the senses in general, then all constitution, all relations of objects in space and time, indeed space and time themselves would disappear, and as appearances they cannot exist in themselves, but only in us. (Kant cited in Rohlf, 2014)

According to Kant space and time are just “subjective forms of human sensible intuition” and “not things in themselves” (Rohlf 2014). Space and time, however, are considered to be empirically real by Kant. In this sense, and according to Welsh, body and soul are two different orders of the real. Kant used the term virtual to refer the appearance of an object of one order in another order, namely to explain the soul’s presence in the world — not as a spatial presence, but a virtual one. Thus, for Kant the status of the virtual changed from a precedent potential of the real to its counterpart (Welsch 2000).

It was in the nineteenth-century that the seeds of the contemporary conceptions of the virtual were sown. On the one hand, by the American philosopher Charles Sanders Peirce, who

defined the pragmatic use of the word; and, on the other, by the French philosopher Henri-Louis Bergson, who paved the way for one of the most important contemporary philosophical investments in the term by Deleuze. These correspond to two branches of contemporary conceptualisation of the term: one that relates it to *efficiency*, and another that relates it to *potency*.

Peirce relates the virtual to efficiency. He defines it as: “A virtual *X* (where *X* is a common noun) is something, not an *X*, which has the efficiency (virtus) of an *X*” (Peirce 1902, 763). This conception relates to Scotus’ approach of the virtuality of conceptual knowledge. Peirce relates virtuality with knowledge and semiosis, but he locates it within the world of experience, thus secularising the concept (Esposito 2003, 5). In Peirce’s “semiotic model of the mind”, cognition depends on the manipulation of signs — thoughts are signs — and in order to interpret signs, the interpreter creates a new sign in her mind, the “interpretant” of the original sign. So “each sign is what it is by virtue of its possible later interpretations — i.e. virtually — so the mind itself is virtual” (Skagestad 1998, 3).

Peirce distances his concept of virtual from potency, as he states: “the potential *X* is of the nature of *X*, but is without actual efficiency”(Peirce 1902, 763) — the seed is of the nature of the tree but does not actually cast a shadow. So a virtual tree, in this sense, would not be the seed but something that could have the effects of a tree. This can mean different things in different contexts — a parasol can be considered a virtual tree because it casts a shadow, it has the efficiency of a tree in this particular context. In other words, it can *simulate* a tree. The understanding of virtuality as efficiency is particularly important for the contemporary use of the word in the field of Computer Science. In computer related jargon the word *virtual* is used to refer to “simulations of a process or device” (Welsch 2000), e.g. *virtual memory*, the use of hard disk memory as if it was program space RAM; even though hard disk memory is not

actually RAM, it can operate with its efficiency² — Peirce’s definition of virtual. This conception of the virtual is prevalent in computer-related processes that operate “as if” — virtual mail, virtual libraries, virtual stores, virtual signatures, etc. Although not existing in the tangible world, these instances perform with similar capabilities, as if they did (Heim 1993, 132), they are “near substitutes” (Poster 2006, 538).

On the side of the virtual as potency, Shields traces the contemporary philosophical use of the term to Marcel Proust, to whom Bergson attributes the origin of the term, and which, in Bergson’s reworking, was paramount to Deleuze’s definition (Shields 2003, 26). In this line of thought the virtual does not oppose the real, but the actual.

According to Shields (2003, 28), Bergson proposes a set of binaries that oppose virtual to actual, and relate it to potentiality:

Actual – Virtual
Matter (Object) – Memory (Subject)
Present – Duration (Progression)
Spatial (Synchronic) – Temporal (Diachronic)
Non-Organic – Living
Inert – Potential
Complete – In-process

The use of the word *virtual* in Bergson is merely descriptive of his much more invested concepts of *stimulation*, *perception* and *memory* (Shields 2003, 26). In an attempt to go beyond realism and idealism, Bergson argues, “our knowledge of things, in its pure state, takes place within the things it represents” (Lawlor and Moulard Leonard 2013). The author criticises the realist view that matter has the power to produce representations, but is also not a supporter of

² Efficiency here is used in the sense Peirce gives it — as if. Virtual memory does not perform with the same efficiency as RAM in the sense that is slower than actual RAM.

the idealist notion that reduces matter to representation. Rather, Bergson believed that matter is composed by images:

Matter, in our view, is an aggregate of ‘images.’ And by ‘image’ we mean a certain existence which is more than that which the idealist calls a *representation*, but less than that which the realist calls a *thing*,—an existence placed half-way between the ‘thing’ and the ‘representation’. (Bergson 2004, vii-viii)

The difference between thing, image and representation is a matter of degree. Representation is already in the image, virtually (Lawlor and Moulard Leonard 2013), i.e. in a potential manner:

Representation is there, but always virtual—being neutralised, at the very moment when it might become actual, by the obligation to continue itself and to lose itself in something else. To obtain this conversion from the virtual to the actual it would be necessary, not to throw more light on the object, but on the contrary to obscure some of its aspects, to diminish it by the greater part of itself, so that the remainder, instead of being encased in its surroundings as a *thing*, should detach itself from them as a *picture*. (Bergson 2004, 28)

This relates to Bergson’s concept of *duré* - the way the mind integrates the multiplicity of images that compose matter in a “unified flow of duration” (Shields 2003, 27). In this way representation never becomes quite actual, because that could only happen if it could be completely isolated from all other images of the world. This is the process Bergson calls *élan vital*.

This true time is grasped only in the course of its actualisation, a process of differentiation and creative evolution rather than the production of concrete instantiations which were already established virtually. (Shields 2003, 29)

This notion of *difference* would be, later, a major concern for Deleuze. In the western rational tradition, difference is subordinated to identity, i.e. “‘difference from the same’ or difference of the same over time” (Stagoll 2005, 72). By developing a concept of difference-in-itself, not dependent on sameness, Deleuze means to disrupt the privilege of universality, identity and being in western philosophy. He also disputes the representational model of thought, by challenging our tendency “to consider each individual as re-presenting (‘presenting again’) something as just another instance of a category or original” (Stagoll 2005, 73). His notion of difference is empirical, based on the singularity of perceptions and conceptions as they are experienced. This is not a difference of degree, but an intrinsic difference:

The genealogy of an individual lies not in generality or commonality, but in a process of individuation determined by actual and specific differences, multitudinous influences and chance interactions. (Stagoll 2005, 73)

Deleuze is also influenced by Spinoza’s metaphysics where there is only one substance that is always in process of being differentiated in its infinite attributes and modes (Boundas 2005). The concept of substance in Spinoza can relate to the concept of virtual in Deleuze, while the concept of mode can relate to the concept of actual.

The relation between difference and Bergson’s concepts of *duré* and *élan vital* would be paramount to Deleuze’s definition of the virtual. Constantin V. Boundas (2005, 297) actually

states that *duré* and *élan vital* in Bergson are equivalent to the virtual in Deleuze. The three concepts also connect to another crucial Deleuzian idea — the concept of *becoming*. Boundas proposes the following schema to characterize the process of becoming: “virtual/real ↔ actual/real ↔ virtual/real.”

What such a diagram points to is that becoming is not a linear process from one actual to another; rather it is the movement from an actualised state of affairs, through a dynamic field of virtual/real tendencies, to the actualisation of this field in a new state of affairs. This schema safeguards the reversible nature of virtual and actual relations. (Boundas 2005, 297)

For Deleuze, the virtual is not the double of the actual, but it does not transcend it either (Boundas 2005). The virtual is the difference between “actual existence” and “potential existence” — both considered “real”. It is important to understand that for the author “existence” is not a “static presence”, because he does not believe in a univocal being, but in a fractal one (Massumi 1992, 35), always in the process of becoming. Deleuze also distinguishes “potential” from “possible”, as “possibility” is only a “restricted range of potential: what the thing can become without ceasing to be itself” (Massumi 1992, 38).

For a better understanding of these notions, Shields proposed “tetralogy of the real and the possible” as follows:

Table 1- Shields' tetralogy of the real and the possible

	Real (existing)	Possible (not existing)
Ideal	Virtual (ideally real)	Abstract (possible ideal)
Actual	Concrete Present (actually real)	Probable (actual possibility)

French philosopher Pierre Lévy also draws on Deleuze's definition. This author is of particular significance to this study not only because he relates this definition of virtual to digital virtualisation, but because he relates it to the art forms native to the digital medium.

Lévy highlights that the philosophical concept of *virtual* refers to "potential rather than actual existence" (Lévy 1998, 23). Thus, the term virtual is not opposed to the term real, but to the term actual. While the real is the materialisation of the possible, the actual is an answer to the virtual. This means that actualisation implies a solution to a problem, "a solution not previously contained in its formulation" (Lévy 1998, 25). The author considers virtualisation to be the reverse movement of actualisation:

The virtualisation of a given entity consists in determining the general question to which it responds, in mutating the entity in the direction of this question and redefining the initial actuality as the response to a specific question. (Lévy 1998, 26)

In this sense, a good part of art has long been about virtualisation, in that art tends to problematise concepts.

Lévy sees the virtualisation of the body not as disembodiment, but as a form of *re-creation* and *reincarnation* (Lévy 1998, 44). This includes the impact of television on human

perception, telepresence, the use of imaging technology (radiography, ultrasound, etc.), transfusion, transplants, plastic surgery, bodybuilding and even extreme sports (Lévy 1998, 37-44). Here we will concentrate on the digital virtualisation of the body through the use of avatars in collaborative virtual environments. Its embodiment, the way it makes someone present in other, or even multiple, locations, offers forms of distributed actualisation of the self. As stated, this is not however a simple materialisation of subjectivity, but rather a creative, yet transient, precarious, unstable, and fluid answer to a problem or to several problems that the internet age asks about body and self in their distributed relocation. The avatar's body or physicality is flexible, multiple, and metamorphic. One can be talking on the phone and at same time posting something on a social network, while dancing in a club in a virtual environment all without leaving one's chair. All of these avatars are forms that make someone present, actual in some other place.

Both contemporary conceptualisations of the virtual (as efficiency and as potentiality) are fruitful to understand the avatar. From the efficiency point of view, one can perceive the avatar as both a visual sign of the user in the virtual environment, and a simulation of her body acting *as-if* it is her bodily self. This way the avatar enables the possibility of interaction with the mediated space and other users. On the other hand, in the specific context of CVEs like SL and OS, the user can extensively customise the avatar; this kind of virtuality is a potential one. The avatar is a potential expressive body, open to transformation — an instance of the process of becoming. This research intends to reconcile the two notions by studying the constitution of a *virtual corporeality* in CVEs.

1.2. Corporeality

An historical overview of the concept of the virtual inevitably blends with the concept of the corporeal so the tracing of the concept was already partially made in the previous section.

Dictionaries (Oxford Dictionary and Merriam-Webster) relate the word corporeal to the physical, material, tangible body, in opposition to the spiritual. This mind-body dualism is embedded in the western conception of human nature, where thought opposes extension, reason opposes passion and psychology opposes biology (Grosz 1994, 3). According to Australian philosopher and women studies scholar Elizabeth Grosz, the “body has remained a conceptual blind spot” (1994, 3) in western philosophy and “has been regarded as a source of interference in, and danger to, the operations of reason” (1994, 5). One can trace this view on human nature and the body as far as Plato’s Theory of the Forms (Grosz 1994, 5).

For Plato forms or ideas (*eidos*) are the models of the reality we access through our senses, but this is, in fact, a second order reality, a copy. True form, according to Plato, is imperceptible, intangible, and cannot be accessed directly. What we can access are the appearances, which are, for him, an illusion. In this conception matter itself is only an imperfect copy of form (Grosz 1994, 5).

Appearances for his disciple Aristotle, however, can be a base for knowledge, with Aristotle believing that “our perceptual and cognitive faculties are basically dependable (...) they for the most part put us into direct contact with the features and divisions of our world” (Shields 2014). However, the split between form and matter remains in his aforementioned concepts of *substance* and *accident*, relating form with potentiality and matter with actuality (Shields 2014). As analysed earlier, these concepts made an ever-lasting mark in Christian philosophy.

The matter/form distinction is refigured in terms of the distinction between substance and accident and between a God-given soul and a mortal, lustful, sinful carnality. Within the Christian tradition, the separation of mind and body was correlated with the distinction between what is immortal and what is mortal. (Grosz 1994, 5)

So, as Grosz puts it, this mind-body split is a part of western philosophy long before Descartes; according to her what Descartes introduces is a split between soul and nature. As discussed before, this philosopher considered mind and body two distinct substances (Dualism): *res cogitans* and *res extensa*. He considered that only the corporeal substance was a part of nature, the soul was separated from the physical world (Grosz 1994, 6). For Descartes, if there is no interference of the mind bodies would act like machines according to physical laws in a deterministic manner. However, minds do influence bodies, but they do so in a way akin to “pulling levers” (Robinson 2012). This idea of a disembodied mind becomes from this point on the very foundation of knowledge and science in western culture and of its supremacy over corporeality (Grosz 1994, 6-7). In a Cartesian sense, corporeality is extension — the material, physical body that occupies space in the natural world, and is subject to its laws.

However, as explained previously, for Spinoza there is only one substance, so body and mind are just different *expressions* of it (*extension* and *thought*). Moreover, Spinoza admits the human body is “part of a dynamic interconnected whole” (Gatens 1996, 109).

The human body is understood by Spinoza to be a relatively complex individual, made up of a number of other bodies. Its identity can never be viewed as a final or finished product as in the case of the Cartesian automaton, since it is a body that is in constant interchange with its environment. The human body is radically open to its surroundings and can be composed, recomposed and decomposed by other bodies. (Gatens 1996, 110)

In this model corporeality is not a “fixed state of being” but a “series of processes of becoming” (Grosz 1994, 12) and the very constitution (or destruction) of the human body is intertwined with other bodies or the world. Because of its non-dualistic vision, the work of

Spinoza was very influential to some contemporary feminist authors concerned with corporeality like Moira Gatens and Elizabeth Grosz (mostly a Deleuzian view of Spinoza).

Probably the most significant new view on the importance of the body came in the 20th century from Merleau-Ponty's phenomenological approach. Merleau-Ponty's approach owes a great deal to Husserl's thought, who defended the need for philosophy to return to "things themselves". For this purpose a direct examination of "the structures of experience as they present themselves to consciousness" (Wrathall and Dreyfus 2009, 2) was needed. Although Husserl's still had ties to a Cartesian notion of the mind, he was especially grounded in German philosopher Franz Brentano's concept of *intentionality* — consciousness is always the consciousness of something, it always has an object. According to Husserl, one could only find a structure of intentionality by analysing the structure of experience, proceeding to a *phenomenological reduction* (see the Introduction).

So, the world should not be taken for granted as an object independent from consciousness. However, there are consensual aspects of experience that need to be taken into account, because the world seems to be experienced in a similar way by different subjects/different consciousnesses. This suggests Husserl's notion of *life-world* — the pre-given social world of everyday life, "coherently, consistently, harmoniously intuitable in actual and possible experiencing intuition" (Husserl 1970, 51): a world intersubjectively coherent, not only in experience, but also in expectations.

From a phenomenological perspective, there is no dualistic person/world or people/environment relationship. Instead, there is only a people-world immersion, entwinement, and commingling whereby what is conventionally understood as two conceptually—person/world, subject/object—is realized as one existentially—person-intertwined-with-world. (Seamon 2013, 144)

According to Varela, Thompson and Rosch³ (1991, 17), Husserl's phenomenology is the "analysis of the *essential relation* between consciousness, experience, and this life-world". This notion of life-world was Husserl's response to his most relevant disciple's criticism. German philosopher Martin Heidegger continued Husserl's research but he diverted the focus from consciousness to everyday *being-in-the-world* (Wrathall and Dreyfus 2009).

[H]eidegger argued that the intentionality on which Husserl focused — the intentionality of discrete mental judgments and acts — is grounded in something more basic, the intentionality of a general background grasp of the world. (Wrathall and Dreyfus 2009, 3)

This notion of being-in-the-world was further developed by Merleau-Ponty in his analysis of perception and bodily experience (Wrathall and Dreyfus 2009). According to environment-behaviour scholar David Seamon "Husserl was the first twentieth-century philosopher to recognize phenomenologically that all human experience is always corporeal", but it was "Merleau-Ponty, who more thoroughly probed the bodily dimension of human being and life" (Seamon 2013, 6).

Merleau-Ponty rejected both the *objectivist* and the *intellectualist* approaches to the relation between consciousness and nature. He classified under objectivism: naturalism (philosophy), behaviourism (psychology), and mechanism (biology). He called intellectualism on all Neo-Kantian thought emerging at the time. His research would lead him, however, to draw critically from both standpoints (Flynn 2011).

As already stated in the Methodology section, the notion of *phenomenological reduction*

³ These authors will be more extensively discussed in chapter 2.

in Merleau-Ponty diverges from the one proposed by Husserl, which he considered idealistic because it transformed “the *experience* of the world into the *thought* of the world” (Flynn 2011). For Merleau-Ponty “perception is the lived grounding of human experience and meaning”(Seamon 2013, 6). He considers that both the objectivist and the intellectualist approaches treat perception in the same way — as atomic sensations that need to be unified under “the laws of association” or a “theory of attention or of judgment”. However, one never experiences an isolated sensation. Merleau-Ponty considered that these approaches saw the body as a mechanical system affected by an “external world”, and perception as a process by which this “external world” was imprinted in the mind. But for him, perception was not performed by consciousness, but by the body; not as another part of the world separated from the mind, but by the body as a living body (Flynn 2011).

The notion of a *lived body* is paramount to Merleau-Ponty’s philosophy. According to him, when science focuses on mechanical, chemical and neurological processes to describe perception, it forgets perception is a *dynamic living process* in which “the experience and meaning of the world unfolds for us” (Bullington 2013, 23). The subject in Merleau-Ponty’s approach is not a transcendental subject, but “a subject that emerges from nature” (Flynn 2011).

His concept “flesh of the world” from *The Visible and the Invisible* (1964/1968) was meant to describe the *event* where perception and meaning are born, not as a relationship between a constituting subject and a constituted object (traditional phenomenology) but as an intertwining or ensemble of being. (Bullington 2013, 23)

This lived body only exists entangled with the world, it happens with the world, and neither body nor world exist independently. This is not to say that the world does not exist or that it only exists as a projection. The world is seen by Merleau-Ponty as phenomenon and not

as an object in front of an observer. This phenomenal world is not an idea constructed by an inner mind (Umbelino 2015).

Merleau-Ponty begins by assuring us that there is certainly something outside of ourselves which we are born into, which we have no choice but to relate to in one way or another. This “something” is present to us in ways that we experience through our senses. But this world outside ourselves is not imprinted upon us like a photograph, but taken up in an active moment of meaning constitution. (Bullington 2013, 24)

For Merleau-Ponty perception is the foundation for all human experience and meaning, grounded in the lived body. The body experiences and knows a world that responds to it with pattern, meaning and contextual presence (Seamon 2013). This is not a theoretical but a practical knowledge (Umbelino 2015). It is not only the mind-body dichotomy that is questioned by Merleau-Ponty, but also the subject-object dichotomy: between both opposing sites there is a middle ground where experience and meaning happen (Bullington 2013), and where both the subject and the world are constituted as a corporeal event.

Even though phenomenology, particularly Merleau-Ponty’s approach, questions the traditional notions of subject/object, it was criticised by critics of the subjectivity like Foucault and Deleuze. For them subjectivity does not exist in itself, but it is rather a construction or process of “becoming”.

Foucault was suspicious of the epistemological value of experience:

For Foucault, as a poststructuralist philosopher, any recourse to experience is by definition unreliable: experience only seems to offer a direct access to (corporeal) reality,

and more often than not this alleged purity and authenticity conceal that experience is determined or even constructed by a given discursive regime. (Vlieghe 2014, 1021)

Deleuze seemed to share this suspicion:

Everything is knowledge, and this is the first reason why there is no ‘savage experience’: there is nothing beneath or prior to knowledge. (Jay 2009, 92)

In Foucault’s opinion phenomenology also tends to reduce the transcendental to the empirical. Foucault finds it impossible to conciliate both an empirical and a transcendental approach to ‘man’ — on one hand as an empirical object of representation, on the other as a transcendental source of representations. The impossibility of the conciliation of ‘man’ as an empirical object and a transcendental subject is, for Foucault “the collapse of modern episteme”, the Kantian concept of ‘man’ (Gutting 2014), and hence the collapse of ‘man’ himself.

It is no longer possible to think in our day other than in the void left by man’s disappearance. For this void does not create a deficiency; it does not constitute a lacuna that must be filled. It is nothing more, and nothing less, than the unfolding of a space in which it is once more possible to think. (Foucault 2005, 373)

Man’s mode of being, according to Foucault, was constituted in modern thought (Foucault 2005, 375), and his objective was “to create a history of the different modes by which, in our culture, human beings are made subjects” (Foucault 1982, 777).

Foucault's contribution to the contemporary concept of corporeality is paramount, because the body plays a major part in this process of subjection — “through the various political investments of knowledge/power in and around it” (Cooter 2010, 395), but also because corporeality, for Foucault, is crucial for the understanding of social and political order (Vlieghe 2014).

According to American scholar John Proveti, Foucault's discourse can be divided into three periods: archaeology, genealogy, and ethics. In each of these periods Foucault's approach to the body changed from “object of knowledge” to “target of power” and then to “matter of concern” (Proveti 2014). Firstly, Foucault was interested in the discourse practices around corporeality in human sciences. Then he focused on the “political technology of the body” (Proveti 2014). A subjected body is both a body that becomes a subject, but also a subdued body. At this point Foucault considers that the disciplinary practices, in which the political technology of the body is rooted, are responsible for forging the “modern soul” (psyche, subjectivity, personality, consciousness), not only by discursive practices, but also by non-discursive ones (Proveti 2014) — “methods of punishment, supervision and constraint” (Foucault 1995, 29).

This real, non-corporeal soul is not a substance; it is the element in which are articulated the effects of a certain type of power and the reference of a certain type of knowledge, the machinery by which the power relations give rise to a possible corpus of knowledge, and knowledge extends and reinforces the effects of this power. (...) But let there be no misunderstanding: it is not that a real man, the object of knowledge, philosophical reflection or technical intervention, has been substituted for the soul, the illusion of the theologians. The man described for us, whom we are invited to free, is already in himself the effect of a subjection much more profound than himself. A 'soul' inhabits him and

brings him to existence, which is itself a factor in the mastery that power exercises over the body. The soul is the effect and instrument of a political anatomy; the soul is the prison of the body. (Foucault 1995, 29-30)

In this process of subjection the body becomes a target of power by two different registers: the anatomico-metaphysical register (knowledge), and the techno-political register (control). When rendered docile, bodies become easier to dominate by knowledge (easier to analyse), and by control (easier to manipulate): “A body is docile that may be subjected, used, transformed and improved” (Foucault 1995, 136).

According to American philosopher Judith Butler, for Foucault the body is a social construct. Butler claims Foucault even “questions whether there is a "materiality" to bodies that is in any sense separable from the ideational or cultural meanings that constitute bodies within specific social fields” (Butler 1989, 602).

Deleuze also raises the question of the body’s materiality. To think of a Deleuzian approach to the concept of corporeality is not the same as to understand Deleuze’s concept of the corporeal, but rather the way this philosopher influenced a contemporary use of this terminology. To try to define Deleuze’s concept of the corporeal would be an extensive analytical task not pertinent in the present study.

According to Daniel Smith and John Proveti (2013), Deleuze’s philosophy is like “Spinozism minus substance, a purely modal or differential universe”. As mentioned, for Spinoza there is only one substance that is expressed in different modes. Instead of substance Deleuze explores the concepts of *multiplicity* and *difference* (see page 26).

Multiplicity (or Idea) is the virtual differential ground for all actualisation, not a single unity nor substance, but a field of virtual differential elements, relations and singularities. A virtual Idea or multiplicity contains all the potential ways of actualisation. The authors offer the

example of the Idea of *colour*, which contains all colours (Smith and Protevi 2013). Therefore, multiplicity is “a complex structure that does not reference a prior unity” (Roffe 2005, 176), a *virtual intensive multiplicity*. It is important, then, to understand what are extensive differences and intensive ones (as multiplicity is based on the latter). Deleuze draws on Bergson’s definitions of extensive and intensive; the first Bergson relates to space, the second to time (Roffe 2005). Extensive differences are intrinsically divisible (length, area, volume), intensive differences when divided involve a qualitative change (temperature, pressure) (Smith and Protevi 2013). According to Jonathan Roffe (2005, 177) “any alteration to an intensive multiplicity means a total change in its nature - a change in its intensive state” and this is paramount in Deleuze’s view because “it means that there is no essence of particular multiplicities which can remain unaffected by encounters with others”.

The virtual ground of intensive multiplicity is, for Deleuze, a genetic condition for real experience, i.e. in order to take place, real experience depends on the virtual:

[T]he virtual, as genetic ground of the actual, cannot resemble that which it grounds; thus, if we are confronted with actual identities in experience, then the virtual ground of those identities must be purely differential. (Smith and Protevi 2013)

The experience is not personal, identitarian or centripetal, identities of subject and object are produced by processes that resolve a differential field, actualising it (Smith and Protevi 2013). According to Smith and Protevi, the conditions of this genesis rely on the following tripartite ontological scheme:

VIRTUAL

Differential virtual multiplicities

Pre-individual singularities



INTENSIVE

Intensive morphogenic processes produce impersonal individuations



ACTUAL

Substances with extensive properties

Any one state of a system

One arrives now at two crucial questions in order to understand a Deleuzian perspective of corporeality — what is a body? How is it produced? According to Smith and Proveti, bodies are actualisations of the virtual:

[T]he virtual Idea is the transformation matrix for material systems or bodies. Bodies are determined “solutions” to the “problem” that lays out the manifold options for incarnating bodies of that nature. (Smith and Protevi 2013)

However, for Deleuze a body is not defined by materiality nor extension, but by the relations of its parts and its actions and reactions to both the environment or milieu and internal milieu. It can be an unanimated thing, an animal or even a social body. The body is determined by the actual dominant relation of the compound, its *power of existing* (Baugh 2005).

What defines a body is this relation between dominant and dominated forces. Every relationship of forces constitutes a body - whether it is chemical, biological, social or political. (...) Being composed of a plurality of irreducible forces, the body is a multiple phenomenon, its unity is that of a multiple phenomenon, a 'unity of domination.' In a body, the superior or dominant forces are known as *active* and the inferior or dominated forces are known as *reactive*. (Deleuze 2002)

The body is a fluid relation of forces or *assemblage*:

[S]ince none of the bonds formed are irrefragible, the peculiar substance of a body is very difficult to define concretely. Not one thing or another, nor even many things, but the bond between things, the body's substance is in a constant state of flux. However, defining it simply as a flux is to admit defeat. This is why the term 'assemblage' is so crucial. (Buchanan 1997, 81)

But a body also has the capacity to *affect* other bodies, i.e. the virtual potency to establish specific relations to other bodies — “an ability to affect and be affected” (Deleuze and Guattari 1987, xvi). Once these links are actualised bodies become connected, eventually forming other bodies (Buchanan 1997). In an assemblage, affect operates “as a dynamic of desire”, manipulating meaning and relations (Colman 2005, 12).

Feminist thinkers and activists have made enormous efforts to think about the body and to overcome the body-mind split. Both Foucault and Deleuze have been crucial in contemporary feminist thought; nevertheless, gender studies has traced its own path and contributed extensively to the reconfiguration of the corporeality concept. Subsequently I will analyse four different feminist approaches on the body. It is important clarify that these are not feminist

political currents, but feminist perspectives that are not mutually exclusive. This is also not an extensive description of the richness of the several feminist branches, but a limited survey of approaches that are particularly pertinent to the present study.

The approaches proposed here are the phenomenological approach, where one might find the philosophy of thinkers like Simone Beauvoir, Toril Moi, Iris Young, and Gail Weiss; the poststructuralist approach that includes, among others, Susan Bordo, Griselda Pollock, and Judith Butler; the corporeal approach, including Claire Colebrook, Moira Gatens, and Elizabeth Groz; and the cyber approach where one might highlight the seminal work by Donna Haraway, and Katherine Hayles.

The classical feminist phenomenological thesis on the body is French philosopher Simone de Beauvoir's book *The Second Sex*. Beauvoir's main argument is that while male status is perceived as transcendent and subjective, females remain under the status of the immanent Other (Allen 2014).

Every individual concerned with justifying his existence experiences his existence as an indefinite need to transcend himself. But what singularly defines the situation of woman is that being, like all humans, an autonomous freedom, she discovers and chooses herself in a world where men force her to assume herself as Other: an attempt is made to freeze her as an object and doom her to immanence, since her transcendence will be forever transcended by another essential and sovereign consciousness. Woman's drama lies in this conflict between the fundamental claim of every subject, which always posits itself as essential, and the demands of a situation that constitutes her as inessential. (Beauvoir 2011, 37)

Using a phenomenological approach, embodiment is also an “essential condition for existence” — there is no human without a body (Tiukała 2012). The lived body not as a thing but as a situation (Beauvoir 2011) is the foundation of the feminist phenomenological approach to the body, grounded on experience. As a situation the body is not viewed either solely as an object nor a subject, but as the intertwining of both (Tiukała 2012). “Woman, like a man, *is* her body; but her body is something other than herself” (Tiukała 2012, 82).

The lived body is a unified idea of a physical body acting and experiencing in a specific sociocultural context; it is body-in-situation. For existentialist theory, *situation* denotes the produce of *facticity* and *freedom*. (Young 2005, 16)

This facticity is constituted by each person’s specific body living in a specific context. Each person, however, “has an ontological freedom to construct herself in relation to this facticity” (Young 2005, 16). In the lived body there is no dualism between nature and culture. Norwegian scholar Toril Moi even goes so far as to suggest the concept of lived body could replace the sex/gender categorisation, as a body-in-situation (Young 2005, 16) it “can *capture the way material features of our bodies play a role in our subjective sense of self*, without giving a reductionist, biological account of such embodiment” (Lennon 2014). The American philosopher Iris Marion Young focused her studies in the *situatedness* of the lived body, i.e. the contextual social and historical aspects that affect embodiment, in particular women’s bodily movement (Thomas 2003). American scholar Gail Weiss is interested in *body images*, i.e. the way we are aware of the our body’s shape, relations between its parts and placement in relation to the world and other bodies. She argues for: “(...) a multiplicity of body images, body images that are copresent in any given individual, and which are themselves constructed through a series of corporeal exchanges that take place both within and outside of specific bodies” (Weiss

1999, 2). Weiss also claims the intercorporeal status of embodiment, i.e. the experience of the body, is not simply private one, but is always mediated by the relation to other bodies (human or not) in continually multiple corporeal exchange, that propel a continuous construction and reconstruction of a multiplicity of body images (Weiss 1999).

The poststructuralist approach could easily be referred to as discursive approach, as it is very grounded on language. This is a perspective where the cultural and semiotic aspects play a major role. However, if one takes Butler's performative approach to gender constitution, for example, one could argue that this approach goes beyond language and semiotics into phenomenology, even though it is very culturally grounded. So, feminists with a poststructuralist approach tend to consider that gender is a cultural construct and that the sexual aspects of the body (genitals, breasts, etc.) are read as symbolical.

A great part of this approach draws on Foucault's analyses of body and power. American gender researcher, Susan Bordo, uses the concept of disciplinary power, analysing practices like diet, exercise and plastic surgery that discipline women bodies into docility (Allen 2014). Bordo argues that the imagination of the female body is socially shaped and a historically colonized territory (Bordo 2003). South African art historian and visual culture theorist, Griselda Pollock seems to corroborate Bordo's view, considering that "the body, not as a biological entity, but as psychically constructed image provides a location for and imageries of the processes of the unconscious, for desire and fantasy" (Pollock 1996, 6). Pollock stresses how such a body can represent the locus of feminist resistance, as it is a sign that infers sexual difference, this is a *semiotised body*, "and it is because the body is a sign that it has been so invested in feminist politics as a site of our resistance" (Pollock 1996, 6).

Butler understands the body as a site of resistance (or not) in a performative way that brings her close to the phenomenological approach. However, in her own words:

Though phenomenology sometimes appears to assume the existence of a choosing and constituting agent prior to language (who poses as the sole source of its constituting acts), there is also a more radical use of the doctrine of constitution that takes the social agent as an object rather than the subject of constitutive acts. (Butler 1988, 519)

Even though phenomenology is useful to Butler's approach on gender constitution, I believe her work fits better in a poststructuralist approach. It is very clear in this statement Butler's point that there is no "constituting agent prior to language" and that she is a critic of subjectivity. Therefore, Butler's approach can be considered a poststructuralist one, but with an important phenomenological influence. However, all the phenomenological aspects of the body and its acts are viewed through a semiotic lens. Like Beauvoir and Merleau-Ponty, Butler does not deny "the existence and facticity of the material or natural dimensions", but she distinguishes those "from the process by which the body comes to bear cultural meanings" (Butler 1988, 520). Butler's double approach to the body seems particularly useful to analyse embodiment in virtual worlds as it blurs (although without completely shattering) the duality between corporeal and semiotised body.

According to Claire Colebrook, however, "Butler remains trapped by the matter/representation binary" (Colebrook 2000, 76) while Moira Gatens, Elizabeth Grosz and Genevieve Lloyd may overcome this dualism in the very concept of *corporeality*, drawing from Spinoza and Deleuze.

Colebrook refers to a feminist *first wave*, which demanded equality and therefore assumed that "gender differences are imposed on otherwise equal beings"; then a *second wave*, which claimed "that different types of bodies might demand different forms of political recognition"; the author then proposes the emergence of a *third wave*⁴ claiming "women are

⁴ The use of the terms *first wave*, *second wave* and *third wave* is here strictly applied as in Colebrook's perception of them, and not in any other broader sense other literature might have given them.

neither the same nor essentially different” (Colebrook 2000, 76). This case could be argued in two different ways: first is Butler’s way of acknowledging that the body is always already discursive, without a pre-representational ground; and secondly, Grosz’s, Gatens’s and Lloyd’s approach:

[T]hinking the body beyond sameness and difference recognises that no simple appeal can be made to the body as some ultimate foundation; nevertheless, while the body may only be referred to through discourse or representation, it possesses a force and being that marks the very character of representation. (Colebrook 2000, 77)

For these latter thinkers the body was more than a sign constructed by thought: “it was both the locus of thought and that which remained (necessarily) unthought” (Colebrook 2000, 82).

Moira Gatens (1996) questioned the perspective of a body and psyche born as *tabulae rasae*, completely neutral and passive to environment and education as underlying the idea of sex/gender distinction. A parallel can be made between this sex/gender dualism and the body/mind one, as it is the same kind of rationalisation that separates body-sex from mind-gender. Gatens argues for use of a Spinozist philosophy capable of overcoming the mind/body split:

By abandoning the dualist ontology of mind versus body, nature versus culture, we can circumvent the either/or impasse of contemporary feminist theory between affirming an essential mental equality, which the progress of civilisation can be entrusted to expose, and affirming an essential bodily difference. (Gatens 1996)

Gatens' take on embodiment can help us retain semiotic aspects of the body "without losing the sexual, political or ethical particularity of different bodies" (Gatens 1996).

This, however, does not mean to retain them in the same way as in the poststructuralist approach. According to Colebrook (2000), for Elizabeth Grosz "what is signified is *known after*, but *exists before* symbolisation" and "sex is not a posited truth "expressed" by gender but "is itself always already expression""(Colebrook 2000, 84).

Grosz draws on Deleuze's concept of *becoming*⁵ to describe embodiment, and it is in this continuous flux of transformation that a body becomes sexed (Colebrook 2000).

Feminist theory (...) has tended, with some notable exceptions, to remain, uninterested in or unconvinced about the relevance of refocusing on bodies in accounts of subjectivity. (...) If subjectivity is no longer conceived in binarised or dualist terms, either as the combination of mental or conceptual with material or physical elements or as the harmonious, unified cohesion of mind and body, then perhaps other ways of understanding corporeality, sexuality, and the differences between the sexes may be developed and explored which enable us to conceive of subjectivity in different terms than those provided by traditional philosophical and feminist understandings. (Grosz 1994, vii)

Grosz turns to Deleuze, Guattari and Spinoza to "develop alternative notions of corporeality and materiality" but also to "different, active, affirmative conceptions of desire"(Grosz 1994, 165).

⁵ This is not, however, an uncritical appropriation of Deleuze's concepts, Grosz has many reservations concerning the masculine perspective of his philosophy, but finds some of his concepts useful to be appropriated and transformed by feminism.

The cyber approach is usually referred to as Cyberfeminism. However, as Jessie Daniels remarks, this label refers to a vast “range of theories, debates, and practices about the relationship between gender and digital culture” that does not enclose “a single theory nor a feminist movement with a clearly articulated political agenda” (Daniels 2009, 102). According to Daniels, the common ground in Cyberfeminism(s) is the relation between gender and digital culture.

In a historical present moment where we seem to be defining whether or not women belong in cyberculture at all (i.e. Anita Sarkeesian⁶ constant harassment), though cyberfeminism cannot be considered as a structured political project “there is something at least potentially transgressive in such practices” (Daniels 2009, 103).

In this study I will focus on the authors that problematise the cyber and/or digital body. I do not mean, however, to discard the disruptive power of the use of the Internet as a means to challenge patriarchal power nor to diminish the importance of net-activism. In fact, I consider the study of the digital body crucial to nurture this activism. For that one needs to start at the beginning: Donna Haraway’s Cyborg Manifesto:

A cyborg is a cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction. Social reality is lived social relations, our most important political construction, a world-changing fiction. The international women's movements have constructed 'women's experience', as well as uncovered or discovered

⁶ Anita Sarkeesian is a Canadian-American media critic who runs the website *Feminist Frequency*. In 2014 she received the *Ambassador Award* at *Game Developers Choice Awards*, a prize that “honours an individual or individuals who have helped the game industry advance to a better place, either through facilitating a better game community from within, or by reaching outside the industry to be an advocate for video games and help further our art” (Game Developers Choice Awards 2016). She received this award for her series *Tropes vs. Women in Video Games*, a group of videos that debates sexism and the representation of women in video games. That year the *Game Developers Choice Awards* ceremony was threatened anonymously of a bomb attack, unless the prize was revoked. Since then Anita Sarkeesian has been the focus of harassment on the Internet, through memes, attacks on her website, and she ultimately had to leave her own home, because her address was posted on Twitter with murder threats (Parkin 2014).

this crucial collective object. This experience is a fiction and fact of the most crucial, political kind. Liberation rests on the construction of the consciousness, the imaginative apprehension, of oppression, and so of possibility. The cyborg is a matter of fiction and lived experience that changes what counts as women's experience in the late twentieth century. This is a struggle over life and death, but the boundary between science fiction and social reality is an optical illusion. (Haraway 1991, 149)

Haraway questions the idea of “women's experience”, refusing to surrender to a biological determinism that separates from the start female and male experiences by its very nature. However, even if the idea of a women's experience can be a fiction, she emphasizes this is nonetheless a crucial political fact. A fiction but also a reality, that even if constructed is nevertheless a reality. But if reality can be constructed, it can be deconstructed and reconstructed — as cyborg. Reality is open to imaginative appropriation of the boundaries between reality and fiction, organic and machine, human and animal. Haraway makes an “argument for pleasure in the confusion of boundaries and for responsibility in their construction” (Haraway 1991, 150).

Nature and culture are reworked; the one can no longer be the resource for appropriation or incorporation by the other. The relationships for forming wholes from parts, including those of polarity and hierarchical domination, are at issue in the cyborg world. (Haraway 1991, 151)

The nature/culture dualism is resolved by Haraway in an atomistic way — no unity, only dispersed fragments we can use to build society and ourselves. This is sometimes called a

utopian view (Daniels 2009), but I believe this construction is far from a resplendent metallic creature, but more of a junkyard DIY one in constant rearrangement.

The fictional idea of the cyborg also comprehends an entity that has a human brain but a mechanical or, in line with contemporary discourses, digital body. The trope of the human mind inside a robot or downloaded onto a computer has played an important role in science fiction literature, cinema, animation, television shows, and videogames. This is not Haraway's metaphor of a constructed corporeality, but the pinnacle of the body-mind split — the idea that a mind has a life of its own separated from the body. Katherine Hayles asks, very pertinently:

Even assuming such a separation was possible, how could anyone think that consciousness in an entirely different medium would remain unchanged, as if it had no connection with embodiment? (Hayles 1999, 1)

Hayles defies the concept that information can be a disembodied “flow between carbon-based organic components and silicon-based electronic components” (Hayles 1999, 2). She states that the posthuman view thinks of the body as the “original prosthesis we all learn to manipulate” (Hayles 1999, 3).

In the posthuman, there are no essential differences or absolute demarcations between bodily existence and computer simulation, cybernetic mechanism and biological organism, robot teleology and human goals. (Hayles 1999, 3)

According to Hayles, corporeality plays no role in consciousness within this kind of posthuman theory, and she defends a posthumanism that acknowledges, “human life is embedded in a material world of great complexity” (Hayles 1999, 5).

Corporeality does not oppose virtuality when viewed in a non-dualistic perspective, opening the door to a virtual corporeality that has at the same time a phenomenological, a corporeal and a semiotic dimension. A combination of four feminist approaches to the body can be useful to overcome this duality. The study of virtual corporeality may be particularly useful, since it clearly exemplifies at the same time the phenomenological, corporeal and semiotic nature of the body; not only in the case of the digital body, but the physiological one too. I will pursue this analysis in chapters 2 and 3.

1.3. Simulation

The term ‘simulation’ not only has different meanings in different contexts, different authors may even attribute different meanings to the word within the same contexts.

The online dictionaries of Oxford and Merriam-Webster tend to privilege the use of the term as an imitation process, made artificially in “good faith”, usually with the purpose of studying something. Only after they will refer deception. On the contrary, the online Priberam Dictionary of the Portuguese Language almost only refers deception: “1. Act or effect of simulating. 2. Pretend. 3. Disguise. 4. False appearance. 5. Imitation.”

In the following paragraphs, I will succinctly describe the way this term can be used in Psychology, Computer Science, and Philosophy.

In Psychology the term has been used usually related to the Simulation Theory (ST):

[A] theory of everyday human psychological competence: skills and resources people routinely call on in the anticipation, explanation, and social coordination of behaviour. ST holds that we represent the mental states and processes of others by mentally simulating them, or generating similar states and processes in ourselves. (Gordon 2009)

This means a nonconceptual simulative representation where, according to ST, one does not need mental concepts to perform these tasks, but the ability to embody other people's mental states through their bodily cues. However, this does not imply that we always get them right. We can also take into account the false beliefs of others, when we recognize them, and create simulated modifications in our own beliefs to predict others' behaviour (Gordon 2009).

There are "low level" and "high level" simulations. Low-level are related to neuroscience, and refer to automatic and unconscious reactions to observed behaviours, while high-level are more connoted with empathy and the capacity to put oneself in the other's place consciously and voluntarily (Gordon 2009).

In Computer Science a simulation is defined as follows:

In its narrowest sense, a computer simulation is a program that is run on a computer and that uses step-by-step methods to explore the approximate behaviour of a mathematical model. Usually this is a model of a real-world system (although the system in question might be an imaginary or hypothetical one). Such a computer program is a computer simulation model. (Winsberg 2015)

Computer simulation models are often used in a variety of sciences from astrophysics to economics. Physical sciences use equation-based simulations, "mathematical models based on differential equations" (Winsberg 2015). Social and behavioural sciences tend to use agent-based simulations; these use discrete individuals whose behaviour is governed by certain determined rules, according to the model. Multiscale Simulations combine different models of simulation. According to Eric Winsberg:

There are three general categories of purposes to which computer simulations can be put. Simulations can be used for heuristic purposes, for the purpose of predicting data that we do not have, and for generating understanding of data that we do already have. (Winsberg 2015)

CVE are very particular computer simulations because they support collaborative activities by multiple users in a network, usually represented in 3D. Even though some are built for scientific purposes, many of them exist for entertainment and/or social activities. However, they are still computer simulations. The word Sim, used in SL and OS based grids is derived from simulator, each virtual land is a computer simulation of a region. This seemingly 3D space is, in fact, a set of processes running on a physical server machine (Linden Research, Inc 2010).

In Philosophy, probably the most influential theory of simulation was posited by French philosopher Jean Paul Baudrillard. For the author there is no real at all, all the real has been replaced by the sign, but a sign without referent. He calls it hyperreal. According to Baudrillard, a simulation is never a representation, but rather opposes representation. In representation there is equivalence, even if it is utopian, between the sign and the real, while in simulation there is a radical annihilation of all reference (Baudrillard 1994).

The other mode of simulation is the one that turns against the entire system of resemblance and replication. It is also distributive, but the distribution it effects is not limitative. Rather than selecting only certain properties, it selects them all, it multiplies potentials: not to be human, but to be human plus. This kind of simulation is called "art." Art also recreates a territory, but a territory that is not really territorial. It is less like the earth with its gravitational grid than an interplanetary space, a deterritorialized territory providing a possibility of movement in all directions. (Massumi 1987, 95)

On page 28 I claimed that “art has long been about virtualisation”. Massumi’s view of art as simulation corroborates this, if one can consider simulation as a very broad term, that could bring together the idea of the virtual as potency and the virtual as efficiency at the same time.

Massumi considers that Baudrillard never quite explains, “whether simulation replaces a real that did indeed exist, or if simulation is all there has ever been”(Massumi 1987, 93). On the other hand, according to the author, for Deleuze and Guatarri, “simulation is a process that produces the real” (Massumi 1987, 93).

According to the previous definitions of simulation, the avatar does not simulate the user in the virtual world; it represents her (Linden Research, Inc. 2009). Usually the user is actually sitting in front of a screen, while her avatar is jumping and flying around in virtual environment. There are some simulations, like the animation of the avatar typing while the user is typing in real world, or moving the lips while using voice, but not much more than this. The avatar represents the user in a world for the other users; in the Peirce’s view of the virtual it “has the efficiency” of her; a semiotic reading of the avatar. However, the avatar represents the user also for herself. This is important because then the avatar may become the simulation of a fantasised self, it can simulate the user’s imagination of what she could do with this body. To say that the avatar only represents the user, that it has only a semiotic aspect, is clearly to reduce its role in perception and its potential for expression. This digital body not only has efficiency to represent the user but it also flows in a state of becoming. It has the potency to produce a new being, a hybrid between the user and the avatar. It is not only the actualisation of a virtual digital self in a simulated world, but also a corporeal potency — a virtual corporeality.

Even though the user is experiencing a world that is computer simulated, her experience can only be said to be simulated if we go as far as Baudrillard and consider every experience simulated. The experience may be real (especially the aesthetic experience), and even produce

the real, but we need to be clearer about how we experience virtual worlds, and the role of the avatar in that experience. I hope to be able to accomplish that in the next chapters.

2. Embodiment

To study virtual corporeality one needs to address embodiment — the role our bodies play in our life. I will start by addressing briefly our physical, tangible bodies and then I will study the way one embodies digital bodies, in particular avatars in CVE's.

2.1. *The Embodied Mind*

2.1.1. Consciousness

Consciousness is a controversial theme from philosophy to psychology. To make a survey of the many ways it has been thought about would be outside of the scope of this study. I will focus on António Damásio's model, as it will be useful in the study of presence and embodiment in virtual worlds later.

One tends to consider consciousness as the state of being able to be aware of oneself. However, Damásio considers that there is a preconscious emergence of the self, the *proto-self*, “a coherent collection of neural patterns which map, moment by moment, the state of the physical structure of the organism in its many dimensions” (Damásio 2000, 154). The individual is not aware of this proto-self, language is not a part of its structure, and it has neither perception nor knowledge.

Awareness seems to emerge from the *core consciousness*. It is the sense of oneself in a specific moment and place — here and now. The consciousness that has awareness of past and future is what Damásio calls *extended consciousness*.

[C]ore consciousness is a simple, biological phenomenon; it has one single level of organisation; it is stable across the lifetime of the organism; it is not exclusively human; and it is not dependent on conventional memory, working memory, reasoning, or language. On the other hand, extended consciousness is a complex biological

phenomenon; it has several levels of organisation; and it evolves across the lifetime of the organism. Although I believe extended consciousness is also present in some nonhumans, at simple levels, it only attains its highest reaches in humans. It depends on conventional memory and working memory. When it attains its human peak, it is also enhanced by language. (Damásio 2000, 16)

2.1.2. Perception and cognition

The ability of becoming aware of something through the senses is usually called perception. Neural patterns arise from the interaction of organisms with the world — mental images or representations (Damásio 2000). These mental images are not only visual. Damásio distinguishes five sensory modalities that contribute to the construction of these images: visual, auditory, olfactory, gustatory, and somatosensory (this includes several forms of sense: touch, muscular, temperature, pain, visceral, and vestibular). How sure are we, however, of the faithfulness of these neural patterns to the world we perceive? According to Damásio, we are not; these images are not facsimiles of the world (Damásio 2000), they are dependent on the organism design and action — different organisms, different representations. Nonetheless, it is possible to communicate about and act upon the world in an effective way according to these representations so it seems the patterns are consistently related to something (Damásio 2000) .

The object is real, the interactions are real, and the images are as real as anything can be. And yet, the structure and properties in the image we end up seeing are brain constructions prompted by an object. (Damásio 2000, 321)

These constructions arise from the correspondence between “physical characteristics of the object and modes of reaction of the organism” (Damásio 2000, 321). These are not static

images nor is this a static process, our mind process is a continuous flow of images and our perception depends on dynamic interaction. According to philosophy of perception researcher, Alva Noë, perception is an action conducted by an organism and not something that happens to it (Noë 2004, 1).

The idea of perception as an activity goes back to psychologist James J. Gibson's ecological theory of perception. Gibson's research on visual perception led him to believe that vision does not depend only on the eyes or the brain, but also on body motion and interaction. The perceptual system then involves several organs, body parts and actions that actively pursue information (Shapiro 2011, 35). Sensation and stimulation alone are not enough to characterise perception (Noë 2004, 17), perceiving is an active process engaged by the organism, which “enacts” perceptual experience — this theory is known as the enactive approach⁷ to perception. This action is perceptually guided (Varela, Thompson and Rosch 1991, 173); and it depends on special kind of practical knowledge:

[F]or perceptual sensation to constitute experience — that is, for it to have genuine representational content — the perceiver must possess and make use of *sensorimotor knowledge*. (Noë 2004, 17)

For this author, perception implies the understanding of sensations — not only sensorimotor understanding, but also conceptual understanding (Noë 2004, 33). In fact, Noë argues that sensorimotor understanding is already conceptual understanding — although sensorimotor concepts are basic and may be non-linguistic, Noë still considers them to have a conceptual nature or, more accurately, “proto-conceptual” (Noë 2004, 183). These conceptual

⁷ Varela, Thompson and Rosch define the enactive approach as consisting of “two points: (1) perception consists in perceptually guided action and (2) cognitive structures emerge from the recurrent sensorimotor patterns that enable action to be perceptually guided” (Varela, Thompson and Rosch 1991, 173).

skills are situation dependent and context bound (Noë 2004, 186). Perception is intentional⁸ and presents a possibility of the way the world is, but one needs to be able to understand the way experience represents things as they might be (Noë 2004, 191).

It is certainly true that we take ourselves to experience a detailed scene; but it is a mistake to suggest that we take ourselves to represent all the detail determinately in consciousness at a moment in time. My sense of the presence of the detailed world is grounded in my ability to gain access to that detail by the movements of my body or the shifts of my attention. The world is present to me now, not as represented, but as accessible. (Noë 2004, 192)

Biologist Francisco Varela, philosopher Evan Thompson, and psychologist Eleanor Rosch also relate cognition to perception, for them cognition is embodied action:

[C]ognition is not the representation of a pregiven world by a pregiven mind but is rather the enactment of a world and a mind on the basis of a history of the variety of actions that a being in the world performs. (Varela, Thompson and Rosch 1991, 9)

According to Varela, Thompson and Rosch, the mind is not a mirror of nature; there are many different worlds of experience - a variety of perceived worlds will arise depending on the variety of organisms and their structure. A fly, a giraffe or a human will have very different perceptual experiences of the same place; their perception of the world is dependent on both perceptive and sensorimotor capacities that will lead to different actions and interactions, which will prompt different perceptions. Action will influence perception and then perception will

⁸ Intentionality is used here in its philosophical sense — the capacity of the mind to refer to or represent objects. In this sense, intentionality has nothing to do with purpose.

influence action: “successful interaction will involve a tight loop between perception and motion” (Shapiro 2011, 52). This constitutes a middle ground between the “egg position” — the world is projected by the cognitive system (idealism) — and the “chicken position” — pre-given properties in the world precede perception (realism) (Shapiro 2011, 54). For Varela, Thompson and Rosch the world is “perceiver-dependent” — the world is not a cognitive construct (Shapiro 2011, 54), an appearance; but it is, however, affected by the perceiver’s activity:

[T]he point of departure for the enactive approach is the study of how the perceiver can guide his actions in his local situation. Since these local situations constantly change as a result of the perceiver's activity, the reference point for understanding perception is no longer a pre-given, perceiver-independent world but rather the sensorimotor structure of the perceiver (...). This structure—the manner in which the perceiver is embodied—rather than some pre-given world determines how the perceiver can act and be modulated by environmental events. (Varela, Thompson and Rosch 1991, 173)

The world we perceive is dependent on our own perception and cognition. Our perceptual capacities and our interactions will affect this perceived world. World and perceiver form a link, as stated in Chapter 1, the “lived body only exists entangled with the world” (page 34).

However, it is not only perception that affects the world and the world that affects perception. The whole entanglement seems to affect the way we think, not only Noë’s “proto-conceptual”, non-linguistic conceptualisation, but also in terms of more sophisticated reasoning that involves language in a crucial way.

George Lakoff and Mark Johnson argue that reason is not extra-corporeal, but that it is constituted by the very nature of our brains, our bodies and our bodily experience. The mind is

thus deeply embodied and reason comes from the body, does not transcend it (Lakoff and Johnson 1999, 4-5). The authors not only question the mind-body dichotomy, but the conceptual-perceptual system dichotomy too, claiming “concepts are created as a result of the way the brain and body are structured and the way they function in interpersonal relations and in the physical world” (Lakoff and Johnson 1999, 37). Thus, they consider that complex thinking is only possible using the sensorimotor and perceptual domains metaphorically. Conceptual metaphors are common to thought and language – it becomes difficult or even impossible to describe complex concepts, such as love, without resorting to metaphor (Lakoff and Johnson 1999, 45). For the authors, the ordinary conceptual system is fundamentally metaphorical – the way we think, what we experience and what we do every day is a matter of metaphor. A significant part of our concepts is organised in terms of spatial metaphors: up / down; in / out; forward / backward. “I feel down”, “cheer up”, “he is out of reach”, “she is in love”, “I look forward to meeting you”. These metaphors are rooted deeply in our physical and cultural experience of the body and became embedded in our language (Lakoff and Johnson 2002).

A set of primary metaphors like “happy is up”, “categories are containers” or “time is motion” (among many others) (Lakoff and Johnson 1999, 50-54) can be combined into complex metaphors (Lakoff and Johnson 1999, 63) not only to describe but also to conceive complex concepts like love:

Perhaps the most important thing to understand about conceptual metaphors is that they are used to reason with. The Love is a Journey mapping does not just permit the use of travel *words* to speak of love. That mapping allows forms of *reasoning* about travel to be used in reasoning about love. It functions so as to map inferences about travel into

inferences about love, enriching the concept of love and extending it to love-as-journey.
(Lakoff and Johnson 1999, 65)

2.2. *Phenomenal body*

Phenomenal body is a concept that refers to the way we perceive our own lived body in relation to the world. It is the body that feels, perceives, and thus enacts our awareness of being in the world. As stated in Chapter 1, for Merleau-Ponty the phenomenal body cannot ever exist by itself; it is formed in its entanglement with the world and other bodies.

Merleau-Ponty contests the idea that perception is a process by which the “external world” is somehow imprinted on the subject. According to him, perception is a behaviour effected not by consciousness but by the body, but not by the body as a piece of the physical world, rather by the body as lived, a living body. (Flynn 2011)

In his own words:

The thing, and the world, are given to me along with the parts of my body, not by any ‘natural geometry’, but in a living connection comparable, or rather identical, with that existing between the parts of my body itself.

External perception and the perception of one’s own body vary in conjunction because they are the two facets of one and the same act. (Merleau-Ponty 2005, 237)

Even though Merleau-Ponty highlights that the body is a phenomenon, and not a form, he points out that “bodily space can be distinguished from external space and envelop its parts instead of spreading them out” (Merleau-Ponty 2005, 115); it can then be “‘a form’ in the sense

used by Gestalt psychology” (Merleau-Ponty 2005, 114), but this only happens “in virtue of its being polarised by its tasks, of its existence towards them” (Merleau-Ponty 2005, 115). The notion of *body image* is for him “a way of stating that my body is in-the-world” (Merleau-Ponty 2005, 115).

According to Weiss, body and body image are not discrete phenomena, moreover we should refer to them as body images, as they are constantly changing and overlapping:

A multiplicity of body images, body images that are copresent in any given individual, and which are themselves constructed through a series of corporeal exchanges that take place both within and outside of specific bodies. (Weiss 1999, 2)

She distinguishes between *body image*, “a function of conscious reflection on my body and its possibilities”, and Merleau-Ponty’s notion of *corporeal schema*⁹, “the dynamic organisation of my body which renders it capable of performing physical tasks, an organisation which unfolds in the absence of conscious intervention” (Weiss 1999, 2). Weiss also references Foucault’s understanding of the body as a socially modelled and categorised subject constructed through disciplinary practices. However, she asserts it would be a mistake to think of the body as social construct without taking into account its physiological and psychical dimensions. For Weiss, the interdependency of these aspects plays a central role in our bodily experience (Weiss 1999).

Weiss’s most important contribution to this discussion is the concept of *intercorporeality*:

To describe embodiment as intercorporeality is to emphasise that the experience of being embodied is never a private affair, but is always already mediated by our continual

⁹ This term was translated into English in several ways, like *body-subject* and *body schema*, but I consider Weiss’s translation closer to the French original “schema corporel”.

interaction with other human and non-human bodies. (...) These processes of construction and reconstruction (...) alter the very nature of these corporeal exchanges, and, in so doing, offer the possibility of expanding our social, political, and ethical horizons. (Weiss 1999, 5-6)

This concept may be paramount to understand virtual corporeality since digital embodiment in multiuser environments expands the field of these interactions and even of what we feel as being our body-in-the-world. This can also relate to Barbara Trumamn's (2013) notion of *virtual intersubjective presencing*, that I will describe further on.

The lived body and the sensation of being in the world can be crucially altered by the use of media, as we shall see later in this chapter, however where CVEs are concerned one needs to think very carefully about perception, phenomenal body and body images. The use of avatars tends to complexify these notions. One of the reasons for this complexity is the feeling of being simultaneously present in two different worlds.

2.3. Presence and mediation

There is a widespread definition of presence as “the sense of being there”. This notion, attributed by Jonathan Steuer (1993, 6) to Byron Reeves, seems to be the most commonly accepted element in the established concept.

American experience designer, Carrie Heeter, refers to it as a “feeling like you exist”, (Heeter 1992, 2) but she considers this experience mostly in mediated spaces. American pioneer in the research of embodiment, Frank Biocca, also describes it as a “compelling sense of being in a mediated space other than where [the] physical body is located” (Biocca 1997, 8). He links presence to the concept of “progressive embodiment”, which I will consider later, but highlights that presence is a basic state of consciousness, (Biocca 1997, 9) relating it mostly to distal

attribution or externalisation — the perceptual sense of a world around us, other than ourselves. This notion is shared by Steuer who defines presence as “the sense of being in an environment” (Steuer 1993, 6).

Presence studies focus on mediation, in Wijnand Ijsselsteijn and Giuseppe Riva’s opinion diverted the notion from its core — presence is not necessarily connected to technology, it is “a product of the mind” (Ijsselsteijn and Riva 2003, 5). This point was particularly stressed by Biocca’s later studies, where he criticises the fact that research on presence tends to assume that “the primary causes of psychological presence are the immersive properties of technology” (Biocca 2003, 3). He actually advances the possibility of a total internal sense of presence (in dream states, for instance). However, Eva Waterworth and John Waterworth describe this as a state of absence. They characterise absence as a “psychological focus on conceptual processing”, and presence as a “psychological focus on direct perceptual processing” (Waterworth and Waterworth 2001). The main issue seems to be whether or not presence needs *actual* sensory input, or whether it can be imagined without any or with very little real sensory engagement.

In fact, if the engagement of the senses were the essential part for the constitution of presence, then most network media would be rather low on presence. This is not the view of Beth Coleman, who states that: “as a society we have begun to use networked media to maintain a pervasive presence with each other” (Coleman 2011, 116). This means that for this author, presence is not only the subject’s “sense of being there”, but also the social perception of the subject. This sense of presence of the other is also related to both remote connectivity and interactive features of current social media.

For Ijsselsteijn and Riva (2003) one of the main problems in establishing a stable concept of presence could be the generalised misconception around notions of immersion and presence. While the first is focused on environmental presence, the latter depends on social and cultural

aspects. Thus, distinguishing between the immersive and social components of presence is an important element for clarifying the concept.

As we can see, the concept of presence varies substantially in literature and this ontological instability leads to more epistemic problems about types, levels, and factors of presence.

2.3.1. Types, levels, and factors of presence

Heeter (1992) distinguishes three different types of mediated presence: *personal presence*, *social presence* and *environmental presence*. *Personal presence* relates to the perception of a self other than the world, or more accurately *in the world*. This implies a perception of the self and the world, and relies mostly on the senses. The sense of mediated presence increases with experience and practice; e.g. the familiarity of the user with a virtual world seems to increase her sense of presence. This could be because, as described by Damásio, our brain produces a sense of self from the interactions between our body and the world. Consciousness implies the presence of the self to itself and in the world. The self/world difference is an element in this process, but it is also maintained by consciousness as an ongoing process of self-perception. So, the more I interact with the world the more I perceive myself in the world, and the sense of presence is enhanced. *Social presence* implies being perceived by others and to acknowledge that perception. It also implies the perception of other intelligent life. Meaningful interaction with others increases the sense of presence. *Environmental presence* would be the perception that the world acknowledges us. This implies the responsiveness of the environment to our actions. Presence increases proportionally to responsiveness.

Ijsselsteijn and Riva (2003) divide presence into three main types: *physical presence*, *social presence* and *co-presence*. They address particularly types of presence created by

mediated engagement. This sense of being physically located in the mediated space would be what they call *physical presence*. They define *social presence* as the sense of being with someone through mediation. *Co-presence* is the mix of previous types — a sense of being together in a shared space. The notion of “physical presence” in a mediated space seems, however, a paradox. This idea of having a sense of being ‘physically there’ could be translated into the feeling of having a body that relates to a world. In accordance with my findings so far, I claim that the term *corporeal presence* would be much better suited than *physical presence*.

Coleman (2011, 120) also adds the concept of *ambient networked presence* — the distributed presence and co-presence across networked media. This kind of presence relies on multimedia networked connectivity and in the way in which people adapt media to their personal intents, what Coleman calls *media agency*. This approach draws from Ralph Schroeder’s notion of *connected presence* — “the extent to which our relationships are mediated through environments in which presence and copresence are experienced” (Schroeder 2005, 340).

Even in his early work, in the 1990’s, Biocca already distinguished between *social presence*, i.e. the “degree to which a user feels access to the intelligence, intentions, and sensory impressions of another”, and *self-presence*, the “users’ mental model of themselves inside the virtual world” (Biocca 1997, 12). In more recent studies, however, Biocca (2003) questions the study of presence centered on *telepresence*, the mediated remote presence. In this conception, a two-pole model has been pervasive — the focus of presence shifts between *physical environment*, distal immediate, and *virtual environment*, distal mediated. The author argues that this model fails to take into account the *imaginal environment*, a *mental imagery space*, with minimal attention to distal stimuli. Biocca highlights the fact that the two-pole model assumes that “increases in sensorimotor immersion are the principal variables influencing movement from physical space to virtual space” (Biocca 2003, 1). The author notes that at any time the

users' responsiveness to sensorimotor stimuli can diminish, whether the sensory cues are mediated or not¹⁰, their attention focus shifts for a *mental imagery space*. Thus, Biocca proposes a three-pole model of presence — *physical space*, *virtual space* and *mental imagery space*. He goes further stating that: “oscillation between mental imagery and the other spaces may be the dominant axis of presence shifts. It predates any medium and may be essential to representation” (Biocca 2003, 8). This notion of an “internal mental simulator” was already advocated by Biocca earlier, as he described the body as “a representational medium for the mind” (Biocca 1997, 2). This is the reason one can feel vividly present in dream states — the internal mental simulator generates mental imagery, which though not entirely based on sensory stimuli is using the cognitive resources used in perception, creating an internal simulation constructed from memory (Biocca 1997, 10 -11).

The level of presence, for Biocca, will depend on the degree of attentional focus on one of these spaces. *High presence* corresponds to undivided presence in one specific model; *low presence* is the divided presence, with breaks and oscillations between poles.

Waterworth, Riva and Waterworth (2003) distinguish three layers of presence (clearly drawing on Damásio's model for the emergence of consciousness) – *proto presence*, *core presence* and *extended presence*. *Proto presence* is the most primitive layer of presence; it is proprioceptive and relates to spatiality, that is, the notions of ‘myself’ and ‘outside myself’. It is mostly unconscious and automatised. This is a proprioceptive layer, i.e. it relates to the perception of our own body. It is the most difficult level to address through media, because it requires optimised responsiveness to the body; this means low latency and several forms of body tracking, e.g. head, limb and eye tracking (Waterworth, Riva and Waterworth 2003). *Core presence* is the sensory presence; it is about the consciousness of being in the world, in the here and now, and it is thus of a perceptual nature. The last layer, *extended presence*, is about

¹⁰ Biocca thinks we can also be distracted in “real life”, be “absent” because we are daydreaming, in fact he does not use the term “absent” because he argues that we are then present in the mental imagery space.

conceptualisation. It addresses memory and imagination and needs intellectual and emotional content. It is the consciousness of the self in relation to the world. These levels of presence shift from *hyper* or *maximal presence*, to *absence* or *minimal presence*. In maximal presence states the three layers of presence are focused on the same external situation. The disintegration of the three layers corresponds to lower sense of presence.

A significant distinction between this approach and Biocca's is that what this author described as presence in *mental imagery space* is here considered *absence*. For these authors *absence* happens mostly when attention focuses on the contents of extended consciousness (Waterworth, Riva and Waterworth 2003, 3). However, the authors don't think that internal and external content have always to be competitive in the production of presence. In fact, they argue "the internal, "imaginal" content may either enhance or detract from the overall sense of presence" (Waterworth, Riva and Waterworth 2003, 4).

These authors distinguish three factors that contribute to the production of mediated presence: *digital participation*, *mediated flow*, and *embodied immersion*.

Digital participation may actually address the user's extended consciousness; it engages her emotionally or intellectually by attributing her a role. This role-play kind of participation is thought by the authors as a feature created for the participant by a designer. Nevertheless, one could argue that these roles can also be self-attributed in a context of *play*, as I will explain further on.

Mediated flow focuses on interaction, implying that the user becomes absorbed in the activities. This interaction, however, can also address extended consciousness, as it is important for the sense of presence that the user considers activities to be interesting.

Embodied immersion relates to the responsiveness of the environment to body input. This addresses mostly core consciousness, if we think of conscious body movement. It could also engage proto consciousness (the one the authors consider to be the most difficult to integrate

through media) if it can achieve “more direct, automatised inputs from the immersant” (Waterworth, Riva and Waterworth 2003, 4).

2.3.2. Immersion and presence

Immersion is probably the most studied factor of presence. In his studies on telepresence, Steuer (1993) seems to focus mainly on that factor. He divides it into *vividness* and *interactivity*.

Steuer calls *vividness* to “the ability of a technology to produce a sensorially rich mediated environment” (Steuer 1993, 10). The author very properly avoids the word “realism” due to the artificiality of mediated space — one can have a realistic simulation of real place that is a lot less vivid than the simulation of an entirely imagined world. *Vividness* depends on *breadth* (number of sensory channels stimulated) and *depth* (resolution of each of the channels).

These channels relate to the five distinct perceptual systems defined by Gibson (referred in Steuer 1993): the basic orienting system (equilibrium), the auditory system, the haptic system (touch), the taste–smell system, and the visual system. High *breadth* implies redundancy in these channels. CVE’s are low in *breadth*, because they usually engage only visual and auditory systems, but are evolving very rapidly into *depth*, as the tendency is to increase resolution in these channels.

Steuer defines *interactivity* as “the extent to which users can participate in modifying the form and content of a mediated environment in real time” (Steuer 1993, 14). This varies in “*speed*, the rate at which input can be assimilated into the mediated environment; *range*, which refers to the number of possibilities for action at any given time; and *mapping*, which refers to the ability of a system to map its controls to changes in the mediated environment in a natural and predictable manner” (Steuer 1993, 15).

The immersion factors mentioned by Biocca (1997) are close to Steuer’s, although organised in a different way. He divides them into *motor engagement* (number of motor

channels and resolution of body sensors) and *sensory engagement* (number of sensory channels, saturation within the channels and sensory fidelity).

Social presence and co-presence, however, do not depend as much on immersion as they do on social and cultural aspects, considered crucial by Ijsselsteijn and Riva (2003). For these authors there are three main elements that promote the sense of presence: the possibility of *action*, a *cultural framework* and the *negotiation* both of action and its meaning (which links the previous elements). The possibility of *action* depends on the affordances of the medium and on what the user needs to do to explore them. The authors highlight that these affordances are not always self-evident to users and they require knowledge and will to be explored. In a shared environment this implies a common ground of references and rules, in other words a *cultural framework*.

In collaborative activities it is also very important that the actions of a user are perceived by other participants, as corroborated by Heeter (1992) in her description of *social presence*. Only in this way can one have interaction amongst users. This kind of interaction implies *negotiation* (this will be further discussed in Chapter 4). The authors refer to Churchill and Snowdon's (1998) research on negotiation process, where they advance some important aspects required for successful collaborative actions in mediated environments, thus increasing the sense of *copresence*. First, one needs to understand transition between shared and individual actions, this requires both explicit and tacit communication between collaborators and the ability to perceive what is being done and what has been done. Flexible and multiple viewpoints are also important in shared activities — from overview to detail, rotation around objects, etc. A second aspect advanced by the authors is the possibility of multi-lingual text display (e.g. there are translator HUDs in SL that enhance chat communication, or one can also use a third party translation plug-in). A shared context is probably the most important aspect — shared environment, shared artefacts, but also shared knowledge or shared understandings. Equally

important is the awareness of others, as we saw, and the sense of shared activities and the ability to communicate about them, both verbally and non-verbally. The authors reference studies that suggest that facial expression, body posture and gesture carry from 60% to 90% of the information communicated. This could be one of the main problems of desktop-based virtual worlds: although there are built-in gestures and it is possible to upload animations to move your avatar in specific ways, both of them lack the spontaneity required for casual communication. Body expression in platforms like Second Life is mostly preconceived — one has commands to initiate predetermined gestures and Animation Overrides (AOs) that sequence a number of predetermined movements as the avatar walks, stand or sits, creating an avatar body expression. Facial expression HUD's are also available, enabling the resident to change physiognomy within a predefined set of facial expressions. There are also mesh heads that can change expressions more smoothly. To enhance spontaneity and uniqueness in body expression these platforms would probably need face and body movement recognition. Advances have been made with motion sensing input devices, like the dance-technology collaborative project Senses Places, which uses these kinds of devices in mixed reality performances, involving both physical and virtual environment (Senses Places n.d.). Online-Gym is another project for developing ways to recognise movement in Second life and OpenSim Grids, it is a virtual gymnasium where users move their avatars by motion capture of their actual movements (Cassola, et al. 2013).

Truman refers to *Virtual-Physioception* as “phenomenological or subjective-awareness of shared self-representation” (Truman 2013, 20) that relates “to presence, identity, self-representation, and body awareness” (Truman 2013, 130). This concept is complemented by Truman's notion of *virtual intersubjective presencing*, something she claims to occur “between constellations of identities (selves) represented by avatars embodying varying states of human self-consciousness” (Truman 2013, 136). According to the author these can be unstructured,

i.e. something that goes beyond the common idea of team work usually related with co-presence, a concept important for the idea of shared creativity, especially in what concerns Distributed Creativity (see Chapter 5).

2.3.3 New Proposal of Types and Levels of Presence in Mediated Context

After this review of relevant research, I would like to propose my own table of types and levels of presence. Before that, however, I would like to explain my choices of terminology among so many proposed above, and why I also propose a new one — corporeal presence.

Corporeal presence refers to what Heeter calls personal presence, a sense of self in mediated context. However, as we have discussed in relation to the phenomenal body, this sense of self is entangled with the sense of being in the world, so it also integrates Heeter's notion of environmental presence; the sense that the world is also aware of your presence and reacts to it. In my opinion the two things are not discrete phenomena and are a part of the same sense of presence — the sense of having a body in a world. This is also what Biocca calls 'self-presence', describing it as having a mental image of oneself. This, in turn is another way of describing Merleau-Ponty's (and then Weiss's) term *corporeal scheme* (which is more accurate because it distances itself from the mind-body split). Ijsselsteijn and Riva call this state of presence physical presence; the sense of being physically in the mediated context, however this sense could only be attained at the very last stage of corporeal presence, where we could not distinguish between our mediated and physical body — the ultimate simulation. This only happens in fiction (for now), so we must settle for the sense of having a body in mediated space. Although particularly important for corporeal presence, this indistinctness between mediated and physical space is also the aim, and the last level of presence in all other types of presence.

Following Ijsselsteijn and Riva, I chose to distinguish between *social presence* and *co-presence*. I argue that these are two different kinds of presence dependent on different things.

Social presence is mostly about communication and its factors, while co-presence is about shared experience of the world. While social presence is only dependent on corporeal presence in its higher levels, co-presence is always dependent on it — one cannot have a feeling of shared experience of the world without the feeling of being together in that world, and for that one needs some form of body, even if this is not our usual notion of body, but only a very simple sign in the mediated context, like a spot in early double player games.

Co-presence also depends on social presence; to share experience you need some form of communication, even if it is very simple.

Table 2 - Types and levels of Presence

<u>Types of Presence</u>	<u>Levels of Presence</u>
<p>Corporeal presence</p> <p>The sense of being embodied in mediated space.</p> <p>This includes the feeling of having a body and that the world is responsive to that body.</p> <p>It is enhanced by context responsiveness, interaction and vividness.</p>	<p>Level 0 - No responsiveness or interaction: there is nothing you can <i>do</i> in the mediated space, e.g. watching a program on the television.</p>
	<p>Level 1 - Mediated space responds to some of your deliberate actions: you can click buttons, scroll pages, e.g, early stages of the Internet.</p>
	<p>Level 2 - Mediated space responds to both deliberate and non-deliberate actions: not only can you perform predictable interactions like clicking buttons, your actions may have unexpected developments, e.g. the use of generative particles in 2.0 web pages.</p>

	<p>Level 3 - You feel you have a mediated body that is responsible for the context responsiveness: e.g. your avatar casts a shadow in a virtual world or bumps into things.</p>
	<p>Level 4 - You cannot distinguish between mediated and physical body.</p>
<p>Social Presence</p> <p>The sense of being able to communicate with other person or group in a mediated context.</p> <p>It is enhanced by different types of communication channels and feedback possibilities.</p>	<p>Level 0 - You cannot communicate with others in the mediated space: once again, e.g. watching a program on the television.</p>
	<p>Level 1 - You can communicate verbally, by voice or in writing: for the first, e.g. the telephone or the first Internet chat possibilities.</p>
	<p>Level 2 - You can communicate verbally both by voice and in writing. You can share other types of media artifacts: e.g. social media.</p>
	<p>Level 3 - You can communicate verbally and non-verbally, using body language and facial expression: this already happens in mediated spaces that use face and body recognition, even though is in early stages, e.g. the platform High Fidelity; and, of course, in video conferencing.</p>
	<p>Level 4 - You cannot distinguish between mediated and non-mediated communication.</p>

Co-presence The sense of sharing experiences with others. It is enhanced by the senses of corporeal and social presence.	Level 0 - You cannot share common experiences in mediated space: e.g. single player videogames.
	Level 1 - You can share common context: e.g. early double player games, like Pong.
	Level 2 - You perceive others and are perceived in the mediated context: this happened already in early stages of the Internet, e.g. chat rooms.
	Level 3 - You can collaborate and interact not only verbally, but corporeally in real time: e.g. virtual worlds, networked multiplayer games.
	Level 4 - You cannot distinguish between mediated and physical co-experiences.

What about Waterworth, Riva and Waterworth's layers of presence derived from Damásio's model? Could they be used as levels of presence? I think not, because different types of presence address different types of consciousness. For example, a very high level of corporeal presence might not need to address extended consciousness and could have more focus on core consciousness, while even low levels of social presence almost always address extended consciousness.

These layers, however, are useful to understand the quality of the experience in mediated context across the three types of presence. For instance, for a new medium to be able to address the proto-self would be quite considerably more impressive than suggested by the authors, as the proto-self is pre-conscious, so this media would have to hack directly into your brain (a

possibility currently being studied in several different types of hardware¹¹)’ while extended consciousness (and presence) has been aroused quite remarkably by a very old medium called ‘books’.

Biocca accurately points out our tendency to confuse presence with immersion. One could completely immerse in a book and be very detached from a virtual world, depending on what and how one experiences each one. In Chapter 6 I will discuss the aesthetic implications of these different types of experience.

2.4. Embodiment in Collaborative Virtual Environments

As mentioned earlier, Biocca studied incorporation into immersive virtual reality environments in the 1990’s. He developed the notion of “progressive embodiment” as the “steadily advancing immersion of sensorimotor channels to computer interfaces through a tighter and more pervasive coupling of the body to interface sensors and displays” (Biocca 1997, 4). Biocca states that one of the objectives of the progressive embodiment is the sense of presence, defining it as a “compelling sense of being in a mediated space other than where their physical body is located” and embodied as remote telepresence, i.e. the “telecommunication of the body, the transmission of sensory and motor data” (Biocca 1997, 8).

Telepresence, according to Biocca, is only possible because the phenomenal body does not always correspond to the physical body. He reminds us that before the existence of artificial media, the primary means of communication was the body and he considers that “each new medium must somehow engage the body in a new way” (Biocca 1997, 2).

Biocca discusses the relevance of the avatar, however the avatar that he refers to is not

¹¹ The recreational use of Non-Invasive Brain-Computer Interfaces is being pursued for since early 70’s and huge progresses have been made. G.R. Müller-Putz, et al., “The future in brain/neural computer interaction: Horizon 2020,” *University of Twente*, 2015, <http://dx.doi.org/10.3217/978-3-85125-379-5> (accedido em 21 de July de 2016).

the “small puppet used in standard computer interfaces”; instead he is talking about a body in which shape and boundaries are to be defined by the interface and the perceptual illusions generated by the head-mounted display (Biocca 1997, 7). However, the kind of sensory engagement described by Biocca did not become as ubiquitous as the researchers of the 1990s expected, (yet, the re-emergence of VR hardware might make these Biocca’s studies quite relevant again). Boellstorff stresses “this notion of immersion does not accurately characterise the dominant cultural logics at play in Second Life” (Boellstorff 2010, 112) and Celia Pearce suggests:

Enhancing and perfecting sensory inputs and so-called embodied interaction were seen as the primary means of increasing this quality of presence. However, this and other avatar research suggests a different conclusion: that having a representation of the self visible inside the world may actually enhance the sense of presence, as well as the sense of embodiment. (Pearce 2009, 122)

Nevertheless, aside from Biocca’s rather disparaging view of the third person/observed avatar, this view does not conflict with his overall research findings since Biocca too addresses the question of social presence that Boellstorff feels is paramount to CVE sense of immersion. Thus Biocca distinguishes three different kinds of bodily presence in virtual environments: objective body, virtual body and body schema (I prefer corporeal schema, but here I will stay with Biocca’s terminology). He defines them as follows:

The objective body is the physical, observable, and measurable body of the user. The virtual body is the representation of the user's body inside the virtual environment. The body schema is the user's mental or internal representation of his or her body. (Biocca

1997, 13)

As mentioned in the first chapter, drawing on Deleuze and Guattari, Lévy considers virtual to refer to potential rather than actual existence (Lévy, 1998, p. 23). This virtual body is not opposed to the real body but to the actual body; it questions and problematises it. It is not a possible body, but a potential and complex one.

Biocca tried to understand this complexity when he studied bodily presence in virtual environments. Biocca's research led him to hypothesise that the always-unstable phenomenal body could be radically altered by the use of media:

The social role of the avatar body is partially determined, but not defined, by its geometry and kinematics. Implicit and explicit social norms that may be partially idiosyncratic to the virtual environment and imported from the user's social environment finalise the social-semiotic role and identity of the avatar. Issues of class, gender, occupational role, body type, etc. are raised when considering this aspect of embodiment. (Biocca, 1997, p. 23)

This was confirmed by Nick Yee's, Jeremy Bailenson's, and Nicolas Ducheneaut's findings, which demonstrate that behaviour can change according to the avatar's body constitution not only online, but also in offline interactions, e.g. users of taller avatars performed better in negotiating with shorter avatars, with this effect persisting outside the virtual context. The authors called these and other changes in behaviour resulting from the handling of avatars the *Proteus Effect* (Yee, Bailenson and Ducheneaut 2009).

Maeva Veerapen (2011) highlights the existence of two bodies in the Metaverse the user and the avatar; one organic, the other an image. Where in all of this is the phenomenal body?

Veerapen proposes four conceptions of the avatar: the avatar as an object, the avatar as prosthesis, the avatar as a phantom limb, and the avatar as an equal.

For this author the first form of relationship between user and avatar defines the avatar as an external object — the user handles and owns the avatar. At this stage the avatar has no impact on establishing a phenomenal body. Still, it immediately enhances self-expression and communication with other users in the same way that a piece of clothing or accessory would do (Veerapen 2011).

Veerapen's second hypothesis is of the avatar as prosthesis. The prosthesis is an object that acts as an extension of the potential of the phenomenal body. Veerapen considers that although the user does not have direct and immediate access to the virtual world, the avatar acts as a prosthesis that extends the frontier of the user's body (Veerapen 2011). However, in CVE's like SL or OS based platforms, it is possible to move through and watch the world without using the avatar - moving the viewpoint without moving the avatar. In fact, it would be possible to have full access to the virtual world without an avatar; one could navigate perfectly as a "phantom eye" completely dematerialised. Likewise, it is not the avatar's eyes that see the world, nor is it their hands that manipulate objects. These actions are made possible by the platform interface and not by the avatar; it is the interface in its entirety and not only the avatar that determines the impact we can have in the world. The practical experience of building objects and environments demonstrates this: when building, one has a tendency to withdraw the avatar of one's visual field since it has no impact on the construction and can even become an obstruction.

The third avatar conception is the avatar as phantom limb. In the limbs lost to amputation it is possible to have persisting sensations, this happens for neurological reasons that have nothing to do with avatars and virtual worlds. Unlike an amputated limb, however, the avatar never was an actual part of the user's physical body, but nevertheless this can lead to sensations

that are not caused by direct physical stimulation (activating memory, for example). Veerapen uses the example of a visual environment in bamboo suggesting to her its smell (Veerapen 2011, 91-92). Again, in this case, the avatar might be unnecessary. Visualising the environment without an avatar could trigger the same memory activation process.

Nevertheless, some virtual objects are associated with avatar animations, associating the avatar to particular body motions and to the proprioceptions triggered by those motions, e.g. riding a bicycle, falling into a hole, climbing a staircase. It would not be possible to experience these simulations without using an avatar. A very realistic digital cake can make one salivate; yet if one's avatar eats it, the avatar will not feel its taste. However, this gesture communicates visually involving our bodily experience metaphorically, as will be described later on.

By setting the conception of the avatar as an equal, Veerapen highlights that during her experience in the Metaverse, the user's body cannot fulfil all the tasks of a phenomenal body since the physical body does not have direct access to the virtual world, which means that this access can only be provided through the body of the avatar. Conversely, the body of the avatar is not sensorially or perceptually able as is the case with the physical body. Thus, between them, the physical body and the body of the avatar meet all the qualities necessary to constitute a phenomenal body, i.e. a body that does not correspond to the simple sum of the two bodies, but to their symbiosis (Veerapen 2011).

It is possible in my view, however, that the user's body and the avatar by itself are not enough to constitute a phenomenal body, and that the rest of the interface should also be considered. As has been seen, much of the access to and impact on the virtual world is more dependent on the interface affordances in general than specifically on the avatar. Note that this is not intended to diminish the importance of the avatar's role in the relation to the virtual environment, to interaction, and to the development of a virtual corporeality, but just a reminder that there are aspects of this process that depend on other dimensions of the interface, especially

the virtual camera option, that enables the resident to control the point of view independently of the avatar. These aspects may vary slightly for different viewers. For instance, Firestorm's viewer permits landowners to set different windlights in several parcels of the land. Walking through with the avatar makes the different atmospheric properties change smoothly - this is not possible using the camera, but only by moving the avatar.

The virtual experience of the avatar body is not exactly an experience of the flesh. Although Metaverse experiences have a perceptual and sensorial aspect, they continue to be experienced through one's organic body, not through one's avatar body.

3. The avatar as expressive body

3.1. *The metaphoric body of the avatar*

Our bodily experience and everyday metaphors seem to considerably affect the way we conceive of the world in general as we have seen in Lakoff and Johnson's arguments in Chapter 2. For them reason is not extra-corporeal. The mind is thus deeply embodied and reason comes from the body and does not transcend it (Lakoff and Johnson 1999, 4-5).

Metaphors are, however, paramount to the way we handle computers — we “drag” items from one “window” to another or to our “desktop”, we archive data in “folders” or send them to the “trash”. In fact we are just providing commands to the computer, but we experience them through simulations. These are conceived in a metaphorical way that is fundamental in the design of digital interaction, as Janet Murray (2012) demonstrates in her book *Inventing the Medium*.

For these simulations to be effective and interaction to be intuitive, users need to understand these metaphors quickly. For that to occur, Murray argues the user needs to recognise “mental models” based on the appearance and behaviour of objects they know and handle daily. “Mental models can derive from existing conventions and past experience. For example, we expect wall switches to turn on overhead lights” (Murray 2012, 59) . She draws from Donald A. Norman's idea of “conceptual models”, but for this author the model does not form solely from convention and past experience. Norman states that we find clues in objects' visible structure for how they work because we understand how our bodies will interact with them: “A good conceptual model allows us to predict the effects of our actions” (Norman 1998, 113). This means that even if we have never used a pair of scissors before we will know how to use them. This happens because of the limited options our body has to interact with them

(Norman 1998, 12)¹². Norman thinks of objects and Murray of the digital medium in terms of “affordances”, basically what objects and media are for and how we perceive those affordances and draw from them. But what about body/virtual body affordances? Are they similar? How do we perceive and draw from them?

Consider hands, they are primarily for manipulating objects, but we use them in a lot of different ways: for touching and petting, for sensing texture and temperature, for gesturing and communicating, etc. Can we afford to do that with our digital hands in a virtual world? Depending on the platform, our avatar hands will have different affordances: in a fighting video game they probably will afford punching, and in a car race driving. But are we actually driving and punching with our avatar hands in a video game? Motion sensing input devices can synchronise our body with our avatar’s body and make its hands do what our hands are doing, but it is still our physical hands doing it, represented visually on screen by our avatar’s hands. The same thing happens without motion sensors - we make our avatar do things with computer commands, just like when “dragging” an item to the “trash”, it is metaphorical. We can move our avatar as a puppet through a motion sensor, or with a joystick in a game console, or just with the arrows on our computer’s keyboard; the affordances of our virtual body will be determined by the program and manipulated by our physical bodies through physical interfaces.

The way we manipulate what the program affords will be perceived by us, on screen, as a metaphor. That is the primary affordance of the avatar, to make our actions in the program visible, and it does this by using metaphors. We command our avatar to walk by pressing the arrow key, and maybe its legs will move in a way similar to walking, but the avatar does not need its legs to walk (Pacman did fine without them). It is not the avatar’s legs that afford it to

¹² Of course those options are always less limited than the designer predicts. When we look at scissors and see the holes on the handles, we easily understand our fingers go in those holes, as Norman states. But we also look at it and know we can use it in a different way, for stabbing, for instance. This potency is communicated also by configuration of the object and the way our body can interact with it, even if not predicted by the designer. This is the concept of “catachresis” applied to tools — “the use of a tool for another function than the one planned by the designer of the tool” - Donald A. Norman, *The Design of Everyday Things* (London: The MIT Press, 1998).

walk, it is the program, the code, and the script makes it look like it is walking. In online virtual worlds avatars can usually fly; there seems to be no need for stairs, yet we find stairs all over the place. Virtual stairs are a sign; they indicate that there is a floor above and a path to get there; stairs communicate visually by engaging with our bodily experience in a metaphorical way. We cannot perceive virtual worlds by reading them from code lines. We need these metaphors not only to engage in the virtual environment, but also to actually conceive it.

3.2. Avatar affordances

The use of avatars has been massified. Many videogames and platforms have “computer generated figures” that represent their users, they can go from a few pixels to very complex 3D models. They exist even in games that are played individually, but in a multiuser world they are a prerequisite. I consider the main affordances of the avatar to represent the user in mediated space and to allow her to interact with it (as I mentioned in section 2.4, there are interactions that absolutely require the use of avatars, even though not all the interactions in a mediated space do). Nevertheless, as I pointed out in Chapter 1, to reduce the avatar to a mere representation would be diminishing. Celia Pearce (also known as Artemisia) highlights the importance of avatar design:

If the avatar is framed as a form of personal expression, as performance medium, it is not hard to see the ways in which the components of the avatar kit dictate the forms of expression that occur. (Pearce 2009, 111)

Jacquelyn Ford Morie notes that in virtual environments “our experience is very much influenced by how we perceive our self, and yet, within most immersive environments, as they exist today, this choice is still made by the VE designer” (Morie 2007, 130). Yee and Bailenson

also addressed the question of stereotype in virtual worlds. They state that:

Researchers have also demonstrated that stereotype activation oftentimes occurs with an automaticity that is beyond conscious control and that the presence of these stereotypes leads to prejudicial interactions unless conscious intervention is applied. (Yee and Bailenson 2006, 147)

Gender studies has long referred to a semiotised dimension of the body and how it impacts the situatedness of the body, i.e. how the symbolic aspects of the body image can impact the living body in its context: how we move, what we feel capable of, who and what we engage with and how we do it.



Figure 3 - Avatar customization in SL.

If the semiotic body plays an important role in our everyday life then, stripped of its physical component, the symbolic aspect of the body becomes prevalent in virtual environments, such as the case of SL and Os grids avatars. The avatar is a body of language and expression, open to new symbolic investments, building, and rebuilding of this metaphorical

body.

The viewers' interface provides customisation tools for the avatar (see Figure 3) that are based on a 3D digital representation of the human figure, with various parameters that allow the user to change the configuration of this body both in size and general proportions, including more detailed aspects such as formatting the nose, eyes, mouth, etc. In addition, this figure (or parts thereof) can be made transparent, allowing any object to be attached to its skeleton (and in SL case even rigged so it is possible for the avatar to be any animal, fantasy creature, or abstract figure one can imagine).

If the avatar's main affordance in general can be considered to represent the user, in SL and OS grids we can add to that the affordance of expressiveness — the avatar allows the resident to express herself through her body image and performance. This goes beyond not only representation, but also the semiotic, when taken apart from its impact on body image and situatedness. According to Buchanan (1997, 79), for Deleuze and Guattari “[w]hat a body can do should not be confused with its functions, or its parts, which are organic or physiological concerns, but must be thought only in terms of its affects.”¹³

So the function of walking, for instance, does not really depend on its legs, but the way the avatar walks affects the resident's body image and situatedness in the world, i.e. it affects the user's body and the social view of her avatar, hence affecting all the bodies in relation with the resident, who will compare not only their respective avatars' way of walking but their physical body's way of walking to that avatar's walk. I do not mention the walk by accident, even though it is a mere example and others could have been given, but because AO's, the HUD's whose scripts and animations make the avatar move in a particular way are among the most wanted items in SL an OS grids. In a class I give, one of the first things noted by the students was that my avatar moved differently from their own (without an AO, they were using

¹³ “Affect is the change, or variation, that occurs when bodies collide, or come into contact” Felicity J. Colman, “Affect,” em *The Deleuze Dictionary*, 11-13 (Edinburgh: Edinburgh University Press, 2005).

OS and SL very stiff default movements), and questioned how could they also make their avatars walk that way.

The *Proteus Effect*, described in Chapter 2, corroborates this view; Yee, Bailenson and Ducheneaut (2009) demonstrated that avatar body image affected social behaviour not only in virtual world, but outside it too; and not only of the user but also of the people engaging with her.

So it can be concluded that the SL and OS grids avatars' main affordances are:

- To represent the resident in the virtual world.
- To make her actions visible to herself and others.
- To allow the resident to interact with the virtual world.
- To affect and be affected by other bodies.
- To be customisable, allowing residents to invent their avatars.
- To be metamorphic, allowing the residents to change their avatars at will.

3.3. Virtual corporeality as distributed body

On some platforms the avatars are provided and the user cannot change them, some may be chosen from among several options, others can be changed via the interface. In the case of SL and OS Grids, residents can change their avatars, and there is the peculiarity that they may also insert content designed outside the platform, such as textures, modelling, animations, etc. The designers of avatars are therefore residents who can create the avatar for themselves and/or use parts that other residents sell or share. The production of content in SL and OS platforms is almost entirely dependent on the users, which allows a special situation — each user can be the designer of herself. SL's and OS's avatar building is always a shared creative process; the way virtual corporeality is constituted in this environment is very often the result of a distributed authorship and, therefore, a shared creative process as I shall demonstrate in Chapter 5.

However, for an avatar to afford customisation and metamorphose it also depends on the interface affordances. To enumerate the entire interface affordances from all the viewers for SL and OS Grids would be outside the scope of this study. I will refer to some of them in Chapter 5, particularly those that affect embodiment, like the possibility of changing point of view, the possibility of using voice chat, and so on.

To allow the resident processes of becoming a hybrid of the user's and the avatar's bodies, might seem like an avatar affordance. However, this is not really the case. This hybrid is not produced by the use of avatars alone, but also by the manipulation of the viewer's interface, as we noticed on Chapter 2, by the, sometimes forgotten, physical body of the resident and the, almost always forgotten, hardware.

In Chapter 2 we realised that perception is a dynamic process, so in virtual worlds it is dependent on the interface and avatar manipulation, even if it is the resident's physical body that senses it. Such sensations are triggered by association but not directly stimulated, as Veerapen acknowledges. The smell of bamboo she mentions, she remembers having felt it in her physical body (Veerapen 2011).

There are more bodies (beside the avatar's and the physical body), however, in which one is dependent to produce this corporeality. I already mentioned code when I referred to the viewers' interface and all the scripting involved in one's relation to the world. There is also all the hardware associated with access to the resident of the virtual world: the personal computer and all its peripherals, servers and all the infrastructures that maintain a networked connection. Virtual corporeality can be described in Deleuze and Guattari (1966) terms as an *assemblage*. It is constituted by a process of self-making — a desiring-production (Smith and Protevi 2013). Virtual corporeality is the immanent product of the synthesis proposed by the authors — connective, disjunctive and conjunctive (I will be using Smith and Protevi (2013) characterisation of their related functions):

- Connective synthesis is related to the function of production, which is for Deleuze and Guattari physiological. I argue that in CVEs embodiment this is the result of the resident's physical body and the hardware that enables networking.

- Deleuze and Guattari relate the disjunctive synthesis to recording, which is semiotic. I claim, this is the result of the avatar representing the resident in the virtual world, which masks the previous synthesis in the form of the avatar.

- Conjunctive synthesis is associated by the authors with the enjoyment function. I see it as the result of the manipulation of the avatar by the resident, the code, and the hardware. From this, according to Deleuze and Guattari, a subject will emerge.

This would not be solely the resident's subject anymore! But, the conjunction of her, with the hardware, and the code. One could say, "that is the avatar", but really it is not. In Deleuze and Guattari's (1966) assemblage perspective the avatar would only be the mask of this subject, but in my more phenomenological perspective, this enjoyment is the way these three poles (resident, code, and hardware) enable a new form of relation between the lived body and this new expanded world, of which the avatar is the visible sign (See Figure 4). This is what I mean by distributed body, a body formed as the assemblage of the mentioned three poles, that involve physical body, avatar/interface, and hardware networking.



Figure 4 - CapCat Ragu, *Dreaming Away*, virtual photography, 2009. Shape and skin by CapCat Ragu, attachments by Grim Bros.

Part II — Shared Creativity

4. Art, Collaboration and Participation

4.1. Art and collaboration

Collaboration in art is not something new, in fact one could say that it is the autonomous author that is something relatively new, possibly an embryonic idea from the Renaissance that would only become dominant in the 18th century: the concept of the artist as demiurge, a genius, a virtuous intellectual, and artisan may have been first disseminated by Giorgio Vasari (1511-1574) with his book “Lives of the Most Excellent Painters, Sculptors, and Architects” (1550-1568) where attention was dedicated to the artist’s *persona* for the first time. This also marks the moment of division of the visual arts and its emancipation from crafts. Even though the Fine Arts system would only be fully established in the 18th century, in 1563, through Vasari’s influence the *Accademia del Disegno* was formed in Florence, separating painters, sculptors, and architects from the craftsmen’s guilds (Kristeller 2006). Not only were these disciplines separated from crafts, they were also gaining autonomy from each other. Sculptures and paintings, progressively, from the Renaissance to the Romantic period, became stand-alone objects. Before that, and even through the Renaissance and the Baroque, the Fine Arts were mostly integrated — painting, sculpture and architecture were mutually dependent, both physically and conceptually (Berger 1981). Works from these periods meant the work of several artists, several craftsmen, several designers, with the different backgrounds and skills needed for its production. The rise of the bourgeoisie during late Middle Ages and the Renaissance was also an impulse for the stand-alone object of art; these were transportable and proper for private ownership, and the oil technique, which can adhere to mobile surfaces instead of walls became prevalent (Huyghe 1986). Nevertheless, although the big master paintings had the master’s signature only, it is widely known they were the product of several painting hands. Leonardo da Vinci himself was Andréa dei Verrocchio’s apprentice, even painting the famous angel in

The Baptism of Christ (c.1470-1475):

Even if it was painted mainly by Verrocchio, we can notice Leonardo's touch in the young angel on the left and in the landscape. The difference in style of these two details makes us think of an intervention by the promising young apprentice. It's especially in the shaded hazy landscape and in the figure outlines that Leonardo, at that time a twenty years old boy, rises above Verrocchio. (Uffizi.org 213)

This painting is in Hall 15 of The Uffizi Gallery, dedicated to Leonardo da Vinci even if, as the gallery online guide states, it "was painted mainly by Verrocchio". This is, of course an abnormal phenomenon, usually the apprentice's work is not even mentioned, only the main master, the author, is named, so it is impossible to know how important the apprentice's work might have been in each piece.

According to Foucault our idea of *author* is an even more recent one. He relates it to the emergence of intellectual property, which began to be legislated in the 18th century (Foucault 2002). The autonomy of the art object; its mobility and reification at this particular time in history, can also be attested to in the British market for portraits:

Portrait was thus one of the key genres in the transition of painting from the patronage system to the marketplace. Bourgeois and aristocrat, both male and female, were now commissioning and sitting for individual and group portraits in various social and familiar settings. For painters, portraits provided a regular income and enabled them to perfect the conventions of the genre and to develop its iconography. (Portela 2005, 359)

However, it was the Romantic period that established the myth of artist as a single

individual (Huyghe 1986) devoted to self-expression and marked by genius.

Of genius the only proof is the act of doing well what is worthy to be done, and what was never done before: Of genius in the fine arts, the only infallible sign is the widening the sphere of human sensibility, for the delight, honor, and benefit of human nature. Genius is the introduction of a new element into the intellectual universe: or, if that be not allowed, it is the application of powers to objects on which they had not before been exercised, or the employment of them in such a manner as to produce effects hitherto unknown. (Zinck cited in Woodmansee 1999, 16)

This concept of heroic artist was prevalent until the middle of the 20th century, when it was challenged by the emergence of Contemporary Art. The heroic artist was even prevalent during the Modern Art period, with Van Gogh and Pollock being two very significant examples of this conception, one at the beginning of Modernism and the other at its end. Suzi Gablik states:

The legacy of modernism is that the artist stands alone. He has lost his shadow. As his art can find no direction from society, it must invent its own destiny. (Gablik 1997, 13)

Nevertheless, the Historical Avant-garde art also had many cases of collaboration, especially in the futuristic and dada performances and even in processes of manifesto writing or adherence, the way clusters of artists claimed communality in their work might be seen as a form of collaboration. However, most art collectives only appeared with Contemporary Art, e.g. Fluxus in the 60's and 70's, Guerrilla Girls and Group Material in the 80's and 90's.

Beyond this, from cinema to videogames, the emergence of new and increasingly

complex media required the division of tasks, making these works of art always a product of collaboration even when signed by a single author.

4.2. The rise of the audience

The role of the audience in its relation to the artwork has changed greatly since the beginning of the last century.

Jennifer L. Novak-Leonard and Alan S. Brown noticed that the term “arts participation” is too often interpreted as “art attendance”; however, there are multiple modes of engagement with art that include but also go beyond attendance (Novak-Leonard and Brown 2011, 26). They proposed a five mode framework to describe these several forms of participation: inventive participation, interpretative participation, curatorial participation, observational participation, and ambient participation. They depict a gradation of creative control — from total control in inventive participation, to very little control in ambient participation (Novak-Leonard and Brown 2011).

1. Inventive Participation engages the mind, body, and spirit in an act of artistic creation that is unique and idiosyncratic, regardless of skill level (e.g., composing music, writing original poetry, painting).
2. Interpretive Participation is a creative act of self-expression that brings alive and adds value to pre-existing works of art, either individually or collaboratively, or engages one in arts learning (e.g., playing in a band, learning to dance).
3. Curatorial Participation is the creative act of purposefully selecting, organising, and collecting art to the satisfaction of one’s own artistic sensibility (e.g., collecting art, downloading music, and burning CDs).
4. Observational Participation occurs when you see or hear arts programs or works of

art created, curated, or performed by other people (e.g., attending live performances, visiting art museums). We define two sub-types of observational participation: 1) participation in live events, and 2) electronic media-based participation.

5. Ambient Participation includes encounters with art that the participant does not select (e.g., seeing architecture and public art, hearing music in a store). (Novak-Leonard and Brown 2011, 32)

Their model is also useful to address what we might call the rise of the audience, i.e. the increasingly importance of the public for contemporary art.

In a 1957 meeting at the American Federation of Arts Marcel Duchamp, the most contemporary of all modern artists (Pratas Cruzeiro 2008), proclaimed the fundamental role of the spectator in the constitution of a work of art:

The creative act takes another aspect when the spectator experiences the phenomenon of transmutation: through the change from inert matter into a work of art, an actual transubstantiation has taken place, and the role of the spectator is to determine the weight of the work on the aesthetic scale.

All in all, the creative act is not performed by the artist alone; the spectator brings the work in contact with the external world by deciphering and interpreting its inner qualification and thus adds his contribution to the creative act. (Duchamp 1975, 139-140)

Duchamp introduced the constitutive audience. Umberto Eco, and Roland Barthes would go along with him in their seminal works *The Open Work* and *Death of the Author*.

For Eco *openness* is the fundamental aspect of Contemporary Art. This openness lies in its ambiguity: a multiplicity of different meanings in a single signifier. These meanings

are not, however, random, but are controlled by the artist through form and structure, which coordinate the several interpretations of the spectator; potentiated by openness. Works of art become non-univocal objects, i.e. instead of a pre-defined meaning produced by an author to be interpreted in a single way, these works are semantically plural, giving the audience the power to explore their meaning.

Barthes considers that to read a text from the author's point of view is a reductive reading. To him the author is not the origin of the text, for him there is no other origin for the text than language itself. Instead of the author he proposes the concept of the *scriptor*. The *scriptor* is not a subject from whom the text emanates; it is born *with* the text, does not exist beyond the text. This does not imply the destruction of meaning, but the author no longer holds the key to the meaning; meaning becomes, as in Eco, open to the reader:

Classic criticism has never paid any attention to the reader; for it, the writer is the only person in literature. We are now beginning to let ourselves be fooled no longer by the arrogant antiphrastical recriminations of good society I favour of the very thing it sets aside, ignores, smothers, or destroys; we know that to give writing its future, it is necessary to overthrow the myth: the birth of the reader must be at the cost of the death of the Author. (Barthes 1977, 148)

Duchamp, Eco and Barthes give the audience an unprecedented importance, but nevertheless their theorisations do not go beyond the levels 5 and 4 of the Novak-Leonard and Brown model.

To reach the higher levels we must look to more recent art theory, as Relational Art and Participatory Art (even though many art works were made as relational or participatory before this theorisation, like some works of Robert Rauschenberg, Alan Kaprow, Fluxus,

Joseph Beuys, Lygia Clark, Hélio Oiticica, Silvestre Pestana, Hans Haacke, Roy Ascott and many others).

Nicolas Bourriaud described 1990's Relational Art as "an art taking as its theoretical horizon the realm of human interactions and its social context, rather than the assertion of an independent and *private* symbolic space" (Bourriaud 2002, 14). The aims of this kind of practice were to develop connections, open blocked passages, and connect different and separated levels of reality (Bourriaud 2002, 8). Some of the examples given by Bourriaud are:

Rirkrit Tiravanija organises a dinner in a collector's home, and leaves him all the ingredients required to make a Thai soup. Philippe Parreno invites a few people to pursue their favourite hobbies on May Day, on a factory assembly line. Vanessa Beecroft dresses some twenty women in the same way, complete with a red wig, and the visitor merely gets a glimpse of them through the doorway. (Bourriaud 2002, 7-8)

What is important for Bourriaud is an art grounded in human relations and social context — works of art that produce a specific sociability.

Claire Bishop, however, questions the social effectiveness of Bourriaud theory:

Bourriaud wants to equate aesthetic judgment with an ethicopolitical judgment of the relationships produced by a work of art. But how do we measure or compare these relationships? The quality of the relationships in "relational aesthetics" are never examined or called into question. When Bourriaud argues that "encounters are more important than the individuals who compose them," I sense that this question is (for him) unnecessary; all relations that permit "dialogue" are automatically assumed to be

democratic and therefore good. But what does “democracy” really mean in this context? If relational art produces human relations, then the next logical question to ask is what types of relations are being produced, for whom, and why? (Bishop 2004, 65)

Bishop (2012) connects participatory art to the desire to challenge the traditional status of art object, artist and audience, claiming that in this kind of artistic approach:

[T]he artist is conceived less as an individual producer of discrete objects than as a collaborator and producer of *situations*; the work of art as a finite, portable, commodifiable product is reconceived as an ongoing or long-term *project* with an unclear beginning and end; while the audience, previously conceived as a ‘viewer’ or ‘beholder’, is now repositioned as a co-producer or *participant*. (Bishop 2012, 12)

She is drawing from activist and thinker Guy Debord who favored the construction of *situations* as cultural and political intervention. Between 1957 and 1972 the organisation Situationist International enacted a series of *situations* that could be viewed as activist art work, but aimed to go further than that, to be a real cultural intervention in society. Debord was one of the first to criticize the way the audience was manipulated by staged spectacle. According to Bishop “[t]he spectacle — as a social relationship between people mediated by images — is pacifying and divisive, uniting us only through our separation from one another” (Bishop 2006, 12).

This condemns the audience to passivity and subjugation, so Bishop (2006) identified three major concerns to what she called participatory art — “activation”, “authorship” and “community”. Activation “first concerns the desire to create an active subject, one who will be empowered by the experience of physical or symbolic participation”. Authorship, or more

specifically, “[t]he gesture of ceding some or all authorial control” in order to produce “a more positive and non-hierarchical social model”. Community and collective responsibility, according to Bishop is under a crisis, so “[o]ne of the the main impetuses behind participatory art has therefore been a restoration of the social bond through a collective elaboration of meaning” (Bishop 2006, 12).

Grant Kester also criticizes Bourriaud:

“Any stance that is ‘directly’ critical of society,” as Bourriaud writes, “is futile.” Bourriaud offers an ominous description of socially–engaged art practice marching in lock–step conformity with a vaguely Stalinist political program (...) Bourriaud’s caricature, which collapses all activist art into the condition of 1930s socialist realism, fails to convey the complexity and diversity of socially–engaged art practice over the last several decades. (Kester 2006, 14)

However, Kester does not spare Bishop either:

Even Bourriaud’s critics share this almost visceral distaste for socially–engaged art. Claire Bishop, writing on Bourriaud in October, reassures her readers: “I’m not suggesting that relational artworks need to develop a greater social conscious–by making pin–board works about international terrorism, for example, or giving free curries to refugees.” For Bishop, art can become legitimately “political” only indirectly, by exposing the limits and contradictions of political discourse itself (the violent exclusions implicit in democratic consensus, for example) from the quasi–detached perspective of the artist (this is also the basis for Thomas Hirschorn’s anxious assertion that he is not a “political artist,” but rather, an artist who “makes art politically”). (Kester 2006, 14-16)

Kester's position is for a far more politically engaged art, defending "collectives, unions, activist groups, and progressive NGOs working in conjunction with social struggles and political movements ranging from the local to the transnational" (Kester 2006, 20).

Carla Cruz's position corroborates Kester's standing point and adds:

I distance myself from Bishop's arguments because she fails to acknowledge that just as the practices in this field reach out towards the social they are also criticizing the art world(s) and experimenting with different ways of doing and making. As such, the lack of standards she identifies in collaborative practices could be seen as a radical proposition. That is, spectatorship not being disregarded, as she claims, but challenged by different possibilities of engaging with art that are not spectacular. Thus, instead of acknowledging, as Kester does, that spectatorship is radically shifted through collaboration, Bishop wishes art and artists to retain a custodial relationship with viewers. However, the political potential of art can also be reactionary and not only ameliorative. However, as a practitioner, my main disagreement with Bishop regards her idea that art within this field uses people as medium. I am more interested in Kester's propositions of challenging the authorial function. (Cruz 2015, 30)

I stand with Cruz that participants (to be called so) should not be used as a medium to produce participatory art, however, I still find the three poles "activation", "authorship" and "community" useful to determine participatory art if combined with Novak-Leonard and Brown's model, which I shall argue in Chapter 8.

4.3. Cyberculture, participation and collaboration

Lévy's defines cyberculture as: "the set of technologies (material and intellectual), practices, attitudes, modes of thought, and values that develop along with the growth of cyberspace" (Lévy 2001, xvi). As he himself admits, he is considered an optimist, someone who believes that the Internet will produce mostly beneficial social change. This was his attitude at the beginning of the millennium, and since then many of the problems have become more visible as the Internet grows, from invasion of privacy to child abduction to war propaganda, etc. I do not wish to deny the problems that Internet has brought on society mainly because of lack of regulation, but they are not only legal or criminal, they are also political and cultural. Just as Lévy predicted, the Internet is leading to a cultural and social change that we probably have not seen since the Industrial Revolution. This is not something that has happened and that can be analysed in retrospect, but something that is happening; constantly changing and evolving at a rhythm that is very hard to keep up. Like the Industrial Revolution it has incredibly exciting aspects and terrible ones and, like the Industrial Revolution it will require new forms of thinking socially, politically, and aesthetically. To demonise cyberculture will certainly not stop it, this revolution is ongoing, and for its course to be the most favorable to humanity and to the world, one needs to follow it closely. I do continue to stand with Lévy when he states:

First, that the growth of cyberspace is the result of an international movement of young people eager to experiment collectively with forms of communication other than those provided by traditional media. Second, that a new communications space is now accessible, and it is up to us to exploit its most positive potential on an economic, political, cultural, and human level. (Lévy 2001, ix)

The generation he is mentioning is not so young anymore, and at the economic level they have changed since Lévy's statement, and some of that once "eager to experiment collectively" generation degenerated into some very tentacular corporations. Nevertheless, I still stand with Lévy because some incredible and unimaginably generous things have emerged as well, what scholar and activist Lawrence Lessig calls *free culture* (Lessig 2004). Lessig was one of the founders of Creative Commons and an advocate for open source software. But openness has gone beyond software; we have now open hardware and people sharing all the data for 3D printable items that can change lives, and maybe the world.

Axel Bruns coined the term *produsage*. *Producers* are individuals who shift their position towards a project from users to producers and vice-versa, creating a pool of creative materials on the Internet, and sometimes using the pool material, sometimes feeding the pool.¹⁴ The author developed this concept to acknowledge the new reality "emerging from the intersection of Web 2.0, user-generated content, and social media since the early years of the new millennium." (Bruns and Schmidt 2010, 3). He realised that the conventional sense of production, especially related to the industrial economy, no longer applied to "massively distributed collaborations (...) constantly changing, permanently mutable bodies of work which are owned at once by everyone and no-one" (Bruns and Schmidt 2010, 3), and in which participants easily shift from users to producers and vice versa, originating a hybrid role in between. So Bruns' term *produsage* defines a mode of collaborative content creation led by users or at least involving users as producers in a crucial manner (Bruns 2007, 4-5). This can be seen in the online creative sharing communities that have been established on the basis of

¹⁴ This concept can be related to "wreader", a term coined by early adopters of hypertext in the late 1980s and early 1990s to refer to the dynamic nature of reading in internet environments where readers could leave their own trails of writing through the particular modes of linking texts in hypertext environments (cf. Bolter, 2001, and Landow, 1992). Unlike the strict division of writer/reader roles of print culture, electronic media opened up the way for more flexible exchanges between reading and writing activities.

disseminating visual output, from Flickr pile-ups to Creative Commons collages, or DeviantART fan art.

This term could have been drawn from futurist writer Alvin Toffler's (1989) concept of *prosumer*, however Bruns distances himself from this concept because he finds that Toffler's prosumer is not self-motivated or creative, this happens because the concept is grounded in the idea of consumerism. A user in our age is already not just a passive consumer, but an active interactor (Bruns 2009).

4.4. Art and cyberculture

Lev Manovich defines cyberculture “as the study of various social phenomena associated with Internet and other new forms of network communication” (Manovich 2003, 16). He distinguishes it from the concept of “new media”: “cyberculture is focused on the social and on networking; new media is focused on the cultural and computing” (Manovich 2003, 16). Although Manovich states that “cyberculture does not directly deal with new cultural objects enabled by network communication technologies” (Manovich 2003, 16), we wish to stress here that CVE artworks are a subgroup of new media objects that are specific products of a cyberculture art – artworks that focus primarily on the social and networking possibilities. Patrick Jagoda (2010) suggests for these the notion of “network aesthetics”. Juan Martín Prada refers to this type of works as Net Art – artworks based on telecommunication networks (Prada 2012).

Lévy considers that the “canonical genre of cyberculture is the *virtual world*” (Lévy 2001, 125). However, he is not referring to what was defined earlier as CVE, but to any “digital store of sensory and informational virtualities that are actualised only through interaction with human beings” (Lévy 2001, 125). Within this broad definition Lévy also distinguishes two major types of virtual worlds:

- those that are limited and editorialised, such as CD-ROMs and "closed" (off-line) installations by artists
- those that are accessible over a network, and infinitely open to interaction, transformation, and connection with other virtual worlds (online). (Lévy 2001, 126)

The distinction between online and offline that Lévy suggests (note that the author stresses that this is not an opposition) is essential for defining the types of works that are proposed: a work of flow, a work-as-process, and a work-as-event. These sorts of works, although also existent offline, are typical of cyberculture and enhanced by the possibilities opened up by web 2.0 since the early 2000s. Many web 2.0 works can be described as co-constructed and metamorphic works, which resist totalisation, either by intention (by the author) or by extension (through recording) (Lévy 2001, 127-129). This means that multiplicity in cyberculture art defies unification on account of *a* creator subject and origin, or unification as *a* work object, fixed and crystallized. Lévy considers that the new art arising from the possibilities opened up by both new media and the World Wide Web embody Deleuze and Guattari's (1987) concept of rhizome. For Lévy the cyberculture artwork lives in the rhizome (Lévy 2001, 129).

In biology, a rhizome is stalk that may grow underground and is often is mistaken for a root. It can also develop just above the ground or overhead. It branches horizontally and usually forms tubers. Deleuze and Guattari (1987) use the rhizome as metaphor to describe a different structure of knowledge, contrasting with traditional "arborescent thought" (Colman 2005b). Arborescent systems follow a hierarchical binary logic of composition (from root to trunk) or decomposition (from trunk to branches). It derives from an idea of unity and origin (the trunk) that bifurcates. Even if divided into three or four branches, the points of an arborescent scheme

never touch horizontally, only hierarchically. By replacing the metaphor of tree with the rhizome Deleuze and Guattari (1987) aimed to describe knowledge based on multiplicity, difference, and connectivity.

Deleuze and Guattari (1987) characterise the rhizome according to six principles: 1st and 2nd principles of connection and heterogeneity; 3rd Principle of multiplicity; 4th Principle of asignifying rupture; and 5th and 6th principles of cartography and decalcomania. In the following paragraphs, I will show how the six principles that define the concept of rhizome can be found in network digital art. It will be demonstrated, through some examples, how art in cyberculture may embody the concept of the rhizome, according to these six principles.

1 and 2. Principles of connection and heterogeneity: any point of a rhizome can be connected to anything other, and must be. (Deleuze and Guattari 1987, 7)

In cyberspace all artworks may endlessly interconnect amongst themselves and with other instances through hyperlinks. They can be even overlaid in the multiple windows of operating systems. According to designer and researcher Janet Murray (2012) the computer is a spatial medium. The spatial distribution of digital media goes from the way we use Google Maps and its Street View to three-dimensional virtual worlds that can be traversed and explored through an avatar, including simulations of real spaces, such as the high resolution three-dimensional reproduction of the Sistine Chapel at Vatican's site. However, the spatial affordance of the digital medium is found not only in these geographic relationships and three-dimensional simulation, but also in the very way the whole digital environment has become navigable and interconnected. The metaphorical concepts of desktop, folder, trash, which are part of our daily interaction with the computer, are also a form of spatial representation. This form of relationship implies one's presence in several spaces at the same time through the multiple

windows.

A work that took advantage of this spatial affordance of digital media in many ways was the 2010 interactive film *The Wilderness Downtown*, by Chris Milk. The film puts the interactor and her childhood home in the core of the narrative. The viewer is asked to provide her childhood address via an online form, and this data is in turn used to access Google Street View. Multiple windows will be automatically opening throughout the film, combining video captures, photography, Street View images, animations, etc. Instead of watching only a pre-recorded video clip, the interactor has the opportunity to see the place where s/he grew up invaded by trees and be part of the film that accompanies the music *We used to wait* by Arcade Fire.

This interconnectivity, so specific to cyberculture, has no center or origin point, it is a “proliferation of connections among heterogeneous nodes” (Lévy 2001, 129). *Female Extension* is a 1997 artwork that ironically takes advantage of this decentered Internet flux to critically reflect on the visibility of women artists in the art of the cyberculture. Cornelia Sollfrank simulated 200 international female net artists and registered them for *Extension*, a Net Art competition organized by the Gallery of Contemporary Art of the Hamburg Art Museum. She used a computer program that collected HTML material using search engines and recombining the data, automatically generating the Net Art projects. The museum was pleased to announce that two thirds of their applications were from women artists. There was no suspicion by the museum or the jury board, Sollfrank had to issue a press release revealing the hoax (Sollfrank 2010).

3. Principle of multiplicity: it is only when the multiple is effectively treated as a substantive, "multiplicity," that it ceases to have any relation to the One as subject or object, natural or spiritual reality, image and world. (Deleuze and Guattari 1987, 8)

The World Wide Web can be thought as this multiplicity – a net of singularities: events, people, artefacts; forever transforming and changing, connected as a world-wide multiplicity.

[T]he multitude, an infinite multiplicity of active singularities, could be defined in connection to its most emancipatory and creative potentials, as production of an aesthetic not «about» life but «of» life, making «life's potency» the essential feature of its non-professional aesthetic production. (Prada 2009)

The concept of multiplicity in Deleuze and Guattari (1987) implies the abolition of the dichotomy object/subject, and its replacement by the idea of multiple singularities in permanent connection and transformation. For Coleman (2011) the avatar is in fact a good example of such a singularity, the concept of avatar can refer to all digital extensions of the subject that interact in real-time over the telecommunications network – the avatar can be perceived as an event, a person, and/or an artefact at the same time, as referred in Part I. It is a singularity connected to a multitude of others, not only in its own virtual world, but also in all cyber and tangible space. The concept of identity becomes unstable; Turkle (1997) claims that the multiple windows system highlights this instability and our various parallel lives on the screen, realising a cultural tendency to think the identity in terms of multiplicity and flexibility. Elif Ayiter's work in her *alpha.tribe* brand reflects the impact this multiplicity may have on creation. Ayiter (2008) describes the way she split into several alt avatars, as play strategy in the virtual environment of SL, and how each of them became a specific creative self and a part of the *alpha.tribe* team of designers. In this case one's self corresponds to multiple creative singularities.

However, sometimes multiple selves can also refer to multiple subjects, this may result in artworks with a distributed authorship. The digital art pioneer Roy Ascott coined the term in

1986 to describe the interactive and remote authoring in the project *La Plissure du Texte: A Planetary Fairytale* (LPDT), which had been created in 1983. This project involved the combination of multiple paths to a narrative that unfolded asynchronously according to action centers throughout the world that determined its development. Each participant was given a role (princess, prince, fairy, etc.), without being provided a story or script, the entire construction of the work depending upon improvisation by participants. A collective and nonlinear fairy tale, consisting of multiple layers and fragments, was constructed between 11 and 23 December 1983 (Ascott 2005). This was one of the first works using digital technology and the interconnection of remote computers long before the creation of the World Wide Web, predicting the new emerging creative processes that was later described by Levy.

More recently, *Man With a Movie Camera: The Global Remake*, is another example of distributed authorship. This is an ongoing participatory global project, where the video artist Perry Bard invites people around the world to submit footage that is a reinterpretation of the original 1929 film, *Man With a Movie Camera*, by Dziga Vertov. Everyday a new version of the film is combined and juxtaposed with the original.

4. Principle of asignifying rupture: against the oversignifying breaks separating structures or cutting across a single structure. A rhizome may be broken, shattered at a given spot, but it will start up again on one of its old lines, or on new lines. [...] There is a rupture in the rhizome whenever segmentary lines explode into a line of flight, but the line of flight is part of the rhizome. These lines always tie back to one another. (Deleuze and Guattari 1987, 9)

The lines that constitute the rhizome always tie to one another, whenever one of these ties breaks a new line and a new connection is established – a line of flight. Hyperlinks in the web

can be seen as the segmentary lines that tie the rhizome net. However, these links can break and/or suggest other unexpected links (lines of flight). This does not happen only as hyperlinks in the World Wide Web, but links between different projects, artists and artefacts. This is particularly evident in *remix aesthetics* (J. M. Prada 2012) or *mashup culture* (Bruns 2010), i.e. the use of parts of previously shared material to mix, alter and/or fuse it into new artworks. Prada refers to this as “digestion” as a form of creation (J. M. Prada 2012). This started to happen long before the Internet; if one thinks of Dada collage, for instance, where unexpected connections were made among images of different origins. Hannah Höch’s artworks are a perfect example in the way she uses partial images to deconstruct and reconstruct the female body.

Although art can be said to always involve appropriation in one way or another, the emergence of the Internet, especially Web 2.0, fostered collaboration and the creation of pools of sharable material:

[T]hese activities need no longer take place in isolation, but can be aggregated – that groups of participants can pool their resources, coordinate their efforts, and develop central platforms from which their outcomes can be disseminated to the wider world. (Bruns 2010, 1)

This also means that not only professional artists and designers get to show their work, but also *amateurs*, as these pools tend to circumvent the artworld’s processes of legitimation.

Nina Paley is an example of an artist who became an activist of non proprietary artworks, making her work not only free to share and distribute, but also open to modification, thus feeding a free culture flux. In her 2010 animation *All Creative Work is Derivative*,¹⁵ Paley

¹⁵ <https://www.youtube.com/watch?v=jcvd5JZkUXY>

photographed and animated sculptures from the Metropolitan Museum of Art, New York City. By juxtaposing these artworks from Europe (Greek/Roman and Medieval), Asia (South, South East, and Central), Egypt, Oceania, and the Americas, Paley was able to show similarities through time and space, demonstrating how art has always been about building on and transforming previous ideas and works.

5 and 6. Principles of cartography and decalcomania: a rhizome is not amenable to any structural or generative model. [...] Make a map, not a tracing. [...] What distinguishes the map from the tracing is that it is entirely oriented toward an experimentation in contact with the real. [...] A map has multiple entryways, as opposed to the tracing, which always comes back "to the same." (Deleuze and Guattari 1987, 12)

One could think of the search engine indexes as this kind of rhizomatic map – an always-changing performative construction (and not a reproduction of cyberspace). However, search engines operate in a top-down way, they impose upon the users their criteria and classification; but the phenomena of *tagging*, which arrived with web 2.0 reversed this approach – it is the user who “defines the link between the digital resources (Websites, images, films, music) and the terms used to describe them, which are exactly the tags, simple labels (single words or short sentences)” (Fini 2010, 241). This is also true for social bookmarking (systems that allow the sharing of hyperlinks), which enables the user to distribute a personal map of cyberspace; and for geolocation in digital maps. The way geolocation entangles tangible and virtual worlds’ maps is an aspect highlighted by Locative Art, i.e. artworks that depend on Locative Media, “projects that respond to data or communications technologies that refer to particular sites” (Brucker-Cohen 2014).

ManifestAR artists like John Craig Freeman use geolocation software to superimpose

augmented reality artefacts at specific GPS coordinates. This is the case in the 2012 artwork *Border Memorial: Frontera de los Muertos* done in collaboration with Mark Skwarek; a memorial that is an augmented reality public art project, an homage to the emigrant workers who have died in the desert in recent years trying to cross the border between Mexico and the United States of America. Freeman and Skwarek marked the location where human remains were found along the border. One can find these locations with a mobile device like a smartphone or a tablet. When using a mobile application built for that purpose – a 3D representation of a calaca (a traditional wood-carved skeleton from Oaxaca) will appear on the screen over the filmed landscape at these sites.

Something very similar happens in *Monumento a las Mujeres Desaparecidas*, an artwork by Freeman and Christina Marin, dating from 2012. This time the tribute is to the young women who have been murdered in the Ciudad Juárez area, close to the El Paso border, and the Afghan opium brides. Most of the Mexican women worked or sought work in *maquiladoras*, manufacturing operations that work on free trade zones, taking advantage of tax-free and cheap labour. Since 1993 hundreds of women have been violently murdered (with evidence of rape, torture, and mutilation) in the cities of Ciudad Juárez and Chihuahua. On the other side of the world, in Afghanistan, poor families need to give their female children to pay debts to drug smugglers. This practice increased with the opium eradication policies in Afghanistan, when farmers saw their crops destroyed and were left in debt to drug lords. The homage to Mexican and Afghan young women is located in Olvera Street and the surrounding plaza, or La Placita, in Los Angeles, the location of a festive Mexican marketplace since the 1930's. Using the mobile application provided by the artists, one can see the market being invaded by pink wooden crosses (referring to Mexican girls), and poppy crops (referring to Afghan girls).

The *Electronic Disturbance Theater* works with the same concepts of cyber activism. Their most emblematic work is the *Transborder Immigrant Tool*, by Ricardo Dominguez,

Micha Cárdenas, Amy Sara Carroll, Elle Mehrmand, and Brett Stalbaum, 2010. This artwork goes beyond the tribute and the monument, drawing attention to political problems, and actually takes action in helping immigrants to water safety sites by guiding them through poetry via a mobile phone application:

The app uses GPS information from an inexpensive Motorola phone to find the traveller's location. Although this tool will not provide sustenance for an entire trip across the border, it does attempt to aid the traveller in what its developers refer to as the "last mile" of the journey. The traveller activates the phone in their moment of extreme dehydration, since the phone has only approximately an hour's worth of battery charge, and after locating its position, the phone searches for nearby water caches. (Marino 2013)

This brief sample of Net Art is meant to show how Deleuze and Guattari's concept of rhizome can be applied to art in the context of cyberculture, as suggested by Pierre Lévy. Connection, heterogeneity, multiplicity, asignifying rupture, cartography and decalcomania are useful principles for an understanding of artistic forms and practices in the metaverse as a specific material and social instantiation of networked art.¹⁶

¹⁶ NetArt is an established field of research on its own. See, for example, Julian Stallabrass, *Internet Art: The online clash of culture and commerce* (London: Tate Publishing, 2003). Rachel Greene, *Internet Art* (London: Thames & Hudson, 2004). Annmarie Chandler and Norie Neumark, *At a Distance: Precursors to Art and Activism on the Internet* (Cambridge: MA: MIT Press, 2005). Jon Ippolito e Joline Blais, *At the Edge of Art* (London: Thames and Hudson, 2006). Tatiana Bazzichelli, *Networking: The Net as Artwork* (AarusDigital Aesthetics Research, Aarus University, and the author, 2008). Dieter Daniels e Gunther (Eds.) Reisinger, *Netpioneers 1.0 - Contextualising Early Net-based Art* (Berlin: Sternberg Press, 2009). Domenico Quaranta, *Media, New Media, Postmedia* (Milano: Postmediabooks, 2010). Phoebe Stubbs (Ed.), *Art and the Internet* (London: Black Dog Publishing, 2014).

5. Shared creative processes in CVE

5.1. Creative CVE

The most important affordance of a CVE is collaboration, however collaboration and creation are different affordances. Even though CVE in general enhances user's participation, not all of them afford creative control of content by the user. Some may offer restricted default content customisation or limited options of import and export of files, but they do not enable the user to completely create her avatar or her world. This is exactly where SL and OS Grids distinguish themselves from online multi-player games in general – these platforms not only afford collaborative activities, but also substantial creative input from their users.

Most multi-players' (particular role-play games) restrictions over users' creative input is related to the consistency of the narrative offered to the players, which often requires a pre-established geography, cultural background, types of characters, story line, etc. As a consequence of this a certain aesthetic consistency is also needed, restricting the user's self-expression through the avatar or the world geography. On the contrary, because in SL and OS platforms there is no subjacent story line or pre-established goals, they afford extensive creative input from their users, most of the virtual world being in fact created by them.

For a platform to afford both creativity and collaboration, users must be able to share content amongst themselves, so they might build upon each other's work. In light of this, a virtual world may be considered a Creative Collaborative Virtual Environment (CCVE) if it affords creativity, collaboration, and distribution (Sousa and Eustáquio 2016). These affordances, as well as the feature that enable these affordances, are described below.

5.2. CCVE affordances

5.2.1. Creation

In order for a CVE to be considered creative it is paramount that it allows users' creative input. To be able to create something, at the simplest level, is to be able to make, form, or bring something into being. Therefore, for a CVE to be considered a CCVE, it needs to enable the user's power to make new things and/or extensively transform existing ones – content creation and/or content modification. However, platforms easily become overly complex, making it difficult for average users to take advantage of these creative possibilities effectively professionalising creative activity. A sound balance between creative possibility and tool complexity is hard to achieve, and this is often remedied with content upload. Complex content can be built externally, allowing the platform itself to remain more accessible. The ability to create content can thus be split between building within the CCVE platform, and/or uploading content built using external resources (Sousa and Eustáquio 2016).

Table 3 - Affordances and related features for creation in CCVE's.

Creation		
	Affordances	Features
Within the virtual world	Content creation	Create new 3D objects; map textures; edit landscape and environment; trigger sound reproduction; write new code to change behaviour of world, objects and avatars.
	Content modification	Tools to modify settings and properties of existing avatars, terrain, objects, audio and visual media, environment and dynamic behaviours.

Outside the virtual world	Import content	Allow user to upload data from local storage to virtual world server; accept input of standard file formats for text (including code), images, video, 3D objects, and sound.
	Export content	Allow user to transfer data from server inventory to local storage; produce output in standard formats for text, images, video, 3D objects and sound.

In a CCVE like SL or OS based ones, beside the extensive customisation of avatars described before, users can create content within the platforms, like 3D simple meshes. Even though only primitive shapes (prims) can be built (box, prism, sphere, cylinder, torus, tube and ring) these may be edited in their appearance: colour, texture, scale; they may be cut, hollowed, twisted, dimpled, sheared, skewed and revolved; they can also be set to be flexible, transparent, emit light or glow; they can be attributed physical properties like gravity. Sculpting 3D objects is still limited in these platforms. One way to circumvent this is by uploading image files to be used as texture maps, determining x, y, z coordinates through RGB values, and creating sculpted prims. This allows users to model 3D objects in specific software and export UV coordinates as images files. Another way is by uploading meshes created in 3D modelling programs. In SL these meshes can even be rigged to the avatar skeleton, i.e. the 3D mesh may be associated with the avatar structure, enabling it to be animated.

The way prims simulate light reflection on their surface can be controlled in the platform from matte to glossy, and from smooth to bumpy. But more complex or subtle textures may also be uploaded as specular maps to control shine, and/or normal maps to control surface irregularity.

Land itself may be sculpted, an activity is known as terraforming. Usually only landowners can terraform, in order to keep the region's uniformity, but permissions may be set to let other residents sculpt the land as well. The platform allows residents to raise or to lower land, to

flatten, to smooth or to roughen. Images may be associated with different height of the land, making its texture change from down in valleys to the top of the mountains. Below a certain altitude (usually 20 meters) there will be water, this allows for the carving of rivers or lakes, or raise islands. Land can also be sculpted (or painted) outside the platform and the heightmap imported as an image file and applied to the land.

The sum of the atmospheric light, weather, and water appearance is usually known among residents as windlight, which is controlled by the environment editor in the interface. Residents may choose to use a region's default windlight (that can also be specified by landowners) or they can edit it. The possibilities of windlight editions are quite extensive and complex. Residents can create new presets or change existing ones. Water colour, transparency, flow, and texture may be changed, as well as the way water reflects light and the environment (which can change quite dramatically) and the way it distorts immersed objects. Residents can choose between simulating a day cycle (the sun or moon will move in the sky through the day affecting light) or a fixed sky and light (sun or moon). The colour of both may be changed. Atmospheric density (thin or smoggy); atmospheric perspective (how smog affects the perception of objects according to distance); haze horizon amount and configuration; and cloud coverage, flow, colour and configuration may also be considerably customised.

Digital objects in SL and OS grids may be scripted with Linden Scripting Language (LSL), using code to change their state, behaviour or appearance. When scripting an object, residents may choose to have the code visible and copyable by other users, or not. Visible scripts allow other residents to use and build upon them. Some developers share code with instruction embedded, allowing for other residents, without scripting skills, change and experiment with code.

It is not possible to create sound or animations within these platforms (SL and OS based), but it is possible to upload them, and to stream sound.

Animations in SL and OS based environments are mostly associated with the avatar. It is not possible to upload skeletons, therefore the animation of objects is only possible by creating the illusion of movement by changing the appearance of prims or images through time, i.e. it is possible to create the illusion of a bouncing ball by using several prims representing the ball that are set visible and invisible through time simulating the bouncing movement; or of running water by making the texture on a prim change its offset through time, etc.; this is possible by associating scripts to these objects.

The only object that may be actually animated is the avatar, using its default skeleton that cannot be changed. There are internal animations that exist as default in the platform, but is also possible to upload animations, as BVH files, created in specific software. Animations stored in the resident inventory may be activated by double clicking their name or by opening them and using the interface window to play and stop them. They may also be associated with an object scripted to animate the avatar when she wears it, sits on it or touches it. This is how AO are made, scripted objects worn as HUD, that aggregate and play several animations, adding a specific expression to the avatar's default movements, i.e. walking, standing, talking, jumping, swimming, etc. There are objects that may also combine several animations. If these animations are triggered by touch, this may be useful for engaging avatars in synchronised movements, which is very commonly used in dance – the object may be rendered in world to be touched by residents, or worn by a resident to be touched by others and herself (these are often referred to as chimeras). Most of the times animations are triggered by sitting on the object. This is used to animate avatars in chairs, sofas, beds, etc., but the frequent convention is of the pose ball, immediately recognised by residents as objects that will animate the avatar. The pose ball is usually a spherical prim, about the size of a default avatar hand. They become invisible when the avatar sits on them. Several pose balls combined enable combined animations among several avatars, this is quite different from the synchronised movements

enabled by touch: the former case, it will determine the avatar position in space and different avatars have different movements, in the latter case the avatar may be in any chosen place but the movements will be the same for all the avatars.

All facial expressions are internal and it is not possible to upload different ones, they are limited and, sometimes, too dramatic. They may, however, be combined through the use of an expression HUD. With exception of the moving lips that can be triggered by the use of the voice functionality, other facial animations are not that easy to use as a form of real-time communication. They need to be triggered by the user or by scripted objects, and that always means latency between interpersonal interaction and facial reaction, i.e. if the user wants the avatar to smile to other avatar as feedback to what has been said, that will take too long to be read as reaction, so it is rarely used. Facial expression is used in SL mostly for creative purposes in virtual photography, machinimas, and performances; and seldom for real-time communication.

Expression HUD, AO, chimeras and pose balls have enormous animation potential and enable all kinds of performative behaviour and expression. However, these are always predefined movements, and lack any kind of spontaneity. As referred in Chapter 2, there are some promising experiences involving motion-sensing input devices, but the platforms themselves do not afford this kind of interaction¹⁷.

There are no possibilities of producing sound in SL and OS based CCVEs, but you can upload sound files, and use scripted objects to play them in many different ways (by touching the object, when the avatar approaches the object, in a constant loop, etc.). Sound clips may be uploaded as WAV files, with only ten seconds of maximum duration (Linden Research, Inc.

¹⁷ Emergent new hardware, and platforms may be prepared to detect motion, such as Project Sansar and High Fidelity, might bring incredible progress in this domain with body movement and facial recognition technology implemented CCVEs.

2015). It is possible to create soundscapes even with only ten-second sounds, by scattering the sounds across a region. This can create three-dimensional sound space and, in fact, even produce melodic structures.

As previously discussed, the limitations of these platforms in content creation can be circumvented by the use of external software and content upload, but often creator may see these limitations as challenges to creativity.

5.2.2. Collaboration

Churchill and Snowdon's (1998) research on negotiation processes advances some important aspects required for successful collaborative actions in mediated environments. The most important of these aspects is awareness of others, the sense of shared activities and the ability to communicate about them, both verbally and non-verbally. According to the authors, verbal communication may be enhanced by the possibility of multi-lingual text display.

In order to understand transition between shared and individual actions explicit and tacit communication between collaborators is required, but also the ability to perceive what is being done and what has been done. A shared context is paramount – shared environment, shared artefacts, but also shared knowledge or shared understandings.

Flexible and multiple viewpoints are also important: from overview to detail, rotation around objects, etc.

Table 4 - Affordances and related features for collaboration in CCVE's.

Collaboration	
Affordances	Features
Communication	Channels for verbal communication, written or spoken, relayed or in real-time. Forms of nonverbal communication, such as facial and body expression.
Awareness of others	Perceive and observe relative position and actions of others in virtual space; feel the impact of other's actions.
Shared context	Ability to share real-time experience of the same location and environment.
Flexible viewpoints	Viewpoint control: travel, pan, tilt, rotate, and zoom.

In SL and OS based virtual worlds real-time in-world interaction is enabled by the use of avatars in a 3D digital environment where residents can be aware of each other's presence and activities. Verbal communication is possible through chat windows (private and public, in real-time or asynchronous) and voice input (also privately or publicly), and some viewers' feature voice distortion (used in role-play or to insure privacy). There are translator HUD in SL that enhance chat communication, but residents can also use a third party translation plug-in.

As discussed, residents can build objects in the environment, it is possible to see changes being made in real time, and to have more than one creator working on the same object or set of objects. SL and OS based CCVE's interface allows the use of camera view, which can offer multiple viewpoints without moving the avatar. Performative collaboration is also possible through the several ways in which to animate an avatar, but real-time forms of non-verbal

communication are limited, as mentioned before. Residents try to circumvent these limitations by using gestures. A gesture is a combination of animation and/or chat text and/or sound clip that are played together automatically when activated. They can enhance the real-time expressiveness of the avatar because they are easy to trigger through keyboard short cuts, short chat texts, or using the gestures button in the interface. Of course, they are still predefined reactions and not spontaneous feedback.

5.2.3. Distribution

The affordance of distribution is paramount to connect creation and collaboration. The chance for creative collaborative work depends on the ways the user is allowed to share artefacts with other users. This brings us to Michel Bauwens conception of peer to peer (P2P) referring to “processes that aim to increase the most widespread participation by equipotential participants” (Bauwens 2006, 33). Distancing himself, in some way, from more technical approaches to network architecture models, Bauwens emphasizes a more political perspective of P2P, setting this Utopian process as a third mode of governance, production, and property, where “market exchange value” is replaced by a “use-value for a community of users”, creating a “peer property mode”, i.e. a new kind of common property, utterly different from private and public property (Bauwens 2006, 33). Of course not all instances of creative sharing arise from this ideal P2P process described by Bauwens, since many digital artefacts are proprietary and stem from relatively traditional commercial exchange processes such as purchase and sale of products that allow users to build with or from them.

There are several ways that a CCVE may afford distribution. The first one is the exchange of content among users; this may be done by personally giving an asset, by selling it or by lending it to other users. This will require, of course, the capacity to store these assets.

Another form of distribution is to present content in shared space. And this kind of distribution may not imply property of objects by other users, but merely the enjoyment of them – users may interact creatively with rendered objects, sound, or other user’s performances. This also enhances the possibilities of sharing (by giving or selling) assets without personal interaction, when other users are allowed to copy and save this content.

Shared file storage can also be very useful for collaborative creation, because this may allow for users to work together on artefacts over time without losing each other’s work. To store content outside the platform can also enhance creativity, because it allows the user to transform content by means of external software and share it in different venues, amplifying the creative flux to other contexts other than the initial platform.

Table 5 - Affordances and related features for distribution in CCVE’s.

Distribution	
Affordances	Features
Exchange content with other users	Transfer and save files: tools to give/sell/lend, and store content.
Present content in shared space	Render objects; produce sound; performative action.
Peer property mode	Copy and save content from shared spaces; shared file storage.

In SL and OS grids, these digital objects may be stored in the resident’s inventory. An SL user totally depends on the platform to store her creations, which are stored in SL database. Third party viewers sometimes allow the backup of objects, but not always legally, as this may infringe SL terms of service and the copyright of content creators. Even the topography of the

land may be stored as a RAW file (heightmap) by landowners and then uploaded and shared. In both SL and OS based platforms most files created by the residents may be transferred to other residents.

Windlight settings are stored in the resident's computer and may be shared with other residents outside the platform as XLM files. This is not, however, a simple feature of the platform, there is no intuitive way of doing it. The user needs to find the files in her computer and a way to distribute them.

Both in SL and OS based CCVEs it is possible to present original content in shared space. To render objects, however, one needs to own land or have permissions to do so by the landowner. This prevents Sims being flooded with unwanted prims, but also creates an inequality among the residents that can strongly reduce the creative potential of people who do not own land. There are Sandboxes where everybody can render objects for a short period of time and many residents who are not landowners resort to this for building, and, as we shall see in Chapter 6, resort to attaching these objects to their avatars in order to render them in space.

As already stated, sound cannot be produced in SL and OS based CCVEs, but can be presented associated with rendered objects. It can also be streamed, both one's own sound or Online Radio Stations. In theory it is possible to stream from your own computer, but that is not really practicable, so residents have to use a streaming relay provider (Linden Research, Inc. 2015).

Objects and all things associated with them (like scripts, animations, sound, etc.) may be open to be copied by other residents if the owner and the creator of the object permit it. However, there is no real shared file storage beside that. This, of course, inhibits the potential for sharing material. An open library of SL and OS files, with the possibility searching for specific content, would exponentially amplify the possibilities of shared creative processes.

5.3. CCVE shared creative processes

CCVE's enable creation and co-creation, but this may occur in very different forms. Shared creativity is the creative input distributed by several creators, processed in different timeframes, across different places and through different approaches, enabling a fluid creative stream. These variables work together in three distinct modes: collective creativity, collaborative creativity, and distributed creativity.

5.3.1. Collective creativity

It is important to distinguish the term *collective creation* from the common use of the word collective, as referring to a group of people acting together in some way. This term is intended to describe a particular creative process that does not necessarily exclude other meaningful aspects of collectivity. In fact an art collective does not necessarily have to use collective creation as a creative process. It can, and often does, use collaborative or distributed creativity, concepts that will be described later.

The intent here is to refer to a creative process in which participants act as one creative entity. Creative input happens collectively, synchronously or asynchronously. All participants are equal partners in credit and responsibility, and each individual contribution is largely indiscernible.

The complete dissolution of one's identity in a group is utopian; a co-creative process where everyone is an equal partner is very difficult to achieve in large and medium-sized groups. Working as plural organism requires a high level of intimacy between co-creators. An equal partnership basis has more chance of success in a cellular structure, in which each of the participants relinquishes her authorial mark in favor of the group's authorship (CAE 2002). It depends on complete openness and on sharing goals, motivations, inspirations, but

also uncertainties, fears, etc. It is very important that each co-creator feels comfortable in stating whatever is on her mind without fearing for the future of the relationship. Not only a high level of mutual artistic respect is necessary, but also full trust. This almost symbiotic process is very rewarding, but it is also very demanding and requires a very strong emotional bond between the co-creators. This is probably why a significant number of co-creators have romantic or family ties like: Claes Oldenburg and Cooseje van Bruggen, Christo and Jeanne-Claude, Bernd and Hilla Becher, Gilbert and George, Marina Abramović and Ulay, Jake and Dinos Chapman, Mike and Doug Starn, and Tim Noble and Sue Webster. Even though this is not, of course, a rule, and there are several co-creators that do not share this kind of relationship.

Working as a band, as a plural organism (or a several-headed monster), is quite common in the music world. In the visual art world this is less common, since the entire cultural structure is built for the author/individual, from the art educational system to the museum. Therefore, *collective creativity* is a process developed by a small number of co-creators, who share a high level of intimacy. This often takes the form of a cellular structure, an equal partnership wherein each member relinquishes her own authorial mark in favour of the group's authorship or co-authorship.

5.3.2. Collaborative creativity

Collaboration, as Maria Lind states, has been a “buzzword” in the artworld since the 1990's. Because it incorporates several methods of organisation and a wide range of creative processes, it can be described as an “open-ended concept” and “becomes an umbrella term for the diverse working methods that require more than one participant” (Lind 2007, 17). Collective creation and distributed creation are creative processes that can be used in different forms of collaboration. We have already delved into collaboration in the arts in

Chapter 4.

The term proposed here, *collaborative creation*, does not address the very wide term “collaboration”, but tries to describe a particular way of creating together. In this process each author retains her authorial mark and one can roughly distinguish each author’s work, even though it can blend in, making it difficult to define a borderline that distinguishes each contribution. This kind of creation often happens as a dialogue among authors, where each new creative contribution is a response to an earlier creative contribution.

5.3.3. Distributed creativity

The term *distributed authorship* was coined by the digital art pioneer Roy Ascott in 1986, to describe the interactive and remote co-authoring project *La Plissure du Texte: A Planetary Fairytale* (LPDT), created in 1983, mentioned on page 112. Recently, the term has been used by Bruns (2010) to refer to a creative process that has been intensified by the affordances of the Internet. He refers to projects in which a large number of participants contribute to a common pool of artistic material. They do not act as a team, but as single contributors in each step of this creative process, which can be called distributed creation (Bruns 2010, 1).

Bruns refers to these participants as producers, as seen in Chapter 4, individuals who shift their position towards a project from users to producers and vice-versa. It is fundamental to be community-based, meaning a broad group with fluid-roles, not a team. Producers can participate in different ways throughout an ongoing process, according to their personal skills, interests and knowledge, shifting from user to producer (Bruns 2007).

Distributed creativity is, therefore, the creative flux promoted by the sharing of creative and transformable material on the Internet.

5.3.4. Corporeality constitution as a creative process

The building and embodiment of an avatar in SL and OS based platforms is usually a shared creative process, as I have been discussing. Each resident is “born” into the world with one of the default avatars provided by the platform. Those that choose to explore this place in the Metaverse begin to transform their avatars very early on, building something that in some way expresses a body in the virtual world, as seen in Chapter 3.

Some choose to create a virtual representation of their physical bodies, or an improved version of it; others prefer an idealised body of eternal beauty and youth; still others prefer the opportunity to experience fantastic bodies. Some try to maintain a stable image of themselves, a fixed identity; others are shape shifters, always tearing themselves apart and reassembling their bodies.

Whatever way people choose to embody their avatar, they always have to start from something provided by the platform. There is always a balance between what the platform (hence its creators) can provide and what the residents create with it. The possibility of customisation of the avatar, by using only the viewer’s interface and its affordances, is already quite vast, as we have seen in Chapter 3. To this we can add the possibility of uploading materials developed using other software. The users become designers of themselves in this virtual world. But residents can also share what they create with other users, and this makes the constitution of corporeality in collaborative virtual worlds a shared creative process.

Residents are free to invent, reinvent and multiply themselves in any way they can imagine.

SL and OS Grid avatars are the result of a creative process that connects each resident to others. Even someone who does not master the creativity and technology required to build an avatar can create one using only materials designed by others. Even at this basic level, a creative approach is needed to choose and mix different materials in order to make a unique avatar. The embodiment of avatars requires a *techne*, an intentional way of making (Boellstorff 2010, 129).

The constitution of corporeality in CCVEs makes the avatar a form of distributed expression, and a shared creative process, for any user.

6. Art practice in the Metaverse

6.1. Art and Play

Play, an everyday common concept for children, becomes quite problematic and very unstable when it comes to adults and especially when it comes to identifying a scholarly definition of this activity. Sutton-Smith has emphasised this ambiguity and the way ideology has an important role in the way it is analysed, because “forms of play, like all other cultural forms, cannot be neutrally interpreted (...)” (Sutton-Smith 2001, 216).

The difference between the categories ‘game’ and ‘play’, or of *ludus* and *paidia* (Caillois, 1958 cited in Frasca 2007, 38) becomes noteworthy when this ambiguity is examined within a linguistic context. Frasca suggested that the difference was that *ludus* games define winners and losers, while *paidia* games do not (Frasca 2007, 39).

Boellstorff notices that many scholars have underlined how virtual worlds are not goal-oriented and he even states that “assuming that theories about games and play are necessary foundations to understanding virtual worlds leads to serious misinterpretations” (Boellstorff 2010, 22). Thus, in virtual worlds such as SL or OS grids, to *play by the rules* does not mean to play a game. The world does have its rules, the Terms of Service probably being the most important of these, but this is a legal agreement between the residents and their hosts. To add to these there are of course also social conventions like there are in any society, and breaking them can have social consequences. None of these however are game rules in the proper sense of the term, unless, as Boellstorff puts it, we trap ourselves in a definition “so vague that we must include in it most of our actual lives” (Boellstorff 2010, 22).¹⁸

¹⁸ However, there is an undeniable cultural relation between SL and OS Grids and video games. Often when people react by saying, “SL is not a game”, they imply that it is *more* than a game, that it is *superior*. Let me be clear that that is not the case here! SL and OS platforms share a great deal with other virtual worlds (either multiplayer or not) not only in its visual presentation, in their interaction cues, but also in aesthetic matters.

So, *play* in CVEs like SL or OS Grids, refers mostly to its *paidia* dimension. For D.W. Winnicott the “cultural experience begins with creative living first manifested in play”. In fact, he localizes this in “a *potential space* between the individual and the environment” (Winnicott 2009, 135), which is the place of experience, the place where we *play around*; making play, as Frasca puts it, an *aesthetic genre* (Frasca 2007, 57). According to Frasca “play events are not fixed beforehand. Instead, they are constrained and those limitations are the elements that constitute their aesthetic dimension” (Frasca 2007, 58).

When one says that residents *play* with their avatars, usually one is not referring to the display of a set of particular skills that enable the conquest of a particular goal, but to the way they use it to engage with the world and other residents. They can play through avatar animation, interactions, contemplative journeys through the world, and through avatar customisation.

Land owners in SL and OS platforms can change the geography of their land altogether by growing hills, carving rivers and valleys; as well as painting them by changing the ground textures into natural or even unnatural earth coverage, ranging from grass and dirt to geometric patterns or even fully recognisable images. Onto this geography one can then build objects and design the atmospheric ambience, once again ranging from realistic sunshine or cloudy sky, to surreal purple or crimson sunsets.

All of this enables residents to build a paracosmos, perhaps a materialisation of that *potential space* that Winnicott tells us about, which involves tying self and commons through a place of experience. In their research about consumer imagination and digital play Mike Molesworth and Janice Denegri-Knott argue that virtual worlds can be considered as “liminoid” spaces. They use Victor Turner’s definition “of a liminoid as a place of inversion for the purpose of transformation” (Molesworth and Denegri-Knott 2007, 116), and draw from Rob Shields’ perspective:

Like liminal zones and events, virtual spaces are ‘liminoid’ in that they are participated in on a temporary basis, and distinguished from some notion of commonplace ‘everyday life’. [...] The greatest power of digital virtuality – and perhaps its most widely discussed feature – has been in providing a matrix in which new modes of being and practices of becoming could be experimented with. (Shields 2003, 13)

Pre-modern societies used ritual performances and spaces to mark moments of transition, e.g. the beginning of adulthood or marriage. Turner called these spaces “liminal”, as their function was to maintain social structure in moments of change (Molesworth and Denegri-Knott 2007, 121). In postmodern society, on the other hand, liminal was replaced by the less structured liminoid:

The liminoid differs from the liminal in that it is freer: more an outcome of choice and participation. In pre-modern societies, the liminal was an obligation; in modern times, the liminoid is a matter of free will. The liminoid is observed as moments of individual change or disorder, although the aggregate impact of many individual transformations may result in changes to society as new practices and ideas are generated. (Molesworth and Denegri-Knott 2007, 121)

In liminal events social norms are suspended, opening a space for transformation of the social order and offering a breach for cultural metamorphosis (R. Shields 2003, 12). This also enables playfulness. Detached from common adult world norms, residents can play in the liminoid field of the CVE, transgressing daily routine.

The way some residents play (and promote playfulness) in the world as late been

understood by many as an art form¹⁹.

6.2. Art typologies in CCVEs

As we have seen, SL and OS Grids' residents may interact with other residents and the world via an avatar, and they are able to build 3D digital objects, as well as upload their own contents, designed outside the platform, such as image files, 3D models, sounds and animations. These worlds are created by their residents themselves, thus becoming a privileged environment for the birth of the most diverse art forms. However, artworks in CCVEs resist being categorised in taxonomies, because they are unstable and fluid, frequently open and participatory in nature. The playfulness of the creative act is a common feature in these projects. Although present in numerous art forms, it is more prevalent in CCVE, as mentioned before. This playful dimension extends to the fruition of these projects, contributing to the transformation of the aesthetic experience into a creative one.

This is why a strict categorisation of such practices may become a fruitless toil. Still, I will attempt a simple and brief description of the various art forms found in the SL and OS CCVE, so that those who are not familiar with these environments can understand the creative possibilities they offer. It should be noted that the following projects encompass more than one of the categories described, as they frequently develop asynchronously, changing both their processes and manifestations.

We begin with two main groups: works developed in the Metaverse – Metaverse-Based; and those derived thereof – Metaverse-Derived. Within the former, we can identify environments and objects, avatars, and performance. In the latter group, derived works include virtual photography and machinima.

¹⁹ Including Linden Lab who promoted the Linden Endowment for the Arts (LEA), which promotes art in SL, including Land Grants and Theatre Grants. LEA now includes 29 regions fully devoted to art.

Table 6 - Metaverse Art Categories.

Metaverse-Based	Metaverse-Derived
<ul style="list-style-type: none"> • Environments and Objects • Avatars • Performance 	<ul style="list-style-type: none"> • Virtual Photography • Machinima

6.2.1. Metaverse-Based Artworks

Environments and Objects that range from entire art-habitats (Ayiter and Ugajin 2015) to stand alone objects. These include landscape terraforming and building, architecture, installations and dioramas, digital sculptures, object and equipment design (scripted or unscripted), external mesh modelling and sound.

An excellent example of this kind of art practice is the work of the artist Cherry Manga. Her work, *Insanity*, a 2014 environment at MetaLES SIM in SL is a surreal landscape where giant and disfigured bodies sprout from desolate dunes. One can find several techniques in this work: the windlight design; the modelling of objects in mesh, conceived externally and then uploaded to the SL as digital sculptures; the use of scripts to animate objects; and soundscaping, using sounds attached to objects through space (see Figure 5).



Figure 5- Cherry Manga, *Insanity*, 2014. Virtual photography by CapCat Ragu, 2014.

Saskia Boddeke, known in SL as Rose Borchovski's *The Inevitability of Fate*, was a 2012 installation in SL at the Two Fish Sim, where a narrative developed along a path on the landscape, involving residents in the history of Angry Beth and Lot, a mother and son at the outbreak of a war that would separate them. In the virtual environment one could initially see, Lot's birthday and his children's toys. As one moved along the path, a yellow ribbon appeared pinned on their bodies, symbolising their new condition. After the war, Beth is able to come back, but the child was still gone. That's how Beth becomes Angry Beth.

To create this narrative environment Borchovski uses mesh models (built outside SL) of Beth, Lot, and other objects disposed in a way that invites a trajectory, emphasised by sounds and scripted objects. Space itself becomes the storyteller.

The Italian artist Livio Korobase began using virtual environments for his work in 2012. In the tangible world Korobase is multimedia designer, producing artefacts as websites and e-books. When he had the chance to make the e-book for the *Libro dei Sogni* by Federico Fellini, Korobase, who was using SL recreationally, thought of the possibility of also making a version of it in a virtual environment. This was his first work in this type of medium (guaraldi.lab 2014).

In addition to the projects that he now carries on in SL, he has chosen to create his own OS Grid, *Radiola*, which is itself an art project, started in 2015, but that remains in constant transformation (see Figure 6).



Figure 6- Livio Korobase, *Radiola*, ongoing since 2015. Virtual photography by CapCat Ragu, 2016.

Radiola is opened to the registration of new users, but it can also be visited from any OS-based Grid that supports Hypergrid links. The concept is combined with the sound of the audible stream in the region - *Radio CiBiGiBi*; an internet streaming creation of Korobase, where songs are played randomly from a list. Randomness is also a concept dear to the artist, evidenced here in the sense of a cleromantic flow. Korobase refers particularly to the Chinese classic book, *the Book of Changes* or *I Ching*. Livio Korobase considers himself a creator of emotional landscapes and, for him, coincidences can make sense²⁰.

At the time of writing (2016), visually, *Radiola* is an immense landscape populated by both giants and small surreal beings with a cloudy climate environment, which dramatically decreases the saturation of colours with the depth of field. In this work, Korobase uses all sугenres considered in the category of environments and objects: topographic modelling,

²⁰ Direct and deliberate reference to the music of Bjork Joga, 1997.

architecture; installations and dioramas; digital sculptures (many of them modelled outside the platform) and some interactive objects that can be used by residents, such as the journey in roller coaster.

In the case of *Reflexive Assembly 001*, 2015, by the American artist DC Spensley, the interaction is indeed the most important aspect. It is a fully autonomous object, a giant parallelepiped, which Spensley describes as a "shy sculpture". The block starts to break as the resident approaches, and the avatar of the sphere of influence in space becomes apparent. To be more than a giant bright parallelepiped, this work depends entirely on user's participation (Spensley 2015). Spensley coined the term Hyperformalism:

[T]o describe formalist abstraction created in a hyper medium such as abstract 3D digital space or pure mathematical space.(...) Hyperformalism is part marketing message and part signifier of a broad based cultural phenomenon, both jargon, artwork and critical construct describing a certain relevant set of qualities that differentiate a spontaneous response to new creative and technical possibilities available to a critical mass of people. (Spensley 2016)

Hyperformalism relates, in general, to works in a virtual environment that do not attempt to simulate the usual and recognisable shapes of everyday space in a mimetic way. A virtual environment does not necessarily have to obey the rules of the physical tangible reality, thus allowing the creation of an entirely new aesthetic experience, impossible in another environment, free of the metaphoric simulation of tangible space. Spensley has been developing his work in this direction in CCVEs since 2006, initially in SL, where he is known as DanCoyote Antonelli.



Figure 7 - Cutea Benelli, *Broken Bot Buddy*, 2014. Virtual photography by Cutea Benelli, 2014.

With regard to the category of avatars, one can consider all manifestations that relate to their design: skin and clothing texture design, body shape design, the design of all kinds of objects that can be associated with avatars – hair, clothing, accessories of many different types and animations. An interesting example is the series of avatars and accessories designed by I. Struebel, known in the SL as Cutea Benelli, for the Grim Bros brand. One of her creations, *Broken Bot Buddy* (see Figure 7), exemplifies how the creation of avatars can be an art practice. In a social network, the artist explains her creative process:

What would happen, I thought, if you created a compassionate robot with the sole purpose of taking care of others - and then, like all the other technology we use, you left it to rot in the cellar, with nobody to care about - and to care for? From this basic notion of a

neglected care robot, the look of "compassion program" became clear in my mind: friendly, female, almost motherly, vaguely nurse-ish, with a touch of sadness and forgotten-ness. Rusty, of course, not shiny. (Benelli 2014)



Figure 8 - alpha.tribe, *Barracuda*, 2012. Virtual photography by CapCat Ragu, 2013, with Eupalinos Ugajin building on background.

The *alpha.tribe* brand has been, since 2009, a particularly original reference when it comes to avatars' design (see Figure 8). Unlike most common stereotypes in virtual worlds, these avatars highlight the normative representation of the idealised sexist bodies, by refusing to conform to this standard. This is an experimental group of avatars who founded its own fashion business in SL (Ayiter, 2010). The various designers are all different embodiments of the Turkish designer Elif Ayiter, commonly referred in the CCVE jargon as Alts (*alter* – other). There are five *alpha.tribe* designers: Grapho Fullstop, who explores complex textures and darkness; Alpha Auer, involved in geometric precision; Xiamara Ugajin, the most romantic and

floral; Amina Diavolo, with a more unstructured and fluid design; Alphi Full Stop, specialises in hybrid creatures built by fusing of different types of biological components (Ayiter 2010).

The use of Avatars is associated with the possibility that virtual environments afford for the fragmentation of identity and/or the representation of a completely alternate identity (role-play) (Boellstorff 2010). In this case, the author has not used these avatars in social interactions very much, but more for their own investigation of the nature of the author's creative process. The project's main objective was to question the prejudices related to the idea of an indivisible creative identity, recognisable by the personal signature (Ayiter 2010).

In 2014 Ayiter, in a completely different project, developed avatars intrinsically linked to their animations. *Imago Anatopism* was a collaboration between the storyteller Mimesis Heidi Dahlsveen and Elif Ayiter, a huge installation that tells the story of Volund where, step by step, residents obtain the necessary parts to create the complete avatar of the hero.

The project was based on the tale of the elf Volund from childhood through maturity to old age. The story was told in twelve stages, in each of which residents could obtain the necessary parts to complete the construction of Volund. This was a story of transformation, a journey of self-knowledge and self-construction through various meetings. Thus, the character of Volund, could be embodied by residents through an avatar that was always changing his appearance through objects that one could gradually attach to one's avatar. This change in appearance was not just produced by the visual aspect added by each artefact, but the fact that these were also associated animations created by Dahlsveen, which changed Volund's behaviour and body language.

This work demonstrates the importance that the avatar's body expression can have, in addition to its visual configuration and reminds us that avatars also have a performative dimension in and of themselves (Ayiter and Dahlsveen 2016). In CCVEs, artistic activities carried out by avatars fall into the performance subgroup. This includes simulations of

conventional art forms such as theatre, opera, dance, circus and musical performance, as well as actions tailored to explore the medium's specific potential.

One of the most interesting examples of this type of practice has been developed since 2008 by the duo of Portuguese artists Kikas Babenco and Marmaduke Arado, who take advantage of the ability to attach all kinds of objects to the avatar (see Figure 9). In CCVEs the artefacts that are usually attached to avatars are explicitly designed for the simulation of a person in a tangible environment: hair, clothes, accessories and AO with regard to posture and avatar movements. But you can attach any object to an avatar, of any size, scripted or not. These objects can animate the avatar or the object itself, emit particles, or have any other effect that it is possible to generate in these environments. Thus, the two artists create their own ephemeral installations, which can grow to occupy an entire region without placing objects in the environment.



Figure 9 - Kikas Babenco & Marmaduke Arado, performance at Slactions, 2013. Virtual photography by CapCat Ragu, 2013.

Babenco and Arado's performative strategy is extremely dynamic, creating installations that rapidly change, often in an improvised and participatory context as the artists usually offer

their artefacts to the audience and invite them to participate in the performance. Their content often includes a satirical component on the world of art and/or social codes of the Metaverse and their work may be considered as Institutional Critique²¹.

The approach of the artist SaveMe Oh is similar both in strategy and context, but it is focused on her artistic persona, whose avatar, more than an author, embodies the work itself. SaveMe referred to herself (an avatar) as an artwork and not an author in the talk promoted by Transdisciplinares Artes Lisboa (TAL), in the activities related to the event and exhibition *Virtual Interactive Participatory Arts*. SaveMe presents herself as an *agent provocateur* in the art world, often invading artistic events with her performances, which can cover a whole SIM.

The performance *The Mask: a synchronicity*, by the American John Ellsmere (aka Jane Leffler), Australian Pyewacket Kazyanenko (aka Daniel Mounsey) and the Colombian Kai Steamer, was inspired by the Italian poem by Carmen Auletta *The Maschera*, and was interpreted in the *Museo del Metaverso* during the *Art and Poetry* project in 2011. In this performance, SL-Bots were used instead of avatars – although visually similar figures to avatars, they are not directly controlled by humans, but by instances of artificial intelligence. Sequences of SL-Bot animations were programmed using the DanceMaster Pro program (DM Pro) to create automated routines (Turner, Nixon and Bizzocchi 2015). In the performance three SL-Bots of different colours and textures (one black, one white and one red) engaged in a dance in which their bodies intersected, mixed, and even merged completely. These bodies sometimes separated, sometimes intersected and sometimes clashed, at times masking each other, and taking turns at being the mask.

²¹ Institutional Critique is an artistic movement that dates back to the late 60's and confronts artistic institutions with their normativity and the inherent contradiction between innovative aesthetic proposals often displayed and defended theoretically, with the operating practices of the institutions themselves. Cf. Alexander Alberro e Blake Stimson, *Institutional Critique: an anthology of artists' writings* (Cambridge: MIT, 2009).

6.2.2. Metaverse-Derived Artworks

The second group consist of art practices that draw from the Metaverse, but are not necessarily constructions of that world. One popular example is the first subgroup, virtual photography.

The various software programs that allow viewing (viewers) platforms such as SL and OS –based, enable the capture of still images of virtual worlds. By convention, the icon that indicates this feature to the viewer is an image of a camera. It is common practice among residents of virtual environments to designate these images as photographs. The different viewers available have, over time, substantially improved this feature, increasingly approaching it to the metaphor of the photographic process in tangible world. In addition, there are also specific environmental characteristics, such as the possibility that the photographer has of changing the whole atmosphere, from the time of day, type of lighting and climate characteristics. She may even produce environments that would be impossible in the tangible world.

Images captured in the Metaverse can serve the exact same purpose as in the physical world – memories of time spent with others, news reporting, fashion, advertising, and of course, artistic purposes. A prime example of the latter is the work by Italian photographer Nur_Moo, whose career in the Metaverse dates back to 2007. She was also Commissioner of the legendary SIM Poetik_Velvets. Moo is a photographer in physical reality; she uses the specific possibilities of light and colour in the SL – she manipulates the weather and reflections on virtual water through the viewer interface, and places new light sources created by her. The artist also plays with the installation of objects as a setting and the possibilities of editing by layers on Raster Graphic Editors.



Figure 10 - Nur_Moo, *Sometimes Not_**, virtual photography 2011.

*Sometimes Not_**, 2011 (see Figure 10), is part of a series of seven photographs where Moo used her avatar as a way to convey through its body feelings of loss and disintegration in real life. Broken inside, she tried to revive through her avatar, putting pain outside herself, showing the interior of her avatar merging with the world around. *Mesh avatar*, 2013, is part of a small series in which Moo experimented with what were in those days recent mesh avatars, fully modelled outside the platform. The technique used was creating a very specific atmosphere, along with the use of light projectors constructed by Moo within the platform, using her own images as the texture for the projection.

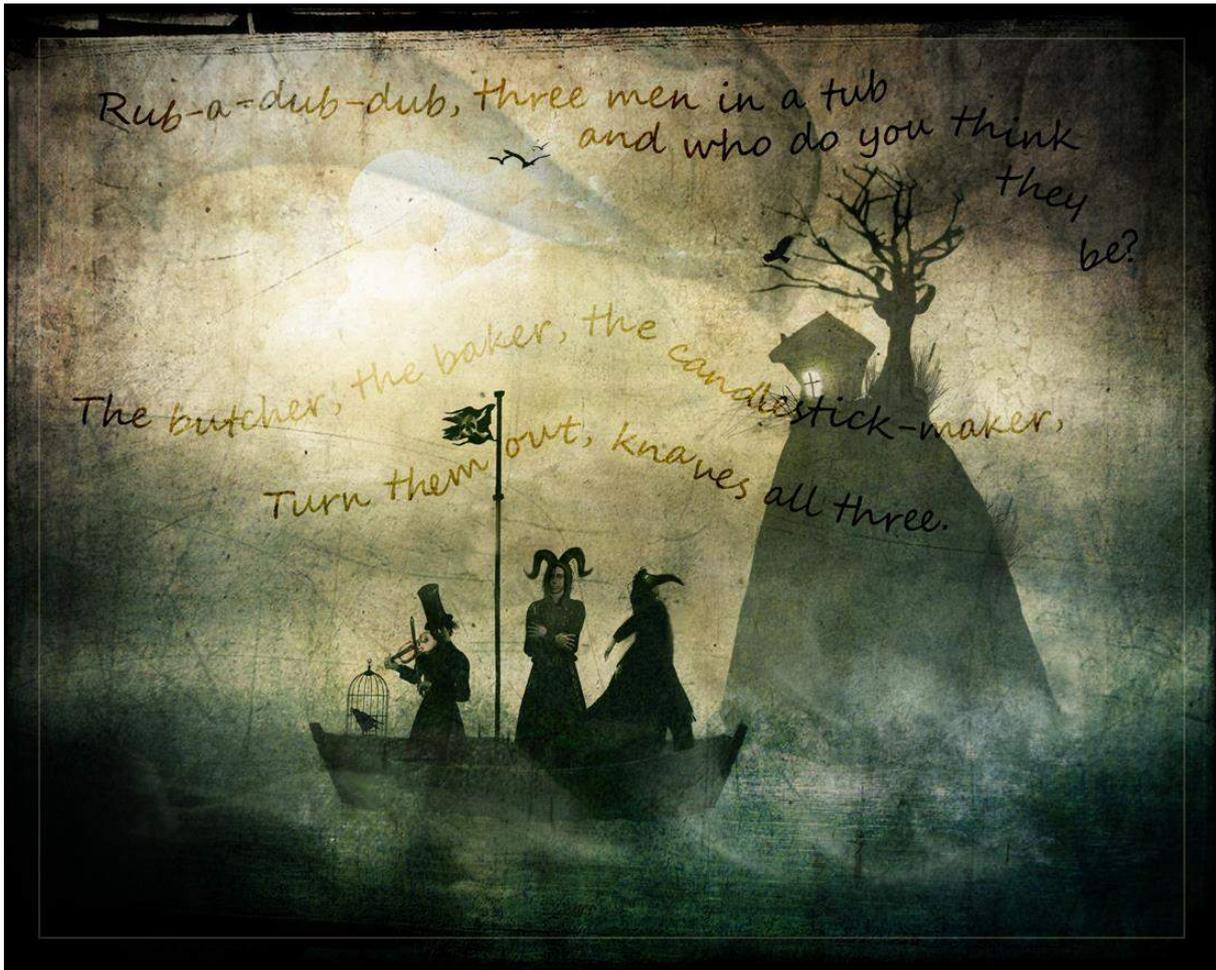


Figure 11 - Ariel Brearley, *Three men in a tub*, virtual photography, 2009.

The English artist Ariel Brearley (aka Kerry Wimpenny) working in virtual environments since 2007, practicing photomontage techniques, intensely using digital media external to the platforms. History and literature are frequent inspirations for Brearly. Her work *Three men in a tub*, 2009 (see Figure 11), is inspired by a lullaby of the eighteenth century, depicting three traders (a butcher, a baker and candlestick maker) that go into the sea in a bathtub. The whole scene was composed and captured in SL, from the landscape to avatars, dressed in costumes from that time period. Everything was then recomposed in an image editor where Brearley added the fog and played with textures to create a certain sinister darkness suggesting mysterious travelling under the cover of night.

In another more recent work, *Immersion*, 2016, the figure was entirely captured in SL, just a figure in a very simple background. The overall intent was to literally "immerse" the

figure into something almost unrecognisable, keeping it vague and perhaps pointing to other emotional places. Brearly's initial captures are usually raw, as she prefers to manipulate them using various types of software, experimenting with overlapping and textures. Her work covers virtual photography, collage and photomontage.

Harbor Galaxy (aka Deborah Lombardo), has a more painterly approach. She uses Raster Graphic Editors to enhance colour saturation and to play with contour and texture. Her approach to the representation of the female body defies the standards and stereotypes in depicting age, nudity and intimacy (see Figure 12).



Figure 12 - Harbor Galaxy *The Privilege of Aging*, virtual photography, 2014.

Not all virtual photography is edited outside the platform, however. Ziki Questi is an SL blogger, and in *Ziki Questi's Blog* she reviews the arts and destinations in the Metaverse. Her

blog is profusely illustrated with her own virtual photography from the places she visits. Most of her work depends solely on light, angle, depth of field and framing – photography’s basic principles. Although her approach is mostly documental, these pictures become artworks through their own merit, not only because of Ziki’s technical mastery, but especially for her sensitivity in capturing the *pathos* of each place.

Machinima can be defined as the capture of moving images in real time using 3D rendering engines in digital environments (Zagalo 2012, 2). This is a form of expression generally associated with video gaming culture, since a good part of the machinima being produced uses computer game engines (Picard 2006). Although this is their origin, their growth and development go beyond the cultural universe of games, a phenomenon favoured by the increasing technical affordability of multiple online platforms for its creation and dissemination (Lowood and Nitsche 2011, viii), such as SL and OS. The machinima conceived in these platforms, unlike the video game derivatives, do not rely on stringent aesthetic or themed environments, such as in EverQuest or World of Warcraft (Pinchbeck and Gras 2011, 143). Thus, like virtual photography, they become the ideal environment for artistic development and art documentation.

One of the most interesting artists using machinima as a medium is Ole Etzel, the author of the series of machinimas that tell the stories of Mr. and Mrs. Bones, who moved away from each other when Mr. Bones decided to sail out to sea. Ole Etzel not only films and edits his machinimas; he also does the voices and songs.

The French artist Erythro Asimov in his machinima *Let Me Out*, 2015, leads us to an evocation of Pripjat amusement park in Ukraine, a now abandoned structure. It should have been opened on May 1, 1986, during the Labour Day celebrations. However, on April 26, 1986 the terrible environmental catastrophe that was the nuclear power plant accident at Chernobyl happened, very close to Pripjat. The city was forced to evacuate, but for a few hours on the

27th, even before the evacuation announcement, the park was open for the amusements of the cities inhabitants. The audio message in Russian that one can hear in machinima is a recording of the original message for the city of Pripjat evacuation. To this day the city remains an abandoned city. The images were captured in the region of *Everwinter - A Post Apocalyptic Theme Park* in SL, designed by Lauren Bentham, and inspired by the Pripjat Park.

A case in which documentation becomes another artwork is the French director Iono Allen's (aka Bernard Capitaine) machinima *The Inevitability of Fate*, 2012, documenting the homonymous work by Rose Borchovski mentioned before. The film holds true to Borchovski's narrative, making it emerge from the environment path, from Lot's birthday up to his dive into the void. Virtual photography and machinima often connect CCVEs with the rest of the World Wide Web, even though they can be displayed in virtual worlds, they are often shared in social networks, blogs and web pages.

The vast majority of works made in the Metaverse have no way to be preserved except when held in OS and stored in the artist's own computer²². In SL, however, once the work is dismantled, it can only be stored in the resident's inventory piece by piece, and the inventory can only be accessed through SL platform. Preservation of these works often needs the use of alternative forms of registration like virtual photography and machinima. Exhibitions in physical reality also often resort to them as a way to show CCVE artworks, because they are easier to display as prints, projections or screen displays. However, these cannot be set as substitute for the artwork and do not replace the aesthetic experience in the virtual world. Virtual photography and machinima based on previous artworks rather occupy two ambivalent places in aesthetic experience – on the one hand, they are triggering new aesthetic experiences

²² In recent years, a number of research initiatives have been addressing the problem of preserving virtual worlds. One significant early project was developed by the University of Illinois at Urbana-Champaign, with the partnership of University of Maryland, Stanford University, Rochester Institute of Technology, and Linden Lab. This project was developed in two stages: 2008-2010 and 2010-2012. Documentation can be found in the project's website: <http://mith.umd.edu/research/pvwii/>

and on the other they are the result of an aesthetic experience that has a creative dimension. They are the result of lines of flight between artworks and digital platforms, and in some cases between instances of the real (the virtual and the tangible). Although they present themselves in a specific medium, they are already hybrid in their creative process.

6.2.3. Hybridisation

As stated earlier, most projects in CCVE fit into more than one of these subgroups and art forms as they present hybrid features and circulate through several instances of reality. This is the case of Alpha Auer's *Asemia*, which involves avatars, environment and object design, as well as soundscaping – all in a single project. This project explores writing stripped of its semantic content. It was a project integrated in the collaborative installation *Further Along the Path*, commissioned in 2012 by Bryn Oh, on SL, and sponsored by Linden Endowment for the Arts (LEA) (Ayiter 2013); an installation designed by various artists based on the surrealist concept of exquisite corpse, i.e. each installation was merged into the previous one by the following artist (Oh 2012). *Asemia* was an enormous sphere with a textual and textural landscape and with its own inhabitants - the avatars that were part of this project. The author states that her roots in graphic design guided her in this work, compelling her to an aesthetic exploration of typographic forms and textual textures (Ayiter 2013). In addition to the asemic text, Alpha Auer also created a soundscape of vocalisations of no apparent sense, but whose sound could evoke a foreign language. The whole design revolved around asemical scriptural and verbal materiality.

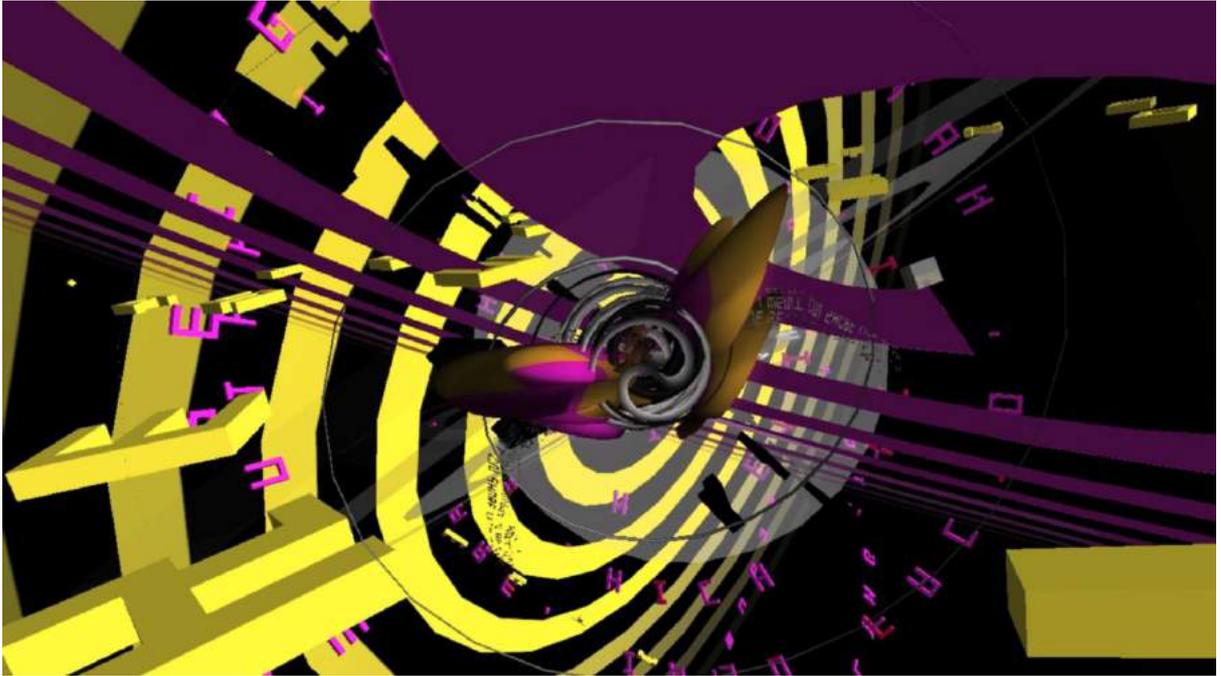


Figure 13 - Max Moswitzer, Selavy Oh and Alpha Auer, *LPDT3*, 2012 (environment and avatar). Virtual photography by CapCat Ragu, 2014.

Another example of this kind of hybridisation is the *LPDT2/3* project (see image 13). This installation was inspired by the pioneering digital design of Roy Ascott *LPDT*, redesigned 30 years later by Max Moswitzer, Selavy Oh and Alpha Auer, first with *LPDT2* in SL in 2010 and then in 2012 with *LPDT3* in New Genres Grid. Despite being also based on textuality, the core of this work is distributed authorship. Max Moswitzer and Selavy Oh were responsible for planning and architecture, while Alpha Auer was in charge of the soundscape and avatars. The entire project was designed by the three authors, with the collaboration of Mimesis Heidi Dahlsveen, who was in charge of animating the avatars (*LPDT2/3* 2012). The environment becomes a visual and sound flow, wherein the contributions of different authors are merged without losing consistency. Avatars merge with such naturalness in the environment that sometimes it becomes difficult to distinguish space from body.

The same can be said about Eupalinos Ugajin, an artist famous for both his responsive buildings and his shape-shifting avatar, who is always substantially different from all the avatars that can be found in the Metaverse. If the playful dimension of art is a feature in virtual

environments in general, for Euplinos Ugajin this becomes its main feature. The artist literally plays with all kinds of virtual artefacts, remixing his materials with creations from other authors that we can think as virtual ready-mades. In many instances, his avatar includes attachments that make it hard to distinguish between the avatar and its surroundings – he mixes all three categories (environments and objects; avatars and performance) in the way he embodies his avatar. Both his buildings and his avatars become assemblages of body parts, objects, sounds, and animations. Ayiter considers that these creations arise from a bisociative process, a creative process advocated by Arthur Koestler who believes that the creative act is the result of the juxtaposition of two apparently antagonistic frames of thought (Ayiter 2011).

Eupalinos Ugajin is also the initiator of the 2013/14 project *Moving Islands* at Linden Endowment for the Arts (LEA), an open-ended artistic collaboration where several artists created rafts or islands that drifted on the flooded Sim. Ayiter and Ugajin (2015) consider that one might think of this project as an extension of the way the artist uses his avatar – “an entire virtual landmass that acquires an aggregated identity that reflects the participants of the project, coming into being through their combined prims” (Ayiter and Ugajin 2015, 169). More than thirty artists participated, accepting Ugajin’s challenge to create this environment in a collaborative way. Ayiter and Ugajin (2015) highlight the fact that these artists came from different backgrounds, and they used various methodologies, formal and conceptual approaches. Nevertheless, Ugajin managed to create a unified framework for the pieces using windlight (Ayiter and Ugajin 2015). The way light and colour was reflected by the several artefacts became the connecting line for these singularities²³.

In Bryn Oh’s *The singularity of Kumiko*, in Immersiva Sim, in SL, the author created an array of artefacts including spaces, sounds, objects, and animations. The environment’s windlight was pitch black, except in illuminated key areas, and the visitor’s avatar is equipped

²³ My participation in this project was rather small, due to health problems. My name is in the project because I contributed with one of the Kromosomer’s avatars, Melusina, discussed in Chapter 9.

with a head-mounted torch to light up the way. Bryn Oh brought to this narrative stories and characters from previous projects. The visitor is invited to follow a non-linear narrative that gradually unfolds, not only inside SL but also using hyperlinks as a way of expanding the playing field. What is relevant for this study in this artwork is the way it relates to Bryn Oh's previous work, i.e. the use of the machinima *Juniper*. This movie was associated with the poem of one of the rooms in the *Imogen and the pigeons* installation, from 2013, also in Immersiva. Juniper is not the only character going through different works and different narratives by Bryn Oh. Their stories contain relations and hyperlinks that cross-reference between them. This 2013 machinima appears in this 2014 installation as a link to a video sharing page. It is, therefore, a film designed as an autonomous work, based on previous work by the artist, which is used as part of a new work. This is indeed a demonstration of the specific characteristics of the virtual environment, which encourages rhizomatic relationships among various projects, forms of expression and even platforms.

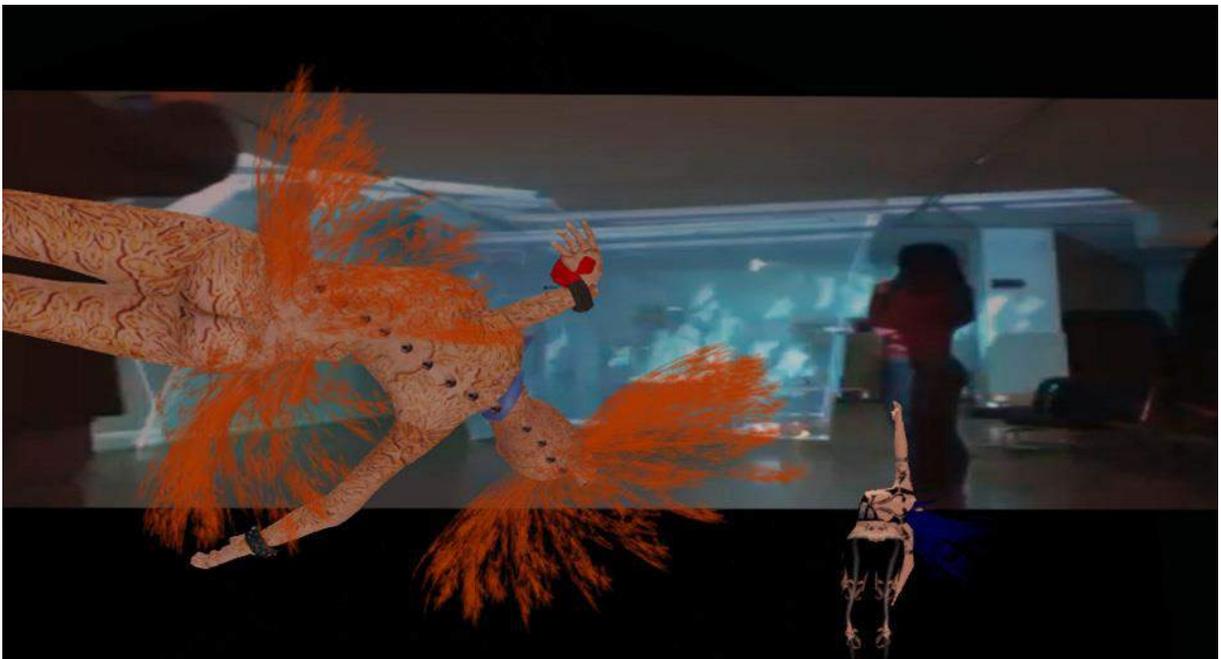


Figure 14 - Multiple participants, *Senses Places*, performance at Slactions, 2013. Virtual photography by CapCat Ragu, 2013.

Senses Places (see image 14), a project initiated by the Portuguese choreographer Isabel Valverde and the New Zealander engineer Todd Chochrane, is an innovative example of performance practice in virtual worlds. Their experimental and participatory dance project in SL combines physical and virtual performance, using sensors. Both performers and audience participation (in the physical environment or in virtual world) animate avatars in real time, while performing. Real-time video of the physical performance is broadcast in SL, while SL real-time video is projected onto the physical performance. Clara Gomes (2014) refers to it as “a project of participatory cyberformance in mixed reality environment aiming to develop corporeality, body awareness and amplification of the senses through the kinaesthetic running through the convergence between virtual and real” (my translation).

6.3. Aesthetic aspects of CVE

The critique of illusionism was one of the most important aspects of the modernist critique. As Clement Greenberg puts it:

The Old Masters had sensed that it was necessary to preserve what is called the integrity of the picture plane: that is, to signify the enduring presence of flatness underneath and above the most vivid illusion of three-dimensional space. [...] The Modernists have neither avoided nor resolved this contradiction; rather, they have reversed its terms. [...] Whereas one tends to see what is in an Old Master before one sees the picture itself, one sees a Modernist picture as a picture first. (Greenberg 1992, 756)

Although in the second half of the twentieth century there was a “return of the real” in Contemporary Art, the “anti-illusionist posture was retained by many artists and especially by the art critics who were involved in conceptual, institution-critical, body, performance, site-

specific, feminist, and appropriation art” (Foster 1996, 127).. This atavistic fear of illusionism leads to a confusion, which is not only exclusive to the art world, but affects the word *virtual* to an ever-greater extent. As referred to before, *virtual* does not oppose *real*, but stands in opposition to the term *actual*. The ant-illusionist position in art criticism often confuses virtuality with illusion, making CCVEs art works very hard to accept by the contemporary art world.

Illusion was only disreputable in erudite art, popular art and the evolution of media always continued to attempt better ways of creating it: Louis Daguerre and Charles Marie Bouton loved the whole idea of illusion when they exhibited their first dioramas in Paris 1822. Daguerre would later become famous for his discoveries in photography, but he began his career as a stage designer and painter – a profession that is devoted to the visualisation of illusion and of make-believe. The diorama was therefore a rather sophisticated design that had its origins in Daguerre’s earlier work on stage scenery. What was new and different from traditional stage scenery, however, was that Daguerre aimed to create a naturalistic illusion of space solely through the manipulation of light: 70×45 feet pictures were painted on both sides of a translucent material, letting light change the picture; not only affecting its chromatic atmosphere, but also revealing parts of the picture painted on the back of the canvas. R. Derek Wood describes it as follows:

By light manipulation on and through a flat surface the spectators could be convinced they were seeing a life-size three dimensional scene changing with time – in part a painter’s 3-D cinema. To display such dioramas with the various contrivances required to control the direction and colour of the light from many high windows and sky-lights, as well as a rotating amphitheatre holding up to 360 people, a large specialist building was required. (Wood 1993, 284)

In effect, there appears to have been an attempt to create a three-dimensional immersive environment, a simulation. Today one can see the adaptation of Daguerre's original concept in many anthropology or natural history museums displayed as three-dimensional scale models of natural or historical scenes. Although in some cases the manipulation of light to bring about a state of immersion is still current, the genre has extended itself to also use physical objects and artefacts. Therefore, contemporary dioramas vary a great deal when it comes to scale, sophistication and the use of materials, depending upon where they are installed and to what purpose. While on the low end of the scale, one can observe artefacts such as a *papier mache* volcano made by a small child for a school project, on the high end of the scale, the output can be highly compelling, lifelike, very often also digitally enhanced dioramas, such as the ones that can be seen in museums and exhibits, as mentioned above.

Stuffed animals inside a painting or entire city scale models... What the overall concept of the diorama makes common to all is that they are self-contained. From very small to very large, they are an "all world" or an "all story". Dioramas can also be embedded inside larger dioramas – an "all world" within an "all world". However, even in such cases of nesting, dioramas are nevertheless intended to function independently; they do not need the "big picture" to be understood. It should be added that dioramas are also very close in concept to snow globes, ships in bottles, dollhouses, and pop-up illustrations. They carry the same effect of wonder; therefore they do not even need to be immersive (in the three-dimensional virtual sense of the term) to take us to another world. They address the consciousness of self in relation to the world, or the conceptualisation of the world to be more precise – they address *extended presence*, therefore memory, and especially imagination.

The critique of illusion on one hand, and the pursuit of always ever more sophisticated ways of creating it on the other, can be related to two distinct ways of seeing aesthetics:

detachment versus immersion.

Probably the most important figure in the defence of a detached way of experiencing art was German poet, playwright, and theatre director Bertolt Brecht. According to Steve Giles, the crises of representation that affected both literature and visual arts, was a dual crisis in drama and theatre because both verbal representation and visual representation are present in them (Giles 2015). Brecht created the Epic Theatre model, in which actors should detach themselves from the characters they were playing, and the audience would take a perspectival angle on the play that would reveal the artificial nature of the play, instead of surrender to a naturalisation of representation. “Epic theatre, then, does not reproduce conditions but, rather, reveals them” (Benjamin 1998, 4).

According to Bishop, Debord’s *situations* were a “logical development of Brechtian theatre” but “they would involve the audience disappearing altogether in the new category of *viveur* (one who lives)” (Bishop 2006, 13). One could argue that these were then immersive situations, but probably Debord would not be satisfied, because the main idea was to provoke actual living situations, not illusion at all.

Bourriaud’s view of new media immersion was also disparaging:

The much vaunted "communication superhighways", with their toll plazas and picnic areas, threaten to become the only possible thoroughfare from a point to another in the human world. The superhighway may well actually help us to travel faster and more efficiently, yet it has the drawback of turning its users into consumers of miles and their by-products. We feel meagre and helpless when faced with the electronic media, theme parks, user-friendly places, and the spread of compatible forms of sociability, like the laboratory rat doomed to an inexorable itinerary in its cage, littered with chunks of cheese. The ideal subject of the society of extras is thus reduced to the condition of a consumer

of time and space. (Bourriaud 2002, 8-9)

For once, he completely failed to understand user's increasing power (even if always subject to the predatory power of advertising, and some proprietary and mercantile relations that determine the conditions of access to platforms and software), but also he could not go beyond the mere surface of what was arising, nothing like Walter Benjamin's vision of the new media in his time. One could go as far as to say that to Bourriaud, with his vision of physically placed, even site-specific most of the times, this art of human relations was auratic. The "here and now" is precisely how Benjamin describes the aura of the work of art, in contrast to the new aesthetic experience that photography and film were bringing to people (Benjamin 2007). He found something interesting happened when people were not in front of high-brow art, but enjoying more popular forms of expression (like cinema was at the time):

Mechanical reproduction of art changes the reaction of the masses toward art. The reactionary attitude toward a Picasso painting changes into the progressive reaction toward a Chaplin movie. (Benjamin 2007, 234)

Mechanical reproduction in Benjamin meant just that – several copies could be made of something. Today in the digital era we can not only copy, we can do it in our homes, and everybody can do it. In addition we can transform what we have copied and distribute it so more people can copy and transform, and so on (when legal licenses permit it, of course).

The illusionistic space does not need to be a hoax. When present in virtual environments we are aware of their artificiality. Manovich considered that we need latency for that detachment, because it remembered the user of the artificiality of the world as it rendered (Manovich 1996), but we do not. We have our own physical bodies to remind us every second we are in an

artificial world (see Chapter 2). We can also copy, transform, and share parts of our digital bodies; we enjoy that just like folks enjoyed Chaplin in his time, and it reminds us of the artificiality of that body. Anyone can do it, it is not just for experts and it is not just for artists; aesthetics becomes democratised. Many people who say they favour democracy in the arts in fact are not prepared for it, because it will produce many, many things they do not like, they find kitsch or superficial. CCVEs, like other forms of art that depend upon technical reproduction such as film and photography, extend the field of aesthetical experience and challenge the dichotomies between learned and popular art that continue to structure the critical discourse of many art institutions.

Part III – Praxis

7. The Delicatessen Sim

7.1. *CapCat & Meilo*

CapCat Ragu is the name of my avatar in virtual environments. Most of my work is done with another avatar – Meilo Minotaur. Meilo is the avatar of Sameiro Oliveira Martins, Portuguese artist and my mother.

Although in very different media and contexts all through our lives it seems that we have been dealing with the same issues that we are now working on together in the virtual environments: When I was a little girl I used to love the Carnival holiday. In Portugal this is a time to dress up, and to imagine ourselves as the other... I remember my mother staying up all night working on amazing see-through butterfly wings for me. I think these were the first avatars we ever made together.

During the 1980's my mother was in a handicrafts group called Gárgula, where she and her colleagues made what I would now call clay avatars. She was a ceramist, but did not do pottery; instead she made these strange characters inspired by the imagery of her fantasy world. The Gárgula members also often made this type of work collectively and we would never know who had made what, thus turning the collective into an organic multi-author entity.

As I grew older I too became an artist. It was the turn of the millennium and I was very involved in activist and feminist art, working with a feminist artistic collective called ZOiNA, which worked very much like Gárgula did, only with different media and in a different context. We were exploring notions that are now fundamental for me and Meilo, like play and embodiment as an aesthetic experience; in works such as 'Ludic Zone', which was an installation of a colorful relaxation area inhabited by an anthropomorphic, human sized rag doll and in which a full body coverage suit could be worn. On both the suit and the doll, the

participants could attach a wide range of props and organs creating different characters and interactions.

In my independent work I was also focusing on the symbolic body, questioning the perception of the body as a formal mental scheme and our social identity as the idea of one's own body, the design of a body. I argued that in society the reproductive systems were established as a social identity. It was this metaphor that I intended to underline, analysing the individual as the reproducer of socio-cultural identities.

In 2008 we joined Second Life. My mother, who entered the world as Meilo Minotaur, was the first of us to create an account, and she very quickly dragged me in as well. It was early summer, and I went there as a kind of online vacation, just to play around. In fact, our entire engagement in the virtual world was very much like playing with dolls at first – these dolls being our avatars, of course. As discussed in Chapter 6, according to Frasca the aesthetic dimension of play is constituted by a set of limitations (Frasca 2007, 58). Ironically my first art project, the first set of limitations that I imposed upon myself, was a road trip, a journey in Second Life without the usual teleports, which was therefore an inversion of the typical way in which Second Life is used, as a hypermedium with hyperlinks. Throughout this journey I made a photographic journal that I shared on Flickr documenting my adventures. This was both a factual and a fictional narrative (Schaeffer 2010), which I undertook in order to meet new people and see new places in Second Life. These meetings were documented in my journal, but at the same time the pictures were a kind of storyboard of a fictional road trip, role-played by me, in virtual places that I actually visited in the sequence of the narrative. Some people would argue with my usage of the word *actually*, but it was not a fiction that I visited those virtual places, even though in a simulation, I actually did it, and a non-fictional journal could have been produced. Instead I chose to fiction some of the events that happened there (not all). This somehow parallels the concept of Second Life itself, a mixture of fictional and factual, a

tension, an overlapping between the two dialectic perspectives on this virtual world: those of the immersionist who sees SL as self-contained world more prone to role-playing or fiction, and that of the augmentationist who sees it as an extension of real life, another platform of social networking and factual encounters (Bennetsen 2006).

What should probably be mentioned is that during this journey I developed a keen enthusiasm for virtual photography, which became my main interest at this point, and I began to exhibit my photographic work, both on Flickr as well as in in-world art galleries.

Meanwhile my mother, i.e. the avatar Meilo Minotaur, was more interested in building and started working on her own land, mainly landscaping at first, but she also began to make virtual sculptures very soon. Unlike me, she played around with alt avatars, those “supplementary virtual identities through which a virtual world resident can operate, together with or separately from the main avatar” (Ayiter 2010, 9). Many residents create these accounts to escape social engagement (Boellstorff cited in Ayiter 2010). This is mainly what my own alt avatars are for: I use them to build, and to teach, without being constantly interrupted by social requests. My mother is different in that. Although Meilo also has avatars just for working without being bothered, most of her alt avatars had their own stories and personalities; they are characters she embodied through internal focalisation (Niederhoff 2011). Playing dolls was getting more and more complex. Conceptualising avatars was now becoming quite important in Meilo Minotaur’s Second Life.

7.2. Building Delicatessen

By 2009 we already had our region, Delicatessen. It was a landscape designed mainly by Meilo where I had my photo studio in a castle, “PhotoDelicatessen”. We gave it this name not because of the Marc Caro and Jean-Pierre Jeunet’s film, as many think, but because we thought of that photo studio as a store for delicacies. When the winter of 2009 came we wanted to change the

poppy field landscape to a winter one, so we closed the region for rebuilding. This time we worked much closer than ever before in the building of the Delicatessen. We were getting better at building and terraforming and I was now doing it too and loving it.

Besides the new winter landscape, and because I was experimenting with Eloh's creative commons licensed skins, *Another Skin*, we decided to make the first avatar we ever shared, it was *Elfa!* (see Appendix A), a feminine Christmas elf and she was meant just as a Christmas gift to celebrate the reopening of Delicatessen. People liked and blogged about her much more than we expected.

At this point the only artistic pretensions we had were about virtual photography, which by this time Meilo was also experimenting with and getting pretty good at it. At first we did shapes, skin, and clothes only for our personal use. These were often influenced by what we wanted to do in photography, but the reception of *Elfa!* made us think that maybe we could distribute our avatars in the future, because we found it was incredibly exciting to see other people reusing our work in their own creations.

Without even knowing about the concept, the shared creative process was already becoming a way of creation for us. So when 2010 came, after two years in Second Life, we were ready to take a step forward.

7.3. De Maria, de Mariana, de Madalena

The opportunity came early that year when the artist Carla Cruz (who had worked with me in Caldeira 213 and ZOiNA) invited me to once again participate in the exhibition "All My Independent Women" (AMIW). More than an exhibition, this event presented itself as a platform for feminist thought and it was exhibited irregularly in various parts of the country, always curated by the artist Carla Cruz. The 5th edition took place in Coimbra, between May 21 and June 18 at Casa da Esquina. I had had the pleasure of participating in previous editions,

usually with installations in the place where the exhibition took place. That year, however, I decided to propose something different to Cruz, a virtual project in Second Life developed in collaboration with Meilo Minotaur.

De Maria, de Mariana, de Madalena project was conceived in response to that invitation. The 5th edition of *AMIW* revolved around the collective reading of the *Novas Cartas Portuguesas/New Portuguese Letters* (NPL) by Maria Isabel Barreno, Maria Teresa Horta and Maria Velho da Costa.

Mariana Alcoforado who appears as a central subject, a 17th century character from another book — *Portuguese Letters*. Mariana is a nun who writes letters to her lost lover from a convent in Beja. She comes to life again in this new book as a pretext to dissect a number of issues related to gender and womanhood during the twentieth-century dictatorship in Portugal. In NPL the individual character is fragmented and divided. There is a multiplicity of voices in addition to the authors', often writing on behalf of Mariana, her mother, her sister, her lover, and others.

The impact of this book in Portugal was such that it was immediately apprehended by the censorship authority and its authors faced charges for affronting public decency and pornography. This became known as the Three Marias process. Only after the April 25th revolution, in 1974, were the authors acquitted and the book made public (Macedo, 2010, p. 56).

In its 1980 edition, NPL was prefaced by Maria de Lourdes Pintasilgo, a Portuguese politician who was the only woman prime minister in Portugal, from 1979 to 1980. She notes an obsessive focus on the materiality of body as a first battlefield for the emancipation of women. The body becomes the place of denunciation of oppression of women, exceeds itself, goes beyond mere representation to work as a metaphor:

[T]he body, as a privileged place for denouncing the womens' oppression, goes beyond that what it represents. It works as a metaphor for all forms of oppression hidden and not yet overcome. (Pintasilgo 1980, 10)

It was precisely this idea of a metaphorical body that interested us in on our project.

Experiments by Yee and Bailenson (2006) point to the possibility of embodied perspective-taking in virtual environments having an impact in the reduction of negative stereotyping. So, we invited Delicatessen's visitors to embody themselves in a woman's shape. For this, three avatars were created, freely available in the fruits of our Great Tree. By touching each fruit, people who visited us were able to receive one of the avatars: *Maria*, *Mariana* or *Madalena* (see Figure 1B, Appendix B).

Maria (see Figures 2B, and 3B, Appendix B) was a pregnant woman. She was shorter than the usual Second Life avatars and much heavier and portly. We were particularly proud of her folds back, so common in women (at least pregnant women) and her heavy breasts, so different from those commonly used in SL. Her clothes were primitive, with a sheep skin cloak and a baby teeth necklace. She was the only one armed: she had a primitive knife strapped to her thigh. She was a mother and a warrior, but one that literally came in sheep's clothing.

Mariana (see Figures 4B, and 5B, Appendix B) was a tree. We made her with Bjork's "Bachelorette" verses in mind: "I'm a tree that grows hearts | One for each that you take (Bjork 1997). Like Cecilia Meireles, *Mariana* learned from Spring to let herself be cut apart and always come back whole (Meireles 1945).

Madalena (see Figures 6B, and 7B, Appendix B) was the gaze prisoner. Both her shape and skin where more in line with the usual stereotypes in Second Life – tall, thin and sinuous, with firm breasts and milky skin. She was a desirable woman. Her desire had become a mirror of the Other's desire.

We had not intended to propose these avatars as stereotypes of the women as mother, the woman in love or the desirable woman, let alone reducing women to their status of mother, bride or lover. What interested us was precisely to problematise such concepts through metaphorical appropriation of the body, giving them away to be torn apart and rebuilt, like Haraway's cyborg. As we have seen in Chapter 1, Haraway used this allegory of the cyborg to address the constructed character of one's gender experience and even one's consciousness. She advocates that:

Liberation rests on the construction of the consciousness, the imaginative apprehension, of oppression, and so of possibility. The cyborg is a matter of fiction and lived experience that changes what counts as women's experience in the late twentieth century. (Haraway 1991, 149)

Now, in the early twenty first century, customisation of avatars enables imaginative apprehension of the symbolic body and control over its construction and meanings, both individually (by creating one's avatar) and collectively (by using what others create, and sharing one's creations), as we have been referring throughout this study.

As Griselda Pollock remarks: "(...) the body, not as a biological entity, but as psychically constructed image provides a location for and imageries of the processes of the unconscious, for desire and fantasy" (Pollock 1996, 6). This is consistent with Weiss's concept of body images and Yee and Bailenson's findings exposed before. This performed (Butler 1990) and semioticised body was now completely open for metamorphosing. Everyone was always free to recombine the attributes of avatars or mix them with other body elements, using different shapes, skins or adding clothes or props. Whoever embodied these woman bodies had in their

hands the power of transformation, the freedom to reinvent their selves. We were the mere distributors of some possible signs, it was up to each person to perform and construct meanings.

As I have already mentioned above, for us Delicatessen and the avatars themselves were of little value without the others. It was, in fact, the appropriation available to each person, which moved us. The region was built on our own experiences, on our experience of gender, on our particular references. It is natural that for us every tree and every object has its own meaning. However, that meaning was transformed and expanded in the reading and uses of those who experience the Sim's several islands.

As the book *Novas Cartas Portuguesas/New Portuguese Letters* invites an erratic reading, so did Delicatessen's multiple islands. We did not offer a default route, we preferred that each person build her own away, by wandering around the region. This time the landscape was different; it didn't look like a simulation of plausible landscape. Although there were trees, water, ground, islands, rivers, hills, everything was unlikely... There were trees that looked like sculptures and sculptures that looked like trees. Some were dreamy and poetic, some were scary and dark, most of them were both at same time, standing in that thin line between beauty and horror (see Appendix B).

To share the various ramifications of this project (and others that followed it) we established a group on Flickr called *SL – Delicatessen* where we tried to collect the images people created from our region or avatars, virtual photographs, and machinima (see Appendix K). It is this shared creativity work that begins to make sense to us as part of a creative flow that involves all the people who create something and share it with others. Opened for recreation, reinterpretation and reconstruction, this stream is a river full of effluents and branches through which we just passed, leaving our input open to reuse.

7.4. Petrified

This was our second project together and in the last months of 2010 we rebuilt Delicatessen entirely for it, opening on December 30th.

The region was built around a main central island with a big bay and a pointy hill (see Figure 19). Smaller islands floated around it on air and the sea, lurking through the mist. In each of them a scene was depicted – a crying tree, a ghost forest, a girl playing the violin to a flamingo, a white dove caring a human heart and so on. These scenes did not relate directly to each other, what bound them together was a strange feeling crystallization. In the announcements for its opening one could read:

When the past tangles you in sweet and bitter smells

When a fly buzzing on your ear gives you shivers

When a single frame takes your breath away

When the scream in your throat doesn't make a sound

When your dreams freeze before your eyes

When you lay roots before you can leave the ground

When your body turns to salt

When your heart stops and time swells... ...you are petrified.

It was this idea of unfulfilled desire that motivated us throughout the project, the feeling of being frozen during an accomplishment, just before getting there. Like Adrienne Rich's bee, which is described in the quote below; locked in place where life cannot be fulfilled:

Beginning to write, then getting up. Stopped by the movements of a huge early bumble bee which somehow gotten inside this house and is reeling, bumping, stunning itself

against windowpanes and sills. I open the front door and speak to it, trying to attract it outside. It is looking for what it needs, just as I am, and like me, it has gotten trapped in a place where it cannot fulfill its own life. I could open the jar of honey on the kitchen counter and perhaps it would take honey from that jar; but its life-process, its work, its mode of being, cannot be fulfilled inside this house. (Rich 1985, 7-8)

Trapped in a body, a house, or a country... To fulfill desire is not the same as fulfilling wishes, it is the fulfillment of a desiring vocation. It is not about possibility, instead it is about potency. We felt this *desiring vocation* was petrified in us. Not broken, not subdued, just frozen. All of its potency just about to burst in our chests, but contained, just on the verge of becoming.

Many things in our lives took us to that place at that time – being women, being mothers ... and, of course, being Metaverse artists. Many aspects of our existence kept telling us that what we did was meaningless. I believe many people that are creatively active in the CCVEs share this frustration. From conversations I have held with fellow Metaverse artists one of their biggest complaints is the feeling of not being taken seriously by their peers in the tangible world.

Delicatessen was built for the Petrified project in dioramas, as described in Chapter 6, addressing an extended sense of presence. This had as much to do with our process of building the islands and the clusters of digital objects that were placed within them as it did with the finalised project. Not being standalone objects in the exact sense of the word, one could call them installations, but they were in fact much more like dioramas that helped evoke potential spaces or events. Consequently, each cluster was an open narrative conceptualisation. As stated before in virtual worlds there are two bodies: that of the avatar who is immersed inside the world, and our own, which is behind the keyboard. As was discussed before, while we need the avatar to connect with the world and to see it from the insider's perspective, we are still situated

outside of it. Ergo, we see the world like a child looking at a ship in a bottle. Engaging with this world takes the same effort that a child needs to muster in order to have a meaningful relation with that ship. This effort requires (and is) imagination – pure and simple.

Looking at all this from yet another vantage point the discrete, isolated (and yet interrelated) scenes in *Petrified* looked like dioramas because they were more like frozen agents than sculptures. The petrified human tree crying like a fountain (see Figures 8C, and 9C, Appendix C) or the ones caught in the act of trying to escape their fate of being rooted (see Figures 2C, and 3C, Appendix C); the strange masked man standing in his cloak (see Figure 12C, Appendix C); the three ghostly little girls – all of them could be seen as taxidermied avatars. Except for the circular flight pattern of the seagulls and their cries, one would say that time stopped in *Petrified*, just as it does inside a snow globe.

Some of these dioramas were also inspired by images from films that we felt related to this feeling of muffled potency. These films were very different from one another and their perceived commonality was founded only in our interpretation of the material, which led us to infer that their characters were at some point petrified, and that this was somehow connected to unfulfilled desire or shattered dreams. One of the recaptured film scenes involved the dream scene from Andrei Tarkovsky's film *Zerkalo/Mirror* in which the protagonist's mother washes her hair in a bowl only to find that her house falls apart and washes away along with her hair in a torrential rain²⁴. In order to adapt Tarkovsky's narrative to our virtual ecology we created a stone cabin, which was located under a big tree. Inside this cabin a creature resembling a woman or a doll was seated at a table with her head and her arms down, her hair dipping in a bowl in front of her, while one could hear and see the rain inside the cabin (see Figures 15, and 16, Appendix C).

²⁴ Andrei Tarkovsky, *The Mirror*, 1975.

At the bay, underwater, we had yet another female figure with loose hair who was attired in a big black dress; and who was attached by a rope from her ankle to a sunken piano. She was completely still, not even her hair or her skirt moved (see Figures 19C 20C, and 21C, Appendix C). Just above her, afloat, a dog and its master on a little boat seem to expect something to emerge (see Appendix C cover). While the human figure of the master had exactly the same face as the dog, further above, in the sky, on a cloud, a translucent white woman was seated by a translucent white piano (see Figure 22C, Appendix C). This three-leveled scene consisting of the two women, one immersed underwater, one floating in the sky and the man/dog duo in the middle was a reference to a scene from the film *The Piano*, by Jane Champion²⁵, in which one of the protagonists, Ada, puts her foot in the middle of a coil of rope attached to her piano while it is being thrown into the sea. Like a black jellyfish she floats underwater, bound to her piano, transfixed.

The sky islands were inhabited by dioramas (see Figure 1C, 2C, 4C, 5C, 6C, 7C, 9C, 10C, and 11c, Appendix C), some of which were also inspired by such film scenes. In one of these the visitor to the island could pose in bushes with a fox while a strange couple- he human like, she a hybrid of a woman and a tree root - seemed to arise from the ground and the tree that stood above them. In this case we recalled two of the famous and controversial scenes from Lars von Trier's *Antichrist*²⁶, namely the scene which involves dialogue with the fox, in which a fox eating its own bowels tells the main character that "Chaos reigns"; and secondly the scene where a couple have sexual intercourse whilst leaning into the roots of a tree (see Figure 18C, Appendix C).

Our first projects and the way our work developed led us to understand how important the participatory aspect was for us. Even in *Petrified*, where there were no avatars sharing, we

²⁵ Jane Champion, *The Piano*, 1993.

²⁶ Lars von Trier, *Antichrist*, 2009.

were always eager to see other people's virtual photographs and machinimas (see Appendix K). We also understood how easy it was to work in the three layers of shared creativity in this context, and that these three layers meant very much to us as artists. Individual work became to us fragile and unimportant. We still do it, but it always feels quite petrified...

Delicatessen's latest project is called *Meta_Body*. This was the project developed as art-based research during the course of this doctoral research and constitutes our main case study. It came naturally from what was becoming important to us: sharing, transforming and copying. In our first projects we did not share our avatars with full permissions, people could transform and copy them, but could not share them with other residents. We understood, by this time, that we were putting a dead end to the creative flow we so much enjoyed – people needed to be able to share their transformations, so other people could build upon that. That is how the *Meta_Body* project came to our minds.

8. *Meta_Body*

Meta_Body is an ongoing project initiated in 2011 by Meilo Minotaur and me in the Delicatessen region. Initially, this project consisted of a set of eighteen avatars distributed in a virtual installation, which were free, copyable, transformable and sharable. SL residents who got them were invited to share with us any derivative creation resulting from the manipulation of these avatars. These manipulations were first presented in the form of machinima and virtual photography and, in a second phase of the project as derivative avatars.

As an art-based research project, *Meta_Body* can be considered both practice-based and practice-oriented research, since its theoretical framework informs, but is also informed by, artistic practices carried out in the virtual world. This project is focused on two aspects – the avatar as body/language, open to experimentation and potency, and avatar building as a shared creative process and aesthetic experience. Through avatar creation, distribution, embodiment and transformation, we aim to understand the processes of constitution of virtual corporeality: to question the role of the body in virtual environments, its importance in engaging with the world and in self-expression.

The project is conducted mainly in SL's collaborative virtual environment, but it has also been displayed in "real life" contemporary art exhibitions. The actualisation of the project varies in each context, but it is never possible to cover all aspects of the project in an exhibition, since its interactive and participatory dimensions can only be experienced in a virtual environment. As an artwork, *Meta_Body* can be experienced in many different ways, as we will discuss later, but the embodiment and transformation of the avatars may turn the aesthetic experience of the work into a creative process. This is why the avatars were distributed not only for free, but they were also transformable, copyable, and transferable, giving full freedom of use to the participants.

The method used to implement this project is therefore a shared creative process in which multiple subjects can be regarded as authors along different phases of the project and where some of these individuals can switch between users and producers of materials distributed, making them also producers (Bruns 2007). We present here three different approaches to the concept of shared creativity: the first, collective creation, is the process used by Meilo Minotaur and me in the construction of the avatars and virtual installations, a cell group acting as a single author in a very intimate form of creative process; the second, distributed creation, is how derivative work was created using the first set of avatars to build further elements which in turn fueled a reserve of materials available for the realisation of new creations; and the third, collaborative creation, a process in which each artist retains her personal mark in a creative dialogue with others – as was the case with Takio Ra (Luís Eustáquio), who contributed to the project by creating “soundscapes”²⁷ for the virtual installations, as we shall see below (Sousa 2013; 2014a; 2014b; 2015a; 2015b).

8.1. Relationship with AMIW

The project began as a response to the invitation to participate in the contemporary art exhibition AMIW 6th edition subtitled *Or Rather, What Can Words Do?*, held in Vienna in 2011.

As stated, we had already participated in 2010’s 5th edition with SL-based work. That edition revolved around the collective reading of NPL and the 6th edition was an extension of this theme. So we continued to work on the metaphorical aspects of the body. This approach to the body is commonly found in a gender studies context (Pollock 1996; Haraway 1991). Working with avatars, however, brought new perspectives to this concept, raising new

²⁷ We refer to the audio work as a "soundscape", given the purposefully environmental nature of its relation with the virtual landscape.

questions about the body. What can we call “body” in a virtual environment? Is the avatar really our virtual body? That prompted a new investigation in the form of the *Meta_Body* project. One main idea was crucial from the beginning: that the virtual experience of the body is not exactly an experience of the flesh. These sensations, albeit having a physical sensorial aspect, continue to be experienced in our bodies behind the screen, not in our avatar body. The virtual body is a metaphorical body made up of visual forms of language and expressiveness and therefore open to experimentation and possibility. These ideas were already in the call for artworks, and have been central in several preliminary studies published (Sousa, 2012, 2013, 2014a). These originated mainly from practice and direct experience of the world, building and embodying avatars. Most of the research in literature and secondary sources was parallel to practical development.

Although this is a fluid ongoing artwork that invites continuing participation, one can distinguish two different phases of the project. The first, referred to as Phase I, was directly related to the AMIW exhibition and involved the distribution of the eighteen original avatars by our avatars, Meilo and CapCat, in SL and the subsequent call for derivative artworks in the form of machinimas and virtual photography. Phase II, not directly connected with AMIW, happened entirely online and involved the call for derivative artworks in the form of new avatars; environmental installations were made by Meilo and CapCat for the distribution of these avatars.

Despite the fact that this project included calls for artworks in different phases, it should not be seen as a curatorial project as the focus was not on selection nor documentation, but rather the triggering of a participatory and creative aesthetic experience.

8.2. Phase I

Meta_Body was initiated for the 6th edition of AMIW; this was largely a continuation of the previous edition, which engaged with the collective reading of the NPL, under the subtitle *Or Rather What Words Can Do?*, a question cited from the book.

In the 1980 edition preface of NPL, Pintasilgo notices an obsessive focus on the materiality of the body as a first battlefield for the emancipation of women (as mentioned in Chapter 7).

It is precisely this idea of a metaphorical body that interested us in *Meta_Body*. We designed eighteen avatars for distribution with full permissions, i.e. all parts that constituted each avatar (skin, shape and attachments) were open to be transformed, copied and redistributed by all SL residents.

The inspiration for designing these avatars came from different places; there were some animalistic avatars, like *Meta-Birds* (see Figure 16D, Appendix D), two anthropomorphic male and female bird avatars; *Dragonfly* (see Figure 20D, Appendix D), half human, half insect; *Dinosaur* (see Figure 15D, Appendix D and cover of this thesis), with some Jurassic features; *Lizard* (see Figure 12D, Appendix D), an avatar slightly inspired by the sci-fi series *V* (1983); and *I see your inside* (see Figure 17D, Appendix D), not an animal avatar, but animalistic in its appearance, full of eyes all over her body. There were also some “queen” avatars: *Ice* (see Figure 11D, Appendix D), the cold queen; *Fog* (see Figure 5D, Appendix D), the misty queen; *Godiva* (see Figure 18D, Appendix D), the fragile queen; and *Silver7* (see Figure 13D, Appendix D), the queen of burlesque.

Our primary form of relationship with the SL platform was like 'playing with dolls': dressing and undressing, hairstyling and generally changing the avatar (Sousa 2012), so some of these avatars were inspired by dolls, in some cases quite literally as with *Ragdoll* (see Figure 8D, Appendix D), that looked like a rag doll. There were also clown doll avatars—*You my*

inside (see Figure 6D, Appendix D), a small doll, with another head in her open chest; and *Pipiua* (see Figure 5D, Appendix D), a harlequin with a big 17th century collar.

The aquatic environment was also an inspiration with *Aqua* (see Figure 4D, Appendix D), and *River Avatar* (see Figure 21D, Appendix D). Another two avatars were inspired by Hans Silvester's photography of the tribes of the Omo River in Ethiopia — *Indigo* (see Figure 19D, Appendix D), and *Jungle* (see Figure 10D, Appendix D). Finally, the two most improbable avatars, with bodies entirely made of net — *Frame Girl* (see Figure 9D, Appendix D), and *Chart Man* (see Figure 14D, Appendix D).

An installation was built in SL to distribute these avatars (see Figure 2D, Appendix D), where framed pictures of the avatars hover in the air. There are no walls, as there is no gravity in the virtual environment. By touching each picture the residents receive the avatars, as well as a note inviting them to participate in the project with their derivative work by sharing it with us in *Meta_Body*'s Flickr and Koinup groups²⁸. We also informed residents that a selection of artworks would be made from these groups, to be displayed at the AMIW exhibition in Austria. 120 artworks were selected with 80 SL residents²⁹ integrating the *Meta_Body* project for AMIW's 6th edition³⁰.

²⁸ *Meta_Body* Flickr Group: https://www.flickr.com/groups/meta_body/pool/

Meta_Body Koinup Group: http://www.koinup.com/group/meta_body/

²⁹ Acacia Merlin, Aili Panthar, Alexandra Shepherd, Anna Anton, Annie Klavinham, Ashling ~ Alchemal Art, B. Bode, Biox Varonia, Bobby Yoshikawa, CapCat Ragu, Cat Shilova, Chic Aeon, Corinne J. Helendale, Dantelicia Ethaniel, PraxisField (Dave Searby Mason), Harbor Galaxy (Deborah Lombardo), Domitalia Jinx, Eirela Lane, Eupalinos Ugajin, Fae Varriale, Flora Clayflower, Fuschia Nightfire (Nina Camplin), Gabrielle Swindlehurst, GuinneV, Hans Petter Meirik, Mimesis Monday (Heidi Dahlsveen), HivaOa Insoo, Ilanit Orsini, Isabella Alphaville, Jasmine Ballinger, joapedro Oh, Joe Balbozar, Kalyca McCaalen, Karro Lean, La Baroque, L_B, Leeleu Lemondrop, Lili Ivanova, Lillyane Inshan, LILY, Patricie Sapphire (Lucie Sinclair), Lyra Meili, Lookatmy Back, Looker Lumet, Luminis Kanto, Maagiha, Maloe Vansant, Meer Bluebird, Meilo Minotaur, Miguel Rotunno, Mila Tatham, Misscheevers Borkotron, Mitsuki Faith, nur_moo_, Paola Mills, Piedra Lubitsch, Phil Sidek, Podenga, Riviera Medier, Roxie Davidov, Ruth Latour, Sanam Sewell, ѕаяе, SaveMe Oh, Scarlet Highfield, Senna, Siri Woodget, Solange Simonsen, spyvsspyAeon (André Lopes), Syene, Tary Allen, Tess Falworth, Thea Maiman, Tim Deschanel, Ursula Floresby, wise_Sandalwood, Yasmina, Zeeva Quintessa, Zuzu Pelous.

³⁰ Virtual Photography in the AMIW exhibition can be seen in the following slide show: <https://vimeo.com/31369231>

Our selection tried to be as extensive as possible and not based on personal taste criteria. We aimed to have a representative sample of different sensibilities and cultures in Metaverse art, as well as different ways to approach the original avatars – e.g. in Harbor Galaxy’s (Deborah Lombardo) virtual photography *Beneath the Stream* (see Figure 15), we can see the *River Avatar*, unmodified and maintaining the original avatar's narrative (given solely by its configuration and name). But in the case of *Fog of War*, we can see that Eupalinos Ugajin attached new elements to the *Fog* avatar (see Figure 16), changing its narrative and meaning.



Figure 15- Harbor Galaxy, *Beneath the Stream*, virtual photography, 2011.



Figure 16 - Eupalinos Ugajin, *Fog of War*, virtual photography and avatar modification, 2011.

These different approaches also happened in machinimas— e.g. the machinimas by Fuschia Nightfire (Nina Camplin), and SpyVspy Aeon (André Lopes). The first, *Meta_Body Dragonfly*³¹, is a very short and simple, yet very poetic machinima. The second, *Sound Of Colors - Meta_body Experience*³², is a complex creation, using several avatars and modifications.

³¹ <https://www.flickr.com/photos/fuschianightfire/6226676260/>

³² <http://vimeo.com/30534519>

In AMIW in Austria these virtual photographs and machinima were looped on two screens (see Figures 22D, and 23D, Appendix D).

8.3. Phase II

We decided to develop a second phase of this project, *Meta_Body II*, in 2012.

This idea was born out of a chance meeting in the Metaverse with Fitch Woodrunner. We recognised in Fitch's *Meta_Body* modified avatar parts, an amazing recombination and transformation. In a private conversation, we congratulated Fitch and regretted that a picture of his avatar had not been submitted in time to be exhibited in AMIW. Fitch asked us if we intended to make a new distribution of avatars made from the first set. We thought that this would be a great idea and so we started *Meta_Body II*, which featured, among others, Fitch Woodrunner's avatar, *Aquavariel* (see Figure 36D, Appendix D).

We then made an open call, using social media networks like Delicatessen's Facebook page, our personal Flickr pages and the Delicatessen blog. We invited SL residents to share their derivative avatars that had the *Meta_Body* project avatars as a starting point. Any part of *Meta_Body* avatars could be used, as well as parts built by residents themselves and/or built by other creators, since those items were licensed for copy, redistribution and transformation. All avatars would be provided with full permissions – 22 creators built 26 new avatars. The variety of participants ranged from renowned Metaverse artists and designers to new residents experiencing the SL platform and avatar building for the first time.

The approach taken by creators also varied. Kikas Babenco, a well-known performance artist from SL, recombined and transformed parts of some of the first avatars (*Fog, Aqua,*

Dragonfly, *You see my inside* and *Pipiua*) to build a new character—*Sophia*³³(see Figure 41D, Appendix D).

Many participants used this approach but also included parts from open avatars from another project where we were involved—the *Kromosomer* project (Dahlsveen and Sousa 2013). This was the case of Elia Magnolia (Melania Pereira Ribeiro), a new resident and first time avatar builder, who shared the avatars *Shiverdoll* (see Figure 52D, Appendix D), and *Alma Blood*, and *Suppressed Red Riding Hood* (see Figure 81D, Appendix D) by Mimesis Monday (Heidi Dahlsveen)³⁴. The latter is a quite interesting case, first because Mimesis Monday was, in fact, the initiator of the *Kromosomer* project (she commissioned us to create the avatars), but also because the avatar she built was connected to yet another project entirely independent from *Meta_Body* and *Kromosomer – the LRRH - The other side of the story*, a new vision of the *Red Riding Hood* tale, also curated by Mimesis Monday. Fluid and open projects, like *Meta_Body*, invite these sorts of rhizomatic connections, heterogenic and non-hierarchical relationships, as projects have completely different origins and are independent from each other.

Many creators combined *Meta_Body* parts with their own creations. This was the case in Alpha Auer's (Elif Ayiter) avatar design brand, alpha.tribe. *Alpha.Tribe's Meta_Body Avatar* (see Figure 50D, Appendix D) combined a skin by alpha.tribe with elements of *Meta_Body* avatars, however these items were so drastically modified that they became almost unrecognisable, revealing the distinct alpha.tribe style³⁵.

³³ The avatars *Amazonzia*, by Wanda Beamish (see Figure 38D, Appendix D), and *Aquavariel* (see Figure 36D, Appendix D), by Fitch Woodrunner were also built in the same way.

³⁴ Other avatars that combined *Kromosomer* parts with *Meta_Body* items were *Golden Brown* (see Figure 39D, Appendix D), by Cold Frog; *Metamorphosis* (see Figure 57D, Appendix D), by Piedra Lubitsch; and *Smoke* (see Figure 51D, Appendix D), by Ursula Floresby.

³⁵ This was also the case of *Gorgonia* (see Figure 40D, Appendix D), by Moki Yuitza; *Green Lagoon Man* (see Figure 37D, Appendix D) and *Erato Fractal* (see Figure 83D, Appendix D), both by Fuschia Night Fire; *Chess* (see Figure 54D, Appendix D), by Cherry Manga; *Christina* (see Figure 55D, Appendix D), by CapCat Ragu; *Darkdoll* (see Figure 56D, Appendix D), by Meilo Minoaur; *Blind Train* (see Figure 65D, Appendix D), by Eupalinos Ugajin; *Appointment in the garden* (see Figure 66D, Appendix D), by Simotron Aquila; *Steam Boy* (see Figure 69D, Appendix D), and *Wind Girl* (see Figure 70D, Appendix D), both by Ggabriel Madruga; *Vibrance Av* (see Figure 79D, Appendix D), by Serenvide (Dave Searby Mason); *Cosmic Radiance*(see Figure 80D, Appendix D), by Rhojen Resident; and *Cica's Meta_Body Avatar* (see Figure 82D, Appendix D), by Cica Ghost. Some submissions also featured third party creations, whose authors generously consented to be included.

Ragdohcchio (see Figure 68D, Appendix D) by Veleda Lorakeet (Christine Romeijn) was a very unique case. Before the submission period was finished, Veleda contacted us asking whether we would consider an avatar a derivative if only the concept of one of the *Meta_Body* avatars was used. We were apprehensive but curious, so we decided to consider her avatar. *Ragdohcchio* was conceptually based on *Ragdoll*, but Veleda herself built all its components. *Ragdoll*, a rag doll, was turned into a wooden doll with similar features.

To distribute these avatars, four virtual installations were built in four separate levels, each designed as a tribute to the avatars it housed. Each level featured its own unique soundscape, composed by Takio Ra, heavily inspired by and evocative of the surrounding materials, aesthetics and themes. Sound clips were scattered and layered onto the virtual spaces, forming seamless textures, melodic sequences or asynchronous compositions. As each sound unit is audible only within a certain radius of its placement, this causes the soundscapes to change when moving the avatar through space, thus creating a more immersive aural experience.

These levels, which we call “stages”, are built vertically across the region, far enough from each other so that we cannot see one from the other. They become isolated, self-contained, like four completely different regions. Each of them addresses different imaginary landscapes related to their native avatars.

Stage 1 is the level of origin or birth (see Figures 26D to 35D, Appendix D). It is placed at the region’s ground³⁶ level and is covered in dark water at ankle level. A huge central tree dominates the space, with large cocoons hanging from its naked branches (see Figure 26D, Appendix D). Wrapped around the trunk of the tree, the residents can follow a tubular

This was the case of Cherry Ravinelli’s *Can’t stop dancing* (see Figure 67D, Appendix D), which included parts by Cherry Manga; and *Hands Free Av* (see Figure 78D, Appendix D), by Serenvide, with hair by Fuschia Nightfire.

³⁶ In Second Life one can build on the “ground” or in the “air”, therefore on different levels, as mentioned. The ground level is where virtual terrain and water is found. In air levels everything must be built from scratch, so a “natural” landscape is not as easy to simulate.

transparent path and a melodic sequence forms as one moves in space (see Figures 26D, and 34D, Appendix D). Fallen cocoons become vessels to “travel” in, since it is possible to sit inside them and follow their erratic jumps across the flooded region (see Figures 28D, and 29D, Appendix D).

This is the level for avatars that reference animals or plants — insect wings, animal legs, foliage hair, etc. These are avatars that evoke nature, further away from urban or cultural connotations.

The interior of the cocoons recalls the comfort of a womb or nest. Inside we find the chrysalis of the avatars, a 3D model that represents a fetal shape textured with the image of each distributed avatar (see Figure 32D, Appendix D). When touched they offer the residents the avatar, which they can immediately transform. Some of these cocoons, instead of the chrysalis, are parasitised by strange insects, and therefore sterile (see Figure 33D, Appendix D). There are several repulsive critters in the water too, whose bodies throb and sound like an internal organ (see Figures 30D, and 31D, Appendix D).

Stage 2 (see Figures 42D to 49D, Appendix D) is for “lace and frills”, avatars inspired by Renaissance or Baroque apparel - puffed long skirts, big lacy collars and related dress; so we decided to use antique theater setting models as inspiration to create various types of illusions of motion or depth. The scenic structures and mechanisms of the 16th and 17th centuries can be adapted to the operating logic of the three-dimensional virtual environments, resulting in the same visual effects. The manipulation of primitive objects³⁷ through freely available scripts³⁸ can be very similar to the traditional mechanical stage machine —e.g. using rotation scripts in several twisted cylinders, mimicking 17th century stage design by the architect Nicola Sabbatini, whose system created the impression of ocean waves (Campbell 2013, 156). Another

³⁷ Primitive objects, usually known as “prims”, are basic 3D shapes that can be produced within the Second Life platform: cubes, spheres, cones and cylinders.

³⁸ In Second Life the behavior of objects and avatars can be changed using scripts. The Linden Scripting Language (LSL) is used for this purpose.

case is the use of the illusion of depth through the effect of *trompe l'oeil*, achieved with the accumulation of plans depicting decreasing architectural arches, creating the illusion of perspective and extending the space, complemented by a ramp floor textured with a perspectival image of tiles, reinforcing the illusion of depth, based on studies of the 16th century architect Sebastiano Serlio (Mullin 1970, 14-15).

The other inspiration for this stage was the complexity of Metaverse curatorial processes. The simulation of conventional museum and art galleries space, with pictures hanging on the wall, although most common on SL art exhibitions, is a subject of constant controversy in the SL art world. Many question the relevance of this approach, which is accused of not exploring the specificity of the virtual environment medium.

This level intentionally and precisely simulates a conservative museum environment, where the whole range of rooms becomes overwhelming for its disproportionately large dimensions in relation to the average avatar's size. However, the 'paintings hanging on the walls' are not two-dimensional; three-dimensional constructions are framed, creating the illusion of a two-dimensional image, which breaks with the change in viewpoint of the avatar that could at any moment reveal the illusion by a simple twist of the SL camera³⁹. Each of these framed dioramas also had a specific sound loop associated with them.

Stage 3 houses "steampunk" avatars, one of the most cultivated genres in SL (see Figures 58D to 64D, Appendix D). This is a "retrofuturistic" trend, i.e. a mixture of elements from the past with futuristic technology, exploring the limits and tensions between rationality and alienation related to the advances of technology (Pegoraro 2012).

This installation depicts a machine city that coexists with its idealised reflection—the same city but reversed and with some meaningful differences. The most important difference

³⁹ By default, the avatar on Second Life is third-person observed, that is, the user views the avatar from up and behind. However, the platform's interface enables the displacement of this simulated camera, allowing residents to change their viewpoint without moving the avatar.

is the fact that the ideal city is freed from cage structures that trap houses in its pragmatic counterpart. It is the utopian part of the machine that keeps the city functioning, but not very effectively—it cannot keep the bird planes from crashing into buildings or robot monkeys from being trapped in them (see Figures 58D, and 62D, Appendix D).

The entire city was built as a derivative work. Parts of Gabriel Madrugá's avatars, *Wind Girl* and *Steam Boy*, were used in modified scales to build the city's machines. Metallic textures designed and marketed by Sextan Shepherd were also used, as well as Galatic Baroque's blue houses and Aley's glazed structures, both reinvented to build this floating city. The sound for this stage had a more industrial connotation, evoking turning gears, pressured steam, and creaking metal.

This level was invited to be a part of the exhibition *Intermundos @ Metaverse: Virtual Biennale*, curated by Celeste Cerqueira and Silvestre Pestana for the *17th Cerveira Biennial* in Portugal in 2013 (see Figures 84D, and 85D, Appendix D). In this event the mechanic bird and monkey that appear in the building were distributed as avatars (see Figure 86D, Appendix D).

Stage 4 was designed for the most disembodied and ethereal avatars (see Figures 71D to 77D, Appendix D). For these we wanted to build a more mystical level, although we are not religious or even particularly mystical persons. Thus, we turned to the only religion we could understand — Pastafarianism. According to its followers, the Church of the Flying Spaghetti Monster has existed in secret for hundreds of years, but only became public when Bobby Henderson wrote an open letter to the Kansas School Board. In this document Henderson demanded that the theory of the Flying Spaghetti Monster be taught to the students along with the Theory of Intelligent Design and Evolution. He claimed that “a Flying Spaghetti Monster created the universe” and the “overwhelming scientific evidence pointing towards evolutionary processes is nothing but a coincidence, put in place by Him” (Henderson 2005). This ironical

religion became a cyberculture symbol of protest against the advancement of creationism in U.S.A. schools.

We built a dark starry level, in black and white only, presided by a gigantic Flying Spaghetti Monster, surrounded by glowing white trees and melancholic sounds. Revolving around the divine creature one can find the Celestial Teapot (see Figure 77D, Appendix D), and even “catch” it and take a ride on it⁴⁰. This is a direct reference to British philosopher Bertrand Russell’s 1952 article *Is there a God?*, commissioned but not published by *Illustrated Magazine*. The article highlighted that the burden of proof lies upon she who defends a particular idea. For that he gave an example:

Many orthodox people speak as though it were the business of skeptics to disprove received dogmas rather than of dogmatists to prove them. This is, of course, a mistake. If I were to suggest that between the Earth and Mars there is a china teapot revolving about the sun in an elliptical orbit, nobody would be able to disprove my assertion provided I were careful to add that the teapot is too small to be revealed even by our most powerful telescopes. But if I were to go on to say that, since my assertion cannot be disproved, it is intolerable presumption on the part of human reason to doubt it, I should rightly be thought to be talking nonsense. (Russel 1997, 547-548)

Russell’s teapot became known as the Celestial Teapot, which now orbits the Flying Spaghetti Monster in our mystical Stage 4, whistling in Morse code: “I have been touched by His noodly appendage”, citing Arne Niklas Jansson parody image *Touched by His Noodly Appendage*, a recreation of Michelangelo's *The Creation of Adam*, with the Flying Spaghetti Monster in the place of God.

⁴⁰ In Second Life, scripts attached to objects can allow avatars to sit on and have their movements controlled by them. This is what allows avatars to be linked with the teapot and travel with it.

8.4. Shared creative processes in the *Meta_Body* project

This project is based on a creative process we call shared creativity, i.e. the creative input of *Meta_Body*, as an artwork, is distributed by several creators, integrating this process in different times, places, and in different approaches; creating a fluid creative stream that escapes the control of the project initiators. It is important, however, not to confuse creative process with group organisation. Many of this project's participants are not organised as a group at all, and yet they contribute creatively to a project that would not exist without them. The formation of this temporary community of collaborators is dependent upon the computer-mediated affordances of the virtual environment itself.

One can think of *Meta_Body* as a typical cyberculture artwork that resists what Lévy calls “totalisation”, i.e. “the closure of meaning”, by “intention”, i.e. a stable author or by “extension”, i.e. a stable final fixed form (Lévy 2001). Meaning, form and authorship are always unstable throughout the several moments of actualisation of the project, which can happen as the simple embodiment of the avatars or a stroll through the installations, but can also be a virtual photograph, a machinima, a performance, a new avatar, a narrative, a sound work, an installation, and so on.

Bits shared through *Meta_Body* can also, be used in entirely new projects, e.g. this happens with Takio's sounds, that were used by Eupalinos Ugajin in his project *Moving Islands*, or with some of the *Meta_Body* avatars, used by Ervare Farrorette (Reiner Schneeberger) in his project *The Volcano of Art*, generating lines of flight between these projects.

This project used the three different ways in which shared creativity may occur – “collective creation”, “distributed creation”, and “collaborative creation”.

In this sense, collective creation would be the creative process that is undertaken by more than one creator acting as a single author. Creative input happens collectively, synchronously

or asynchronously. All participants are equal partners in credit and responsibility, and each contribution is largely indiscernible. This kind of creative process requires a high level of intimacy between co-creators – it depends on complete openness to share goals, motivations, inspirations, but also uncertainties, fears, etc. It is very important that each co-creator feels comfortable in stating whatever is on her mind without fearing for the future of the relationship. Not only a high level of mutual artistic respect is necessary but also, in fact, full trust. This almost symbiotic process is very rewarding, but it is also very demanding. This was the preferred creative process used by the project initiators, Meilo Minotaur and CapCat Ragu. Being mother and daughter facilitates this kind of relation, dependent on unconditional trust.

In distributed creation we are talking about projects in which a large number of participants contribute to a common pool of artistic material. These, however, do not act as a team, but as single contributors in each step of this creative process.

As stated, Bruns refers to these participants as producers, individuals who shift their position towards a project from users to producers and vice-versa. The participatory aspect of *Meta_Body* required this kind of engagement from its participants, i.e. the use of the project avatars to make a new machinima, which would in turn integrate the project as well. This kind of creation leads to a metamorphic, fluid artwork, without a stable finished form.

Finally, parts of this project were built using what we can call a collaborative creation – each participant maintains her own authorial mark, but the limits or borders of each work are difficult to determine. This type of creation often happens as a dialogue between authors – each creation is a response to another creation. Meilo Minotaur and I sometimes use this creative process, along with the collective creation (although always co-signing all works), but this process is especially useful to describe the way we worked with Takio Ra in building the virtual installations for *Meta_Body II*. As described, Takio Ra is the creator of these installations' soundscapes. Even if his work did not change any of the visual aspects of the work, which

remained untouched, it radically altered the perception of space and became a key part of the project's design. The sounds used are also being distributed with full permissions, feeding the distributed creation component.

8.5. Participatory aesthetic experience

The project *Meta_Body* can be said to prompt all five modes of art participation (Novak-Leonard and Brown 2011) overviewed in Chapter 4. The simple unexpected visit to the region, or the encounter with photography or machinima in social media would be ambient participation. Observational participation for those who are willing to visit the region or exhibitions. The curatorial participation could be understood both in a formal way (e.g. Carla Cruz's curatorial work for AMIW) and in an informal one (e.g. personal galleries made on Flickr, personal posts on social media, private collections of these avatars in the Metaverse, etc.). Interpretative participation would take place in the embodiment of the avatars. Finally, inventive participation in all the shared creative forms: collective, by Meilo Minotaur and CapCat Ragu; distributed, by all the producers; and collaborative, by Meilo Minotaur, CapCat Ragu and Takio Ra. This last mode is the one that makes it possible to refer to the *Meta_Body* project as participatory aesthetic experience.

Even though we can establish a beginning of a sort in the *Meta_Body* project—the moment when Meilo Minotaur and CapCat Ragu decided to make the avatars—we can also identify several “new beginnings”: the two calls for artworks, or the opening of *Meta_Body II*. An end, however, is impossible to establish—even when the SL region closes or is rebuilt, the avatars will continue to exist and fuel new artworks.

Bishop (2006), as referred in Chapter 4, identified three major concerns in participatory art – “activation”, “authorship”, and “community”.

Activation implies that aesthetic experiences contribute to the empowerment of an active subject (Bishop 2006, 12). In the *Meta_Body* project we addressed this concern by using embodiment as a trigger for becoming, questioning the body through virtualisation. Stressing the entanglement between flesh body and avatar body, we tried to open paths for rethinking the body and self-consciousness. The simple act of embodying an avatar, as demonstrated before, is problematic and asks for a resolution, which does not lie in pre-given answers by avatar designers, but in the users' creative appropriation of this new body. By providing all avatar parts with full permissions, we opened them to radical creative experimental transformation, empowering participants to take control of a metaphorical body, open to be invested with new meanings.

The relinquishing of authorial control is the second concern referred to by Bishop (2006, 12) with respect to participatory art. As demonstrated, this project questioned a stable individual authorship in several ways, but one picture can best illustrate the way authorship is problematic in *Meta_Body*—Tim Deschanel's virtual photograph of Eupalinos Ugajin's avatar⁴¹. The picture depicts a transformation of one of the avatars, embodied and created by Eupalinos Ugajin and photographed by Tim Deschanel. This presents us with several questions about authorship, originality, creative process, and even the concept of artwork. What is the artwork? The original avatar? The avatar rebuilt by Eupalinos Ugajin? The photograph by Tim Deschanel? The *Meta_Body* project with a distributed authorship? Or can we consider several creative/artistic moments that can be regarded either in isolation or integrated into the overall project?

⁴¹ <https://www.flickr.com/photos/timdeschanel/6276102377/in/photostream/>

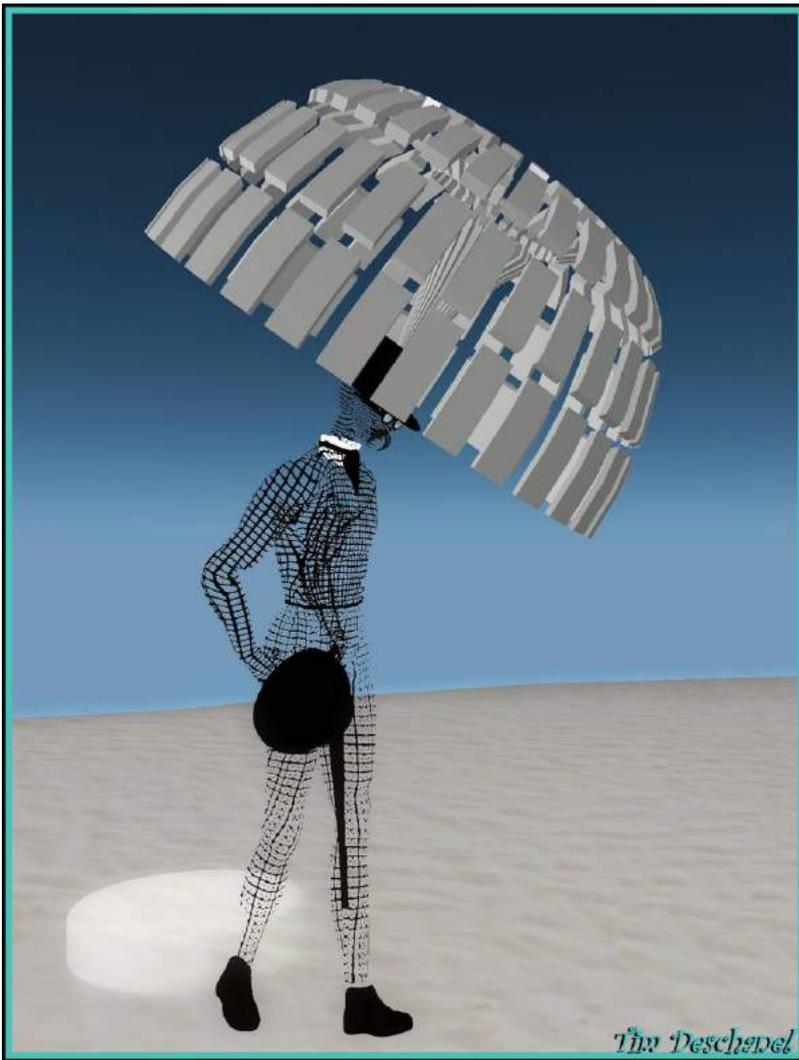


Figure 17 – Tim Deschanel, *Eupalinos Ugajin*, virtual photography and avatar modification, 2011.

The third concern is community, or the crisis of common responsibility (Bishop 2006,12). The artifacts distributed in the *Meta_Body* project were open, not only to transformation, but also to be copied and redistributed. These items can be considered a new kind of common property “different from private property or public (state) property” (Bauwens 2006, 1). By creating common property and encouraging producing, *Meta_Body* addressed the issue of common responsibility within the SL community.

This leads us to conclude that one can refer to the *Meta_Body* project as a participatory aesthetic experience that explores the full potential of its virtual environment. This project did not rely only on producers’ participation, it depended on their creative input and output:

participation exceeded mere interaction, it demanded creativity from producers. This leads us to argue that in this project aesthetic experience and creative process may overlap.

In her doctoral dissertation, Portuguese anthropologist Paula Justiça stated that it was her experience of the project *Meta_Body* that led her to change her hypothesis that virtual communication could annul the physical and real body. She concluded that it was not the body that was cancelled in SL, but it is only the flesh that cannot go into the screen and is replaced, and we might add, complemented by the avatar (Justiça 2013, 270-271). The metaphorical nature of this digital body makes it an open space to invest with new meanings.

Project *Meta_Body* had two major concerns: the constitution of virtual corporeality in the Metaverse and the participatory nature of this process.

8.5.1. Creative process as aesthetic experience

As stated in Part I, the constitution of corporeality in collaborative virtual environments makes the avatar a form of distributed artistic expression not just for professional artists, but also for any user. By focusing on this creative aspect of the Metaverse, engaging residents in cooperative tasks, this project can enhance a sense of co-presence. By distributing free and open material, it enhances the pool of available resources, further enabling users to experiment and express themselves through their avatar, actively inciting their transformation and the process of becoming in the liminoid space of the Metaverse. In doing so, we also embrace the utopia of a new mode of production and ownership advocated by Bauwens (2006).

As an artwork, *Meta_Body* can be experienced on many levels, from contemplation to participation, and in the embodiment and transformation of the avatars, the aesthetic experience of the work can become a creative process. We feel privileged to play a part in this creative

flux, turning our artwork into a constantly changing organism that we can observe as it grows and mutates⁴².

⁴² This project can still be visited at the following landmarks:

- Meta_Body first installation an avatar set: maps.secondlife.com/secondlife/Porto/134/110/703
- Stage 1: maps.secondlife.com/secondlife/Porto/167/168/21
- Stage 2: maps.secondlife.com/secondlife/Porto/178/125/1147
- Stage 3: maps.secondlife.com/secondlife/Porto/143/144/3475
- Stage 4: maps.secondlife.com/secondlife/Porto/156/112/2565

9. Other projects, productions and events

9.1. *Kromosomer*

Kromosomer, a project initiated by Heidi Dahlsveen known in the Metaverse as Mimesis Monday, was a traditional storytelling performance that interacted with digital, virtual, and social media during its adaptation and implementation process⁴³. The characters, designed as avatars, were free interpretations by Meilo Minotaur and me of a series of Norwegian legends that Dahlsveen provided for us. We had no restrictions whatsoever for these interpretations, but we did some research on Norwegian illustrations of the traditional tales, which served to understand how the characters had been seen historically, not necessarily to ground our design.

The title "Kromosomer" refers to the assumption that these characters may occur because someone looks 'different' from what was considered normal. They represent 'the other' which we define ourselves away from. Despite several of them having great similarities to ourselves, we cannot accept 'them' as a part of us (Dahlsveen and Sousa 2013).

SL avatars based on Norwegian legends were created as a starting point for new stories. They were distributed freely and with full permissions. Users could then copy, transform, and share them, enabling an open and creative embodiment of these characters. The users were encouraged to take pictures and make machinimas, or to use the avatars in any other creative form. Some of those pictures were used on a blog⁴⁴ where readers were invited to create new stories. These stories were then passed on, either via social media or verbally told in the performance.

These producers' interpretations were later assembled into a video that was projected on two walls during the physical performance. There were also installations with picture stories of the avatars created by producers. One of the stories in the performance was told simultaneously

⁴³ <http://www.scoop.it/t/project-kromosomer>

⁴⁴ <http://mimesismonday.com/?cat=360>

in the physical world and in Second Life's virtual environment by the storyteller (Dahlsveen), who embodied one of the avatars created for the project.

The project included a six-month process of reading from legends and systematising characters that ended up in five physical performances.

The background material for the project was collected from oral tradition, more specifically Norwegian folk legends. It was primarily mythic legends that formed its basis, meaning an encounter with the supernatural, and the unseen; the other. Legend characters are not only strange creatures but also human-like beings, like ghosts or the huldra. The meeting with 'the other' in legends poses social and existential questions. In this meeting the 'unnatural' occurs, which in turn constitutes the premises for both the work with avatars and the dramaturgy (Sousa and Dahlsveen, 2012). The meeting disturbs the identity and shows us how fragile social and cultural norms can be. For Julia Kristeva (1982), the abject is what cannot be assimilated, but seduces without letting itself be seduced. The abject is not subject nor object, the only thing abject and object have in common is being opposed to the self.

If the object, however, through its opposition, settles me within the fragile texture of a desire for meaning, which, as a matter of fact, makes me ceaselessly and infinitely homologous to it, what is abject, on the contrary, the jettisoned object, is radically excluded and draws me toward the place where meaning collapses. (Kristeva 1982, 1-2)

Kristeva's concept of the abject can relate to Mori's concept of the "Uncanny Valley". This 'valley' can be described as a sharp and sudden depression in a line chart describing growing familiarity caused by increased human likeness in a robot (Mori, 1970). One's sense of familiarity grows as a robot's human likeness increases, but this familiarity suddenly drops to negative levels, when this human likeness becomes uncanny, as Freud describes it – "that

class of the terrifying which leads back to something long known to us, once very familiar” (Freud, 1919). At the bottom of this valley is the dead body, and even further down the animated dead corpse, the lowest peak in the chart. This seems to reinforce Kristeva’s argument. It appears that what is familiar but falls outside our explanatory models is more frightening than the fantastic.

This disturbance is caused by the ambivalence of our understanding, it is an encounter with something primitive that has not yet manifested itself symbolically, but legends are already a form of assimilation. By verbalising the meaninglessness, one gives it symbolic value. Once we submit to the symbols a new order arises, what Kristeva calls ‘sublimation’ (Kristeva 1982). The meeting with ‘the other’ is represented in legends as a physical encounter, because the characters look different or even because of actual physical confrontation. The sublimation associated with the legends somehow implies an embodiment of the uncanny (Dahlsveen and Sousa 2013).

By using SL avatars, one can become ‘the other,’ embodying the uncanny. Three virtual installations were built to accommodate three groups of avatars.

The first installation and avatars were based on a legend of a grain spirit – the *Surekallen*. If a peasant was the last to crop the grain, he had to accommodate the spirit through the winter, or in an extreme situation he had to sacrifice himself and become *Surekallen*, in order to ensure the spirit’s existence. A grain field was created in Second Life, as well as two figures – an old peasant and the *Surekallen*. The scene depicted the moment when the peasant, realising he was the last to crop his grain, transfigures into *Surekallen* (see Appendix E cover). These figures were identical to the distributed avatars. They were mesh avatars, which means they were built outside Second Life using 3D computer graphics software for modelling and rigging. The possibility of uploading rigged mesh avatars was, at the time, a very recent feature in the Second Life platform that enabled the possibility of making the avatars and the virtual sculptures

identical, thus allowing the user to embody the artwork itself (see Figures 1E to 6E, Appendix E).

In this way, the installation illustrated the whole concept of these avatars, the possibility of inhabiting alterity (Sousa and Dahlsveen 2012). Avatar manipulation in virtual worlds enables the experience of embodying ‘the other’. Nick Yee and N. Jeremy Bailenson highlight that “immersive virtual environments provide the unique opportunity to allow individuals to directly take the perspective of another” (Yee, Bailenson and Ducheneaut 2009), and even suggest the possibility of embodied perspective-taking in virtual environments having an impact on the reduction of negative stereotyping (Yee, Bailenson, and Ducheneaut 2009, 154), as mentioned earlier. This differs from perspective taking when listening to the traditional oral legends, as they always present those characters as the other. That otherness in narrative can be overcome by the use of avatars that represent the other.

The second installation was about the *Attganger*, the Norwegian word for ghost, literally “walking back.” It has a number of meanings: beyond being a dead person, it can be someone to whom a promise was broken and comes back to remind its offender of the betrayal. What inspired this group of avatars was a tale from a valley in Norway, called “Osterdalen:” the story of a child who returns after dying. The child plays with her sisters and brothers, and the family grows so accustomed to the dead child that they forget she is really dead. The installation consisted of a dreamlike children’s room, resting on a cloud, where one could hear the continuous sound of a music box. On the walls one could see old photographs of a mother and her two little girls (see Figures 13E to 15E, Appendix E). The avatars given there were the mother, the two sisters and the *Attanger* (see Figures 16E to 19E, Appendix E).

The last installation, *Ocean Avatars*, gathered some of the Norwegian water characters. Here five avatars were given in the eggs of an enormous *Sea Monster* (see Figure 7E, Appendix E): *Draugen* (see Figure 8E, Appendix E), *Kraken* (see Figure 9E, Appendix E), *Lindorm* (see

Figure 10E, Appendix E), *Havfrue* (see Figure 11E, Appendix E), and *Melusina* (see Figure 12E, Appendix E). *Havfrue* was a mermaid, half human and half fish. She was primarily seen at sunrise. Her face was beautiful and down her back she had long, wavy hair, which she would braid while sitting on a rock. *Melusina* was quite similar, but with a more tragic perspective. Only one folk legend from a part of Norway called Helgeland mentions her. Because every Saturday half of her turned into a fish, she was unloved and evicted from her home after giving birth to nine children. *Lindorm* was a large serpent that guarded a treasure and was able to take people down into the water to eat them. One way to get rid of it was by running seven times around a campfire while being chased by it and then to lure it into the fire. *Draugen* was a drowned man who was never buried. He howled terribly at sea as a warning. His scream sounded like that of someone in distress. He could have an arm with a claw and often rolled himself up in a boat, and then made himself so heavy that he would sink the boat. Finally, *Kraken* was a horror from the sea. If the fishing was good, one should beware because it could happen that *Kraken* was around and one had to be ready to move the boat in a hurry.

By being modifiable, the *Kromosomer* avatars promoted an active and creative participation not only in avatar design and expression but also in the embodiment of the story itself as a character (Sousa and Dahlsveen 2012, 428).

The *Kromosomer* project avatar creation was a shared creative process, as described in Chapter 5, by Meilo Minotaur and I.

Once the avatars were distributed they would become the avatars of others. These new identities could be formed by taking the legends' characters literally or by transforming them altogether, as they are always "unfinished artefacts" (Eno 1995) that can not only be used, but also modified into a new creation. This relates to another concept fundamental to this project and already described: produsage. The *Kromosomer* team made avatars and animations that were distributed in SL, along with the description of the characters in Norwegian legends. We

were producers of this content and gave it to users in a shareable and modifiable way. From there on, users created new content, such as virtual photography, machinima or stories. They became producers and we became their users. We used that content to create new items as producers, integrating the users' input into the physical performance and into a booklet⁴⁵, published online, with stories, virtual photography made by producers and reflections on the process of the project.

Legends try to assimilate and give symbolic value to the meaningless. They can be understood as sublimation. In their own way, they attempt to name what has no name: the one that looks 'different,' the not-normal, the other, the abject, something outside both subject and object, prior to consciousness, something primitive not yet semiotised. However, by using avatars in the Metaverse, one can experience the embodiment of 'the other.' This can be a process of actually inhabiting alterity, which may provide new tools to extend the language that can handle the feeling of meaninglessness.

Because they are unprecedentedly customisable, SL avatars enable residents to become designers of their own avatars, making embodiment an aesthetic and creative experience. By distributing its avatars freely and making them modifiable, the *Kromosomer* project promoted a different kind of relation between artists and public. Instead of contemplation, we proposed a shared creative process, not only in the embodiment and design of the avatars, but also in the distributed creativity springing through the project as derivative work of the unfinished artefacts delivered.

In the *Kromosomer* project we were free from time and space, we followed the strategy of thought, pursuing new creative intersections across such diverse concepts as folk legends and Metaverse avatars. Blurring the frontiers between professional artists and amateurs, creators and audience exchanged roles along the course of this project, thus becoming partners

⁴⁵ https://issuu.com/thereseee/docs/krmm_issuu

in a shared creative and poetic flux. Embodiment in this virtual world, however, is a metaphorical dimension, not only because of the ubiquity of metaphor in our computer interactions and use of avatars, but also because the metaphor arises from something basic in our consciousness – our thoughts making comparisons, not as substitution, but as the concurrence between two concepts, filtering specific connotations, producing particular insight and in this way fulfilling a poetic function (Dahlsveen and Sousa 2013).

9.2. Other projects

9.2.1. *Liquid Song*

Liquid Song was a virtual installation designed to be displayed in the gallery Arte Libera Second Life, in the 2Lei 2012 festival, a project that has existed in the Metaverse since 2010 and whose principal objective is to promote and publicise events related to "International Day for the Elimination of Violence against Women." Issues relating to gender have been a long-term concern of ours even before we had any artistic activity in the Metaverse. The invitation to participate in this festival provided a new occasion for addressing those concerns. The entire installation was focused on our text *Liquid Song*, which is transcribed below:

For I am mist

For I am frost

I want to go back to my liquid form

I want to melt

I want to drop

I want to go back to my liquid form

For I am mist

For I am frost

I want to go back to my liquid form

I want to rain

I want to river

I want to go back to my liquid form

For I am mist

For I am frost

I want to go back to my liquid form

The text was divided and recorded in extracts up to 10 seconds in length (this is the maximum time that a sound file can have to be supported in the Second Life platform, as described before). Several layers of sound were attached to invisible objects in the Metaverse, which were spread over a three-dimensional area, creating a sound spatiality and disrupting the linearity of the poem.

The whole installation was made to look like ice: the environment had an ice background and transparent ice layers across it. Because of these layers and the background being a sphere, it was difficult to make out what kind of space that was: a cave? A cloud...? This uneasy feeling was enhanced by the sound. Various women figures were modelled and textured as ice, looking like ice sculptures; some in sadness or despair, some trying to help children, and some being violent to other women (see Figures 1F to 5F, Appendix F).

In addition to the installation, two free avatars, with full permissions, were also distributed: *Mist* and *Frost*, according to the poem one dressed in steam, the other in ice; both longing for their liquid form (see Figures 6F, and 7F, Appendix F).

In the note provided by the gallery one could read:

Arte Libera participate in 2LEI with "Liquid Song" an installation by CapCat Ragu and Melio Minotaur. With their usual poetic language CapCat and Meilo can be referring to women in pain desire to disappear, dissolve their selves in water. Water is the main principle in our body, but it is tears too, it is amniotic fluid... water flows without end, it's rain, it's sea, it's river... it's an element that see human's history without participate in it... How can be helpful to imagine us as water when we are suffering? (sic)

This does not exactly describe our symbolic intentions, but we do think the work is open to interpretation. So the only thing we asked of the gallery was to use the word “can”. In fact this poem had a lot to do with the feelings described in *Petrified* (Chapter 7), which in this case were substituted with the idea of a body locked in frost, but also of a body dispersed in mist. We did not want to be solid, we wished for a liquid body, not to dissolve (that is the mist) but to melt, to be fluid, to fall like rain upon things, with that passion; to flow like a river, i.e. to travel across feelings, knowledge, people, places... Because we felt we had lost that capacity for desire and passion. We projected this feeling outside ourselves to what could also be the feeling of someone trapped in domestic violence, the desire to escape like water through the cracks.

9.2.2. *Sheherazade*

This project was the result of an invitation from Mimesis Heidi Dahlsveen to work on her Sim in Second Life, *The Companion*. This time we were asked for an interpretation of the famous story of Sheherazade. This is a Persian legend about a king who was betrayed by a woman. He decides to retaliate daily in the lives of the young virgins of his country, taking a girl every night for his pleasure killing her the following morning. When the King chose Sheherazade's sister, she volunteered to take her place. Every night, to escape her fate, she would begin to tell a new story that delighted the king. Eager for the next story, the king spared her morning after morning, ending a cycle of blood.

Our participation in this project, beside the form of collective creation between the two of us, was also a creative collaboration with a recognised Metaverse artist, Cherry Manga. *The Companion Sim* was terraformed as a big island; our installation began at one end of the island and Cherry Manga on the opposite end, blending in the centre. We did not join constructions, but we constructed alternately so that the constructions influence each other, as if they were in dialogue (see Figure 1G, Appendix G).

The installation consisted of a large tent in the desert, designed to be a performative place where Dahlsveen or others would tell stories. This tent was surrounded by stylised trees inspired by Persian patterns, as well as textures used in the installation. A huge statue of the king stood behind the tent. It looked like a rusted metal grid with a human heart inside the chest, around which a girl-faced blue bird flew. In the tent's front door we could see the same kind of birds trapped in two large cages. In front of the tent on the sandy floor some of these birds laid half-buried.



Figure 18 - *Sheherazade, escaping*, virtual photography by CapCat Ragu 2013.

In addition to the installation, three avatars were distributed: *Sheherazade* (see Figure 18 and Figure 2G, Appendix G), *Shahryar* (King) (see Figure 3G, Appendix G) and *Birds* (see Figure 4G, Appendix G).

The interpretation we focused on was the central idea of Sheherazade as a liberating warrior, and not as seductive women as is usually depicted. We also thought of the king not only as a tyrant, but as a man stuck in his pain and hatred. The bird flying around the King's statue's heart represented the woman that betrayed him. The other birds represented all the girls whom the king could only view as that betrayer. This is way the Birds' avatar is not a single body, but a flock of birds.

9.2.3. *The Brooder* – Delicatessen at SL10B

The Brooder was made for the Second Life official commemorations of their 10th year in 2013. We had to build a diorama in very complex conditions: little space and few prims in an enormous area full of other artists with aesthetic approaches very different from ours. Because we wanted to build a very immersive self-contained diorama, we drew from the notion of snow globe we mentioned in Chapters 2 and 7, but this time almost literally. We built a half sphere, with some transparency from the outside (passers could glimpse the diorama inside), it looked like a dark glass (see Figure 1H, Appendix H). Inside it was totally opaque, keeping the visitors completely immersed in our diorama while inside.

Inside visitors were in a dark mysterious forest where human-bird hybrids seemed to wait, or protect, the hatching of an egg, and inside that egg a human embryo (see Figure 42). All were observed from a distance by a human-eagle hybrid (it is important to note that the other hybrids were not birds of prey).

Our work could be seen as an inversion of Deleuze and Guattari's idea of becoming-animal. This is one of their problematics:

Becomings-animal are neither dreams nor phantasies. They are perfectly real. But which reality is at issue here? For if becoming animal does not consist in playing animal or imitating an animal, it is clear that the human being does not "really" become an animal any more than the animal "really" becomes something else. Becoming produces nothing other than itself. (Deleuze and Guattari 1987, 238)

The authors also remind us that the process of becoming is not a process of imitation:

No art is imitative, no art can be imitative or figurative. Suppose a painter "represents" a bird; this is in fact a becoming-bird that can occur only to the extent that the bird itself is in the process of becoming something else, a pure line and pure colour. (Deleuze and Guattari 1987, 304)

Becoming human could be the title, but can we be sure that the human hatched in the egg would not become a bird?

The shared avatar had nothing to do with becoming a bird, it was a human becoming a tree, with birds nested in her hair (see Figures 3H to 6H, Appendix H).

This work was shown again in 2016, this time on Delicatessen, after an invitation for an exhibition in tangible world.

Artists, curators and critics from the virtual art world often complain about using these worlds just to simulate the tangible artworld, disregarding the specificity of virtual worlds' media and possibilities.

When showcasing our virtual world in the tangible world, we have faced the exact opposite problem. Sometimes people want to replicate the experience of being immersed in a collaborative virtual environment, and the possibilities they afford. We do not believe immersive experiences in the tangible world are impossible. This would seem quite foolish, because there have been plenty of immersive artworks in museums, galleries, and public spaces. What we find impossible to replicate is the experience of being immersed in a creative collaborative virtual environment in a museum or gallery. We can provide a computer with an avatar logged in the specific space of the virtual world you want to show. However, that is definitely not the same experience as having one's own expressive avatar, actually exploring and interacting with that place.

We did this for *De Maria, de Mariana, de Madalena* (described in Chapter 7) only during the opening, because we had to assist people, they did not really know how to explore the world or the avatars, and our computer collapsed from the heat!

I did this with my students in very much better conditions, as discussed in the 9.2.5. section, but once again with user guidance throughout the entire exhibition.

In *The Brooder* case, when invited to exhibit it at Galeria Olga Santos, we had no such conditions, so we decided to show in the tangible world all the things you can create using virtual worlds, like virtual photographs and machinimas, but which are now a different thing, not the virtual world itself (See Figures 7H and 8H, Appendix H).

We think art from virtual worlds should be experienced in virtual worlds! But we can make other artworks there to be experienced in the tangible world. This connection is important, not only because any form of expression is a valid way of expression, but also because it connects different audiences and places.

9.2.4. *Becoming*

This artwork happened in response to the invitation to intervene in the SL Sim Lost Town. This Sim is the representation of an abandoned city from the 20th century. Artists are invited to fill it with their work, creating a collaborative environment.

This project reflected on French philosopher Pierre Lévy's approach to virtuality. For Lévy the virtual does not oppose the real. Virtuality is not about possibility, but about potency. The possible is just like the real but without an existence (see Chapter 1). There is no realisation for the virtual, only the potency of what it may become. Virtuality is in the intangible moment between what was and what will be.

We know Lévy is drawing on Deleuze and Guattari, so this work is in fact some kind of a continuation of *The Brooder*. Deleuze and Guattari also relate the emission of particles (or sign-particles) with *haecceity*, and becoming:

Make consciousness an experimentation in life, and passion a field of continuous intensities, an emission of particles-signs. (Deleuze and Guattari 1987, 134)

Nine dioramas were made in several different places in the city, merging with the previous buildings, making this a case not only of collective creation (by me and Meilo), but also a collaboration with the city builders. Unlike the dialogue with Cherry Manga, this was us building upon an already made construction.

Each diorama was signed by a literal emission of particles; in this case these particles-signs were birds. Almost all the dioramas connected to the process of becoming-animal, in this case birds and cats - those eternal enemies (see Figure 1I to 8I, Appendix I).

Four bird avatars were distributed with all permissions, even though the final result was made especially for this work, they were the result of our own and private self-experiences of becoming-birds (see Figures 9I, and 10I, Appendix I).

Finally, there were male and female hybrids of human/machine/bird (see Figure 11I, Appendix I), a human-pigeon hybrid (see Figure 12I, Appendix I) and a human-hawk hybrid (see Figure 13I, Appendix I).

9.2.5. *The Virtual Garden of Time*

The Virtual Garden of Time is a virtual island where we can walk across the seasons, months and hours of the day. We can migrate with birds, swim in rivers, and wander through forests. This project was part of Ephemeral Gardens 2016, and was exhibited in the Museu da

Misericórdia de Viseu between 1st to the 10th of July. It is still on going in the virtual environment.

The project was designed as a creative collaboration between myself and my students of the Art and Multimedia Program of the Viseu Polytechnic Institute's School of Education:

Catarina Carneiro de Sousa (avatars and central space)

Joana Nascimento (animations and central space)

Daniela Padrão (January)

Miguel Alexandre (February)

Carolina Costa (March)

Ramon Freitas (April)

David Soares (May)

Pedro Fernandes (June)

João Cachada (July)

Catarina Melo (August)

Joana Costa (September)

Cláudia Pinto (October)

Joana Pereira (November)

Catarina Vieira (December)

This was the result of a workshop organized by myself and The Collaborative Virtual Environments Art Practice Workshop, dedicated specifically to ESEV students: a 30-hour workshop with two-hour sessions after office hours, once a week, remotely at the Virtual Art Lab SIM (at Craft World, a OpenSimulator based platform). In addition to classes in the virtual environment, a Facebook group was used to exchange ideas, opinions, and educational

materials, keeping this workshop active throughout the week. The workshop had students from all three years of the programme.



Figure 19 - Virtual Art Lab, *The Virtual Garden of Time - Spring*, 2016. Virtual photography by by CapCat Ragu, 2016. A machinima of an avatar accompanying the flight of birds can be found at: <https://youtu.be/gcv1TcMVdes>.

We started by learning basic competencies about Collaborative Virtual Environments, and soon moved on to develop a collaborative art project in 2015/16, *The Virtual Time Garden*. We were fortunate to have a special lesson on sound, given by Luís Eustáquio aka Takio Ra. All these lessons were given in our workshop, high in the sky, which we called VAL-Olympus.

We began by imagining a concept around the theme “Time”, which was the basis of the Ephemeral Gardens that year. Thus arose the idea of a time garden, divided into the months of the year, allowing all students a small individual space for expression, but always in tune with the neighbouring month. In the Facebook group students began to show their ideas for each month, through sketches and inspirational images, and commenting on each other’s work, always trying the best solutions for the crossing over of the months.

According with their plans defined for each month, it was necessary for me to do the Terraforming, and set a proper atmosphere for each season, the windlight. We also wanted an

atmospheric feel that corresponded to the various phases of the day: spring/morning, summer/afternoon, fall/evening and winter/night (see Figures 3J, 5J, 7J, and 9J, Appendix J).

I also made the avatars inspired by the idea of time: Spring was a female child (see Figure 19, and 4J, Appendix J), Summer a grown man (see Figure 6J, Appendix J), Fall a middle-aged woman (see Figure 8J, Appendix J), and Winter an old man (see Figure 10J, Appendix J).

The tangible exhibition showed a machinima by me, virtual photographs by the whole team (see Figure 35J, Appendix J), and a very immersive access to the virtual environment. We had a curved projector screen, so when seated the visitor had full immersion in the image (see Figure 38J, Appendix J)). During the entire exhibition, the students took turns to help the visitors navigate the world, without them, even with such nice projection conditions, the visitors would not be able to navigate the space, as I experienced in the *De Maria, de Mariana, de Madalena* tangible exhibition (unless, of course, they had previous experience with the interface).

With the arrival of new platforms designed for new VR hardware emerging, it is important to think more about the interface and acknowledge that it should be modifiable according to context. At this point in time all the artwork I have been doing and referring to is on the verge of becoming obsolete, but we should be attentive to the lessons we have learned along the way, so the new media will be better, more accessible, creative, and democratic (see also Chapter 5)⁴⁶.

⁴⁶ This project can still be visited to know how, follow the link:
<https://virtualartlab.wordpress.com/2016/06/27/how-to-goto-the-virtual-garden-of-time/>

Conclusions

Objectives accomplished

In the beginning of this work I set myself a range of objectives. I would like to start the conclusions of this thesis by addressing to what degree I have accomplished these objectives.

Firstly, I determined that it is possible to refer to corporeality in the context of virtual worlds, even though the terms virtual and corporeal are usually taken to be mutually exclusive. In Chapter One I discussed how both terms and concluded that they could not be mutually exclusive if one could reconcile the views of the virtual as efficiency and the virtual as potency. In virtual environments, the avatar's *body* refers to both aspects of virtuality are present – an avatar is a representation of the user acting *as-if* her bodily self, and it is also an expressive body open to processes of continuous transformation and, therefore, of becoming; a potential body. If we take a non-dualistic approach to corporeality, and put between brackets (*epoché*) the prevalent idea of a body-mind split (this phenomenological reduction that we can experience in virtual environments, through creation and embodiment), we came to understand that the body has at the same time a phenomenological, a corporeal, and a semiotic dimension. Corporeality is completely dependent on the other two; the situatedness of the lived body. A virtual corporeality does not exclude the physical body; instead, in the specific case of digital corporeality, it is complemented by the code and the hardware, creating a virtual locus of the body among the three (physical body, code, and hardware); its situatedness.

To understand the process of setting up a digital corporeality goes beyond the scope of CVE's. In this work, however, I focused on those virtual worlds. Nevertheless, I was able to establish, in Chapter 2, a new concept of presence – corporeal presence. I believe that this feeling of having a body in mediated space may be applied to other forms of digital corporeality, and could be crucial to the success of the new VR platforms emerging at this point. The feeling of being corporeal, as I demonstrated, enhances the feeling of presence in mediated contexts.

But what process produce that digital corporeality? Firstly, we need a visible representation of a body, not only to others but also to ourselves. We need a responsive environment to this body: if it is responsive both to deliberate and non-deliberate actions this will enhance the feeling of being there, e.g. casting shadows, disturbing water when going in, that is, it will enhance the feeling of having a body with a mass. Even non-metaphorical responsiveness like being followed by an entity, or making entities perform actions on our passage, will promote the sense that the world acknowledges us.

This is profoundly entangled with my aim to relate corporeality, perception and signification in the context of CVE's. I established that perception in virtual worlds did not depend exclusively on our physical body, that it was not just the avatar that complemented the process of perception, but also that the whole WIMP interface was crucial to perceive CVE's. Once again it is paramount that the emergent platforms take interface as a priority, it has to be more intuitive and it has to be able to adapt to different contexts and different users.

Virtual corporeality and signification had a particular importance, not only in this thesis, but most importantly, in my practical work. I found the avatar to be a metaphorical body, just like so many other items we use when handling computers – desktop, windows, trash, etc. However, in the avatar the metaphorical aspects become more complex. I concluded that in the specificity of the platforms studied (SL and OS Grids) the main affordances of the avatar are: to represent the resident in the virtual world; to make her actions visible to herself and others; to allow the resident to interact with the virtual world; to affect and be affected by other bodies; to be customisable, allowing residents to invent their avatars; to be metamorphic, allowing the residents to change their avatars at will. Customisation and metamorphosis depend on the interface affordances of the viewers and the platforms, though it is crucial for extending the expressiveness of the avatar and the potency of creation for the user. Only in CVEs that afford extended creative tools can the building of a virtual corporeality be a completely creative

process. I presented this new more specific concept of Creative Collaborative Virtual Environments to distinguish these kinds of virtual worlds from others that only permit a limited choice of customisation, usually in a pre-defined aesthetic approach, e.g. games that enable the customisation of avatars within the scope of its own semiotic set of rules. I established SL and OS Grids as CCVEs because they afford creation (content creation and modification, import and export of content); collaboration (awareness of others, communication, shared context, and flexible view points); and distribution (exchange of content with other users, presentation of content in shared spaces, P2P modes of propriety).

I described the specificity of the creative process in the context of CCVEs, which feature an enhanced creative dimension through specific software features and affordances of creation, collaboration, and distribution. These affordances enable rhizomatic formations of heterogeneous, non-hierarchical connections, accommodating variable origins and flows of creative practice. This increased spectrum of communicative agency contributes to a heightened sense of copresence in virtual worlds, shaping new conditions for the negotiation of action and meaning.

I also believe that CCVEs enhance shared creative processes. However, for that I had to establish what a shared creative process is. Firstly, it is important to understand that shared creativity is not something that happened only with the internet age. It has been here since the dawn of humanity. In fact the processes of single authorship attribution are the ones that are most recent, starting to emerge only with the Renaissance, but even from then to know all kinds of creations continued to be dependent teamwork. Vanguard movements and Contemporary Art also made big leaps towards collaborative work and even audience participation. However, the emergence of the internet, and then t Web 2.0, increased the potential for collaboration on a global scale. Shared creativity becomes something quite common, especially in CCVE's.

I defined three different forms of creative sharing in the context of collaborative virtual environments: collective creativity, a creative process in which participants act as one creative entity; collaborative creativity, where creation becomes a dialogue between creators that still retain their authorial mark; distributed creativity, which refers to creations where several participants contribute to a common pool of artistic material, constantly changing their position between users and producers, assuming the role of a producer.

I believe that the concept of authorship in the context of shared creativity is still retained. It is easy to understand this in collaborative creativity because each author continues to be perceived separately (even if in some forms more than others). Collective creativity also retains the concept of authorship in the concept of co-authorship. In fact, by acting as a single entity, co-authors act as a single author that has the characteristic of not being a single self. In distributed creativity authorship may also be retained. Even if a creative work is done by using diverse sources of creative material, the person who created the *assemblage* is still the author of that particular actualisation of the virtual potencies of the materials (that are infinite).

The concept of the work of art may also be retained in the virtual and transitory context of the Metaverse; even if categorisation serves the purpose only of describing what may be done in CCVEs, as most of the work there tends to be hybrid artworks that cut across several categories. A hybrid work does not mean that it is not an art work, it means that the concept of the autonomous, self-contained artwork is not the only possibility. However, we have been aware of that since the 1960's and the expansion of the field of art. This is not just another instance of that expansion, in my view. Metaverse artworks propose different aesthetic experiences, not possible before them. Not just because they involve the audience in a creative way, other artworks can do that too, but because they sustain a creative flux in which we can never say that an artwork is definitely finished. One of its instances may be finished but others

will arise. So we can retain the concept of work of art, but as a plateau. A temporary instantiation always promoting new lines of flight.

The embodiment of avatars can also be seen as an aesthetic experience, and this, in CCVEs, as I have shown, must always be a creative shared process. The user can create the avatar with only her own creations, but she is always dependent on what the platform can afford, so her work is already a collaboration with the program creators. However, most SL and OS Grid residents use not only their creations, but also others' creations, transformed, or not, by themselves. As I have said, even if a resident only uses other people's creations, she has to choose which ones to use, how to combine them. Unless you use default avatars (which is very rare among frequent residents), even if you have the most stereotyped avatar, you have to be creative to build it.

Future Investigation

There are two streams this research might flow from now on: one is the research and art practice and virtual corporeality in the new emerging VR platforms; the other is the research on the best procedures to connect tangible and virtual artworlds.

It is possible, but very unlikely, that desktop virtual environments will survive the new rise of VR. It is important for active artists in the Metaverse to start thinking about making a transition to new platforms. This is at the same time very exciting and very scary. It has to be exciting because finally we might have ways to engage the virtual world with the movement and expression of our physical bodies, involving them further in the construction of virtual corporeality and presence. Full visual immersion is also very exciting! Once again this will connect our perception of the world with our physical body movement, and by being completely immersed in the virtual environment our feeling of being corporeally there will increase.

What is scary then? First of all, it is scary if we do not have a body in the world that we can perceive ourselves. First-person view does not replicate the way we see our body in tangible world, this kind of view, as noted in Chapter 2, disembodies the user. To feel corporeal one needs to see one's own body. It is important that technology develops in a way that this is possible in a very intuitive way, not just looking at one's hands, that is just a first step, one has to be able to look down to one's whole body, to see one's reflection; and (why not?) move the camera to third person view. We cannot do this in the tangible world, but why should we not be able to do it in virtual reality?

Another scary thing for a creator is to relearn all the building processes, assuming there will be building processes and not only content upload! If the only (or the preferred one) form of creation afforded by these worlds will be content upload, then creative democratisation is over. This will turn makers into professionals, the ones that dominate complex software. The same thing will happen if in-world building processes are too complex. SL and OS Grids have a quite interesting balance between construction in world and content upload. There are many ways in which this could be improved, but collaborative environments in VR have a lot to learn from these platforms.

Then the last scary thing – creative collaborative environments – will they survive VR at all? Or are all our VR experiences doomed to be passive or gamified? We have nothing at all against that kind of experiences, but they do not permit creative collaboration, most of them do not permit creation at all! This is for me a step back in an aesthetic experience offer. So, I wish to start experimenting creatively with collaborative VR environments arising, to learn about their affordances, and research ways to make them as creatively democratic as possible.

The other stream (they are not mutually exclusive of course) is research on the intersection of virtual and tangible aesthetic experience.

Our experiments about this intersection so far fall short from what we think is possible to achieve. We believe the secret may lie in not trying to reproduce in an environment what is clearly meant for the other. I am not saying we cannot make exhibitions in virtual environments of pictures on virtual walls; or that we cannot have a connection to the virtual environment in a gallery or museum. I have done them both. What I feel is that this needs to be improved.

The connection between tangible and virtual worlds is crucial, so we do not fall into alienation. However, what the future may bring in this stream is in close connection with the affordances that the other stream (VR) may develop. We need to start with what we already have, explore it and test it, and then move on to new worlds, equipped with that experience.

Some things I can already draw from our experience. The interfaces that work at home, with time and privacy, do not work in public spaces, with limited time and exposure. They are too complicated to manipulate without assistance, we need much more simple and intuitive interfaces for public space. Also the predictable use of goggles and motion sensing input devices by someone who knows she is being watched by others, while she is immersed in a context that others are unaware of, could be felt as very uncomfortable. Plainly speaking, people might feel ridiculous jumping around in a museum, without seeing the way they are being seen, and that could discourage them from engaging in such activity.

These of course are mere conjectures because these are lines of research yet to be taken.

Glossary

Animation Override (AO): It “is a scripted attachment which replaces standard animations (walk, jump, stand, run, etc.) with animations created by Residents” (Linden Research, Inc. 2010).

Chimera: It is a scripted object that animates avatars. Usually used for group dancing or other group animations. It can be attached to an avatar or rendered in the environment. Usually the animations are prompted by the avatar touching the object.

Heightmap: Raster image used to store elevation values for a certain surface.

Full Permissions (full perm): When an object is full perm, this means residents can copy, transform and distribute it.

Gesture: “Combination of animations, sound clips, and chat text that are played as a group automatically. They can be triggered when active with a short text string in chat, a keyboard shortcut, via this window, or the bottom toolbar "Gestures" button” (Linden Research, Inc. 2009).

Grid: “Refers to an integrated system that provides a networked collection of servers, some of which are simulators that implement the presentation of land. Those are arranged in the form of a rectangular mesh” (Linden Research, Inc. 2015).

Hypergrid: “The hypergrid is an extension to opensim that allows you to link your opensim to other opensims on the internet, and that supports seamless agent transfers among those opensims. It can be used both in standalone mode and in grid mode. The hypergrid is effectively supporting the emergence of a Web of virtual worlds” (OpenSimulator 2015).

Machinima: Real time capture of moving image in digital environments using 3D rendering engines (Zagalo 2012).

Mesh: "A mesh is of a collection of vertices, edges, and faces that define a 3D shape (...) The basic element of a mesh is a vertex. Edges are lines that connect two vertices. A face is a triangle composed of three vertices connected by edges" (Linden Research, Inc. 2012).

Normal Map: "An image whose colour data encodes changes to the "normal" for each pixel on the surface. The normal is the direction that the pixel "faces" for the purpose of determining how it is illuminated by and reflects light sources (imagine that each pixel is turned on tiny pivots). The alpha channel of the Normal Map may contain a specular exponent value that is multiplied by the "Glossiness" parameter. A higher alpha value will result in specular highlights that are brighter and tighter. Keep in mind these are OpenGL style normal maps, where bright green is up and bright red is right (or to put in Industry terms, the normal maps are X+, Y+, Z+ normal maps)" (Linden Research, Inc. 2014).

OpenSimulator: "OpenSimulator is an open source multi-platform, multi-user 3D application server. It can be used to create a virtual environment (or world) which can be accessed through a variety of clients, on multiple protocols. It also has an optional facility (the Hypergrid) to allow users to visit other OpenSimulator installations across the web from their 'home' OpenSimulator installation. In this way, it is the basis of a nascent distributed Metaverse" (OpenSimulator 2014).

Primitive Object (prim): It is an object made of a single part. In SL and OS Grids this means single objects you can build from the interface- building tool.

Rig: The bind between a mesh and a skeleton that controls mesh animation through the skeleton.

Sandbox: It is a region where any resident can render objects for a short period of time.

Script: “In computer programming, a script is a program or sequence of instructions that is interpreted or carried out by another program rather than by the computer processor (as a compiled program is)” (TechTarget 2005).

Second Life: It is a creative collaborative environment developed by Linden Lab.

Simulator (Sim): “Can mean either:

-Sim node (or sim host), the physical server machine simulating one or more regions.

-Sim processes, the processes running on the server machines that simulate regions.

The latter usage is more precise, because multiple processes may run on a single server CPU.

In common usage, "sim" may also be used to mean region, though this meaning is deprecated because it is ambiguous. Most accurately, a region is simulated by a sim process running on a sim node” (Linden Research, Inc. 2010).

Skeleton: Structure used to animate a 3D character. This structure is made of parts called “bones”.

SL-Bots: “Second Life bots are avatars controlled by a machine” (Linden Research, Inc. 2011).

Specular Map: “This encodes the colour of the light reflected by each pixel on the surface. (...)

The Alpha channel value of the Specular Map encodes the environment intensity. A lower value in the alpha channel will diminish the impact of the environment map reflections on the surface of the object” (Linden Research, Inc. 2014).

Streaming: “It is possible to stream your own music from your computer into SL. Unless you have a large amount of bandwidth available, using your own machine as a streaming server is not really an option. With around 5 users connected you would be using most of the bandwidth of a standard DSL line.

Therefore to stream your own music you would require a streaming relay provider. You would send a single stream of music (around 6-8k/s) to the streaming relay provider. The relay would then stream multiple copies of the music into SL” (Linden Research, Inc. 2015).

Terraform: “To change the shape and elevation of land” in CCVEs (Linden Research, Inc. 2012).

Virtual Photography: The capture of still images from virtual worlds.

Viewer: “Client software (...) that runs on the user’s Windows, Macintosh, or Linux computer” (Linden Research, Inc. 2008).

Windlight: It “is the codename for Second Life's atmospheric rendering system that enhances skies, lighting, and other graphical aspects of the environment” (Linden Research, Inc. 2012).

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