QUEERING VIRTUAL SPACE

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ABSTRACT

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Queering Virtual Space is a project which visualizes architectural and natural environments using virtual reality software. In this thesis, I present my research on the transference of traditional media as queering artifacts into virtual space. Displayed from a first-person perspective, the thesis sets the narrative of established, normative, architectural zones in virtual space and subsequently finds ways to come to terms with their inevitable collapse from a queer, ludic perspective.

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1. INTRODUCTION

I will begin by defining virtual space: my understanding of the term exists as an immersive, non-physical environment, which may or may not have boundaries or limitations. Virtual space can be multisensory, experienced in the form of virtual realities through the senses of sound, taste, sight or smell.

In the case of my project, I rely on the visual senses of the human body. The virtual space I create for this project is displayed (and perceived) through graphic interfaces, such as computer screens and projectors. This project explores this relationship of display and perception. I begin by depicting certain narratives. I draw reference from a recent experience: In 2018, I was given photographs based on a visit to certain neighborhood on the outskirts of Prague, Czechia. I was enamored by the neighborhood, the houses which I could not enter, the vegetation, the pavement, the fences. I wanted to understand why I felt so out of place and so attached at the same time. *Queering Virtual Space* is based on this unsettling experience, a project which expresses the various interpretations and relations I have with this Czech neighborhood through virtual space.

The starting point of these interactions comes in the form of me questioning the structure of the architectural elements within the suburban space that constitutes the neighborhood. In this, I schematize the architectural pattern of the structures based on various theories and use 3D modeling software to create virtual models that represent these Czech houses. These are then composed in virtual space to depict the suburban zone. The theories which inform the modeling and composition are outlined in *Section 2: Cultural and Ecological Context* and *Section 3: Methodology*. In this regard, it is important that this project attempts to analyze the concept of suburban space, the way this space is perceived and interpreted by the human actant. This

analysis requires a cultural and historical consideration of suburban space, an analysis which is elaborated in *Section 2*. This section also comprises of various artistic, new media, queer and ecological questions that arise when considering the origins of suburban space.

The complex relations I have with this physical suburban zone in Prague are recreated through the context of queer forms of visual communication. An analysis of the various ways of expressing such relations are discussed through methods outlined in *Section 3*. Subsequently, the specific materials I use to express myself in context of this suburban space are elaborated in *Section 4: Technological Associations*. In this section, I also discuss the transference and representation of data from one medium to another. *Section 4* is thus a consideration of the way new and traditional media is culturally interpreted. The breakdown of various new media software used for the visualization of this data is outlined in *Sections 4.2* and *4.3*.

This research project is also an analysis of the ways in which new media platforms can be used to display traditional materials, and the interpretation of these traditional materials following such mediations. My concluding comments on my research, on the overlap of new and old media, and on the visualization of certain spaces alongside the way they are interpreted compose *Section 5: Conclusion*.

2. BACKGROUND

The recreation and display of the architectural and natural environments in this project are inspired by the way certain cultural artifacts can be perceived in various spaces. This recreation is done largely based on references in the form of photographs and the subsequent display of created work is done through the medium of virtual space.

I am an artist, my objective in this project is to relay certain thoughts and ideas concerning cultural artifacts through design and art. While these ideas could be depicted through the use of various traditional materials, this project's focus remains on the use of virtual reality software to appropriate and display cultural artifacts in virtual space. In this regard, my objective extends to the discovery of new and unique ways of composing virtual spaces which display representations of real-world objects in the form of models and textures.

I attempt to display environments that are dynamic as opposed to static. This preference for non-static art is inspired by artworks presented by artists such as Claudia Hart and Brent Watanabe. Hart, in works such as *The Flower Matrix* (2017-2018) [1] and *Alice Unchained XR* (2018) [2], focuses on kinetic or non-static virtual environments which make use of textures, moving images, and vibrant colors. Hart's virtual artworks showcase dynamic interconnections between architectural, technological, and ecological domains. Watanabe, on the other hand, reappropriated the popular video game *Grand Theft Auto V* [3] to immortalize a deer in *San*

[1] Claudia Hart. "The Flower Matrix". *Claudia Hart* online, 2017-2018. https://claudiahart.com/The-Flower-Matrix

[2] Claudia Hart. "Alice Unchained XR 2018". *Claudia Hart* online, 2018. https://claudiahart.com/Alice-Unchained-XR-2018

[3] Brent Watanabe. "San Andreas Streaming Deer Cam", *Brent Watanabe* online. 2015-2016. https://bwatanabe.com/GTA_V_WanderingDeer.html

Andreas Deer Cam (2015-2016). [4] The deer moved from place to place, getting shot or beaten but remaining alive and completely undamaged.

Such artworks lead me to my research about the relationship of human architecture and non-human actants. This project uses theories proposed by architecture theorists like Kengo Kuma and Pier Vittorio Aureli to create theoretical frameworks which analyze the ways in which suburban architecture is perceived and interpreted. Kuma [5] and Aureli [6] schematize concepts on compartmentalization within architectural structures, on compartmentalization within urban and suburban spaces (or city planning, as I discuss in Section 3).

This project attempts to then distort, or queer, the process of architectural and natural depiction based on queer theory proposed by theorists such as Jack Halberstam and Sara Ahmed. Halberstam [7] and Ahmed [8] both offer theories on viewing certain spaces and objects through a different lens, a queer lens. I attempt to gauge the queer potential of this alternate way of viewing by artistically depicting narratives which showcase the queer tendencies of nature (or ecology) as it comes into contact with human-constructs such as architectural spaces.

On this basis, my project is also informed by the posthuman writings of Anna Tsing and Donna J. Haraway. Tsing [9] and Haraway [10] describe the ecological space (or landscape) upon

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[4] Ibid.

[5] Kengo Kuma. *Architecture of Defeat. 1st ed. 2019*. (Reprint, Taylor and Francis, 2019). https://www.perlego.com/book/1601918/architecture-of-defeat-pdf.

[6] Pier Aureli and Maria Shéhérazade Giudici. "Familiar Horror: Toward a Critique Of Domestic Space." *Log*, no. 38 (2016): 116. http://www.jstor.org/stable/26323792.

[7] Jack Halberstam. *In a Queer Time and Place: Transgender Bodies, Subcultural Lives*. (New York: New York University Press, 2005), 10.

[8] Sara Ahmed, *Queer Phenomenology* (London: Duke University Press, 2006). 107.

[9] Anna Lowenhaupt Tsing. *Friction: an ethnography of global connection*. (Princeton: Princeton University Press, 2005), 173.

which architecture is constructed. In their vivid authoring, they bring the landscape back into focus, devoid of human actants.

The visual language of this project, the style and nature of depiction are based on my own personal experiences. Certain criteria, such as the height from which the user can perceive the virtual space, the nature of movement, the lighting, are based on the way I approach and appreciate visual software, whether that might be in terms of film, or in terms of video games. In this regard, I am a child of the 1990s, and inferred most of my appreciation for visual culture through CD-ROMS. This media and the kinds of culture it contained has been (consciously or otherwise) incorporated into this thesis project. Other influences, such as the absence of sound comes from other experiences, such as avoiding undue parental attention while gaming or watching films, or simply being able to focus on the visual content. While it would be possible for me to depict or present my work in a different way, I have adhered to my preferred way of viewing and crafting.

This project comprises the recreation of diverse narratives which are composed through my understanding of existing theoretical thought pertaining to architecture, queer perception and ecology. I will begin by describing the materials of creation in the following section, alongside the processes through which I use them to compose the virtual spaces that are part of this project.

[10] Donna Jeanne Haraway, *Staying with the trouble: making kin in the Chthulucene*, (Durham: Duke University Press, 2016), 137.

3. CULTURAL AND ECOLOGICAL CONTEXT

It is rational to assume we live in times of production and reproduction. Some part of me believes that during a different time (notably in the past), I could survive as an artist working with traditional materials in my homebound cities of Mumbai and Pune. I have come to understand during my artistic formation and with the changing technological landscape that I can no longer expect to subsist on the basis of art made using traditional materials. While I may be productive in my crafting of certain cultural artifacts, the result of my labor would be less valued, or considered less important than other forms of production and reproduction.

What are these traditional materials? Paints and dyes which are organic and distilled from flowers, inks, and various fluids, mixed with water to mimic color. Brushes made of wood, enamel, hair from diverse organisms to spread the paint. Paper, made from paddy, husks, animal skins, which serves as a base. Frames and suspensions which are made from wood, and from ordinary and precious metals. Beads, cheap stones for decoration and flourishes, clay for molding, metals for casting, glass for tinting. Thread and yarn for weaving, stitching and embroidery. The labor which transforms these traditional materials into cultural artifacts, while being widely appreciated, is largely undervalued. This trope is evident in today's commercial, global Technosphere. This point of view is simply a biographical comment.

I have instead pushed myself down a rabbit hole of evolving modes of expression. As opposed to using traditional materials to express and communicate the reality around me, I force myself to experiment with new technologies. Thus, I must use complex systems which come in the form of computers, and graphic interfaces or computer screens. The result of these depictions is presented in this thesis project.

3.1 DEPICTION

In order to create a virtual space, I use photographs of a certain neighborhood in Prague, Czech Republic. This is a suburban space: it is on the outskirts of the main city of Prague. These photographs were given to me by some dear friends: they were taken when we visited the neighborhood together. The reason I choose these photographs is because they represent memories of how strongly disorientated I was in this space. This disorientation affected various facets of my consciousness: my identity as a queer homosexual, my understanding of materials in inhabited spaces, and my comprehension of ecology.

The first of these disorientations affected my queer identity. It was marked by the passage of time in this suburban space, a passage of time defined by productivity and reproductivity. This neighborhood was an inhabited space where time passed normally. By my wording of *normal*, *productive,* and *reproductive,* I refer to the human actants inhabiting this neighborhood: they would wake up, prepare themselves, prepare their children, travel to their place of production, be *productive*, return at a fixed time, socialize in various forms, eat, and sleep. *Reproductivity* refers to offspring, a secure and safe space to raise children, devoid of menace of wild things and environmental dangers. *Normativity* alludes to the repetition of events, of productivity and reproductivity and the organization of architecture to cater to the passage of such productive and reproductive time.

When I look at the photographs, I still find myself drawn to the calm, organized existence of this Czech neighborhood. I find that I easily accept the organized streets, the well-defined architecture, the predictable cycles of production and rest. I am invited to inhabit this space, to depict it, to participate in its furtherance, even though I am no more than a visitor. (Figure 1)

Sara Ahmed, in *Queer Phenomenology* describes this acceptance, as a promise of a "sinking feeling".[1] Breaking down this sensation of acceptance leaves me with the way I perceive and interpret the Czech neighborhood. I would like to frame my perception according to Ahmed's use of Edmund Husserl's concept of the *flow of consciousness*.[2] This flow of consciousness is a series of perceptions I have of the suburban space, data which I intercept in the form of light and color. In the encirclement of the buildings, and through various perceptions, I comprehend the object to be a building.

Figure 1: Structure in a Czech Suburb (front and side)

The moment of comprehension forms my interpretation. This interpretation is not instantaneous but something I have accrued over my life, being taught what a building is, comprehending its definition, purpose and identity as an object. In the same way, through numerous perceptions of the neighborhood, I interpret it to be a collection of buildings which are inhabited, together forming a suburban space.

[1] Sara Ahmed, *Queer Phenomenology* (London: Duke University Press, 2006). 168.

[2] Ahmed, 35.

This perception, what me or the viewer sees, is very important to my work in *Queering Virtual Space*. This data can be perceived in the form of sound, sight, touch, smell or taste. The perception of visual data comes in the form of color and reflections incident on the eye, each depicting certain kinds of buildings, vegetation, cobblestones and clear blue skies. Interpretation of this data is a historical, social, scientific, religious, sexual, and linguistic affair. It is based on the various experiences and infinite perceptions which build up the viewers notion of phenomena such as “building’, “roof, “sky”, “tree” etc.

Let us consider the phenomena of the “building”. If one were to take the example of the structure in photographs used as a reference (see Fig. 1), the viewer, perceiving the materials, the various orifices, the overall shape that comprise the building, interprets it to be so and thus makes certain decisions: to enter the building, to inhabit it, to respect the boundaries defined by walls, to interact with component parts of the building (the doors, the windows, the knobs etc.).

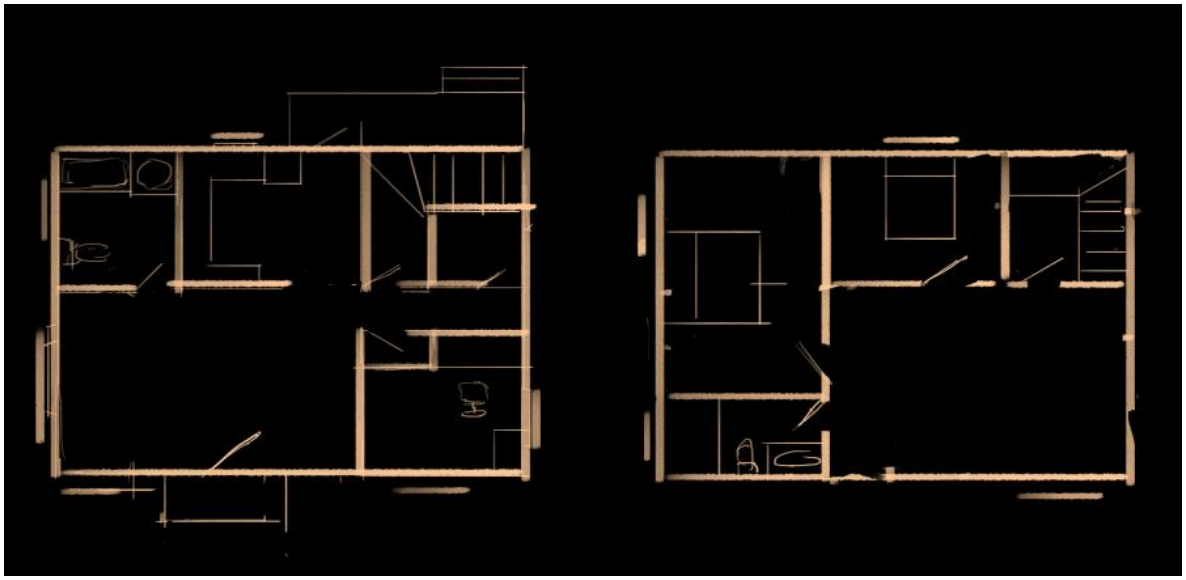

Figure 2: Imagined interior of structure in Czech suburb

Using this information on the flow of consciousness, I begin my artistic process with sketches which depict the viewer's perceptions as they interpret the building. Figure 2 contains sketches which display my visualization of the interior of the building.

I use these sketches to reflect the flow of consciousness of the human actant as they attempt to fully perceive the building. In order to get a complete sense of such a structure, the human actant would go *around* the building/dwelling and *inside* of it. This is displayed in Figure 3, where the blue lines trace the movement of the human actant.

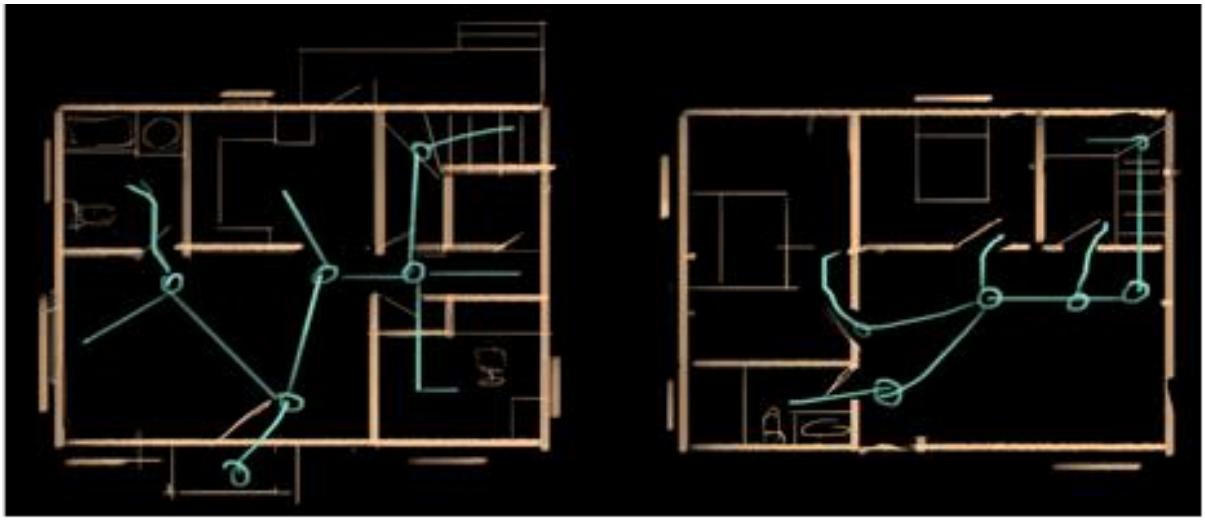

Figure 3: Flow of consciousness in the interior and exterior of a Czech structure

3.2 INTERPRETATION

Pier Vittorio Aureli and Maria Giudici analyze the work of the architect Sebastiano Serlio in the mid-15th century, through which they theorize the origin of the interior spaces of the villa.[3]

[3] Pier Aureli and Maria Shéhérazade Giudici. "Familiar Horror: Toward a Critique Of Domestic Space." *Log*, no. 38 (2016): 116. http://www.jstor.org/stable/26323792.

They talk of Serlio's "domestic project" which defined the beginning of the commodification of the western house, the villa, as an object that can be owned.[4] This project occurred through a series of steps, relegation of activities such as "animal husbandry, craft workshops, and storage" to "outbuildings", with the household becoming a space for reproduction as opposed to production.[5] Another result of Serlio's project is the beginning of the compartmentalization of the house into fragments called rooms.[6] It can be understood that such designs participated in the replacement of Gothic architecture across Europe in the 16th century, through the *Renaissance* movement, and the basis of these designs remained an important influence on the development of architectural spaces even in the 20th century as they were reconceptualized through modernist concepts. This is an important consideration to keep in mind as I try to imagine the interior spaces of certain buildings of a Czech neighborhood, which were possibly constructed in the mid-to-late 20th century based on housing typologies defined by such designs.

Other evidence of such a domestic project comes through renaissance architects giving definition (or purpose) to rooms within buildings. Beginning in the 18th century, for example, separate sleeping spaces were defined for members of aristocratic households, and this was then normalized for the middle class by the 19th century.[7] Such building subdivisions came in the form of floorplans for the purpose of accessing various fragments of the architectural structure through doors and windows. Later alterations to the house came through the conception of the villa without outbuildings (Aureli describes this through designs of villas without barns, for

[4] Aureli and Giudici, 117.

[5] Aureli and Giudici, Ibid.

[6] Aureli and Giudici, 120.

[7] Aureli and Giudici, 121.

example).[8] Aureli and Giudici also suggest that the villa is the most potent manifestation of the idea of home ownership, the appropriation of land for the purposes of reproduction and domesticity.[9]

Another author who considers such compartmentalization of land is Henri Lefebvre. Lefebvre refers to the architectural structures as *habitat*, a space (a plot), with a fence, access to organized ecology in the form of gardens, access to sunlight through windows, access to other commodities which are used to accessorize the domestic space, such as furniture.[10] This habitat is similar in typology and size to the bungalow, a smaller version of the villa.[11] Lefebvre speaks of the habitat and habitat-ownership as the beginning of the anti-urban project, where domestic life could no longer exist in immediate proximity of the place of production.[12]

Finally, in the 20th and the 21st century, Kengo Kuma writes about the construction of certain typologies based on zoning rights. This is a system of governance of the type and volume of architectural structures that can be built on a plot of land.[13] The zoning system is perhaps the most evident manifestation of the division between urban and suburban zones because it determines where certain houses can be built and where they may not.[14]

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[8] Pier Aureli, *The Possibility of an Absolute Architecture*, (London: MIT Press, 2011). 48.

[9] Aureli and Giudici, 117.

[10] Henri Lefebvre, Kofman, E., & Lebas, E. Writings on cities. (Oxford: Blackwell, 1996). 79.

[11] Lefebvre et al., 78.

[12] Lefebvre et al., 77.

[13] Kengo Kuma. *Architecture of Defeat. 1st ed. 2019*. (Reprint, Taylor and Francis, 2019). https://www.perlego.com/book/1601918/architecture-of-defeat-pdf.

[14] Kuma, Ibid.

Using these theoretical frameworks, I will thus suggest suburban spaces are defined by the ownership of architectural structures and plots of lands by human actants. Such home ownership arises to separate the familial unit from contact or influence related to processes of production or those of certain non-human actants that may be considered harmful to the human body. I interpret these buildings (including the building in Fig. 1) as commodities that are considered belongings of certain individuals or groups. As a stranger, or an unknown actant, I am thus not permitted to enter and can only imagine the interior of these spaces.

Suburban space can also be interpreted as a relegation of activities of production and unwanted biomass from the domestic space. Today even companion species to human actants are considered unwanted biomass in domestic spaces, based on them carrying harmful microorganisms that may pose a danger to the human body. But the relegation of biomass and the place of production constitute only certain elements of suburban space. What, or rather who else is being relegated?

3.3 ORIENTATION

Sara Ahmed considers the *normative* human actant to be one who participates in a set repeated actions that are interpreted as linear (or those actions which are in-line), actions practiced historically, or by society at large.[15] These actions are inherited, passed through generations to conform the body of the normative actant to routinely perform certain actions. She describes this as the *bodily horizon*, or the orientation of the human body towards a set of actions

[15] Ahmed, 66.

which put certain objects (and not others) within reach.[16] If I return to the feeling of acceptance which I sense when I interpret these photographs of a Czech neighborhood, and this feeling pulls me to participate in the current stage of the domestic project, what objects are placed then within my reach?

Objects which are in line with cycles of production and reproduction would be placed within my reach. Accessories in the form of furniture, organized ecologies in the form of gardens, familial units based on kinship and lineage, protective spaces in the form of houses etc. However, this "sinking feeling" of accepting objects within my reach is an alarming and deceptive sensation. It is alarming because as a queer homosexual, I am not orientated towards cycles of production or reproduction. I would like to frame my orientation in Jack Halberstam's coining of *queer time* or time which is "spent outside the logic of capital accumulation".[17] Halberstam's examples of human actants orientated to a queer passage of time are "ravers, club kids, HIV-positive barebackers, rent boys, sex workers, homeless people, drug dealers and the unemployed".[18] I would like to expand these examples of *queer time* to include artists, immigrants and refugees, many identities which are a part of my flow of consciousness as I interpret this suburban space. Many of these identities are interpreted as unsafe, and unwanted biomass within suburban spaces.

It is safe to say none of these specific human actants were visible in the neighborhood or are visible in the photographs. My resistance against this feeling of acceptance is based on shared identities with actants whose passage of time matches my own. But the queer passage of time

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[16] Ahmed, 66.

[17] Jack Halberstam. *In a Queer Time and Place: Transgender Bodies, Subcultural Lives*. (New York: New York University Press, 2005), 10.

[18] Halberstam, Ibid.

isn't simply a resistance against the normative flow of productive time, it is an orientation towards a different space, perhaps an orientation towards many spaces. These spaces while disorganized and seemingly hostile, might not have the same barriers against certain forms of existence.

3.4 GAPS

Paris is burning, Jenny Livingston's documentary of queer subcultures in New York defined the limits of suburban and urban spaces. These limits are not well stitched, they do not succeed in relegating all unwanted biomass to the peripheral limits of the city. Queer subcultures, particularly during the AIDs epidemic, existed in pockets of space between the limits of urban and suburban zones of the city. This is evinced within *Paris is burning*, through interviews and documentations of various non-normative inhabitants of the piers in New York.[19]

Furthermore*, Paris is burning* is a documentary about the congregation of queer familial units which come together to share and create culture. These familial units were often adopted, comprised of an overlap of refugees and migrants, actants who could not participate in social cycles of production. *Paris is burnin*g highlights the potency of nonhuman kin to group together to survive through times of immense distress (the AIDs epidemic), while at the same time participating in the creation of culture, through movement, through dance, and through music. The human actants orientated to Halberstam's passage of queer time fit well within such queer familial units.

[19] Jennie Livingston. *Paris Is Burning*. Off White Productions Inc. 1990.

In the documentary, the pockets of space where urban and suburban limits do not overlap is showcased through the piers in New York, the hangout for many queer communities, drug dealers, sex workers, the homeless and migrant populations.[20] The piers shown to be a zone of collapse and dispossession [21], remained part of the city limits but were a space of non-participation in the normative cycles of production.

Authors such as Anna Tsing define other spaces which do not have such barriers and demonstrate overlapping biospheres. Tsing talks about such spaces from an eastern orientation, in the Meratus mountains of Indonesia. The domestic project visited the eastern and the southern parts of the hemisphere with colonial intent, bringing technology in the form of architecture, architectural materials, monocultural farming, instruments of war such as gunpowder, western forms of businesses, etc. In current times, one sees this influence through the post-colonial transference of media and technology, but also of zoning rights, of nature conservation (a romantic ideal which did not quite exist in the east), of culture in the form of clothing, facial markings (make-up) and sound.

In this, Tsing talks about gaps, or the confluence of conceptual spaces (human cities) and real spaces (the environment) where certain projects do not travel well.[22] In this, Tsing refers to the Meratus landscape as unintelligible, as a space that can be developed (through urban or suburban projects), exploited for its resources or conserved as nature in the romantic sense.[23]

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[20] Livingston, Ibid.

[21] Livingston, Ibid.

[22] Anna Lowenhaupt Tsing. *Friction: an ethnography of global connection*. (Princeton: Princeton University Press, 2005), 175.

[23] Tsing, Ibid.

This landscape comprises people without computers, without television, without plumbing, human actants left behind by technology.[24]

Such gaps are commonplace on the outskirts of large eastern cities, many towns in the east and in the west, and most frequently visible in many eastern rural spheres of habitation. In my home cities of Mumbai and Pune, the urban centre is dominated by a confusion of skyscrapers, housing complexes and tenements. As one travels outwards, beyond suburban neighborhoods, towards the borders of urban and rural limits, there is an abundance of gaps. Such gaps are overlapping communities with facets of western influence, fragments of overlapping familial units, participants in the form of familiar biomass and an intermingling of western new media technologies (even actants without western plumbing tend to have access to cellphones), alongside a mix of western and eastern architecture.

It is important to state that the normative passage of time has not been successful here, but neither is the passage of time in gaps queer. It is clear that the passage of time and cycles of productivity are geared to a periodic, cyclical orientation of time in such spaces. This could be defined as *ecological time*, as phrased by Georges Gurevitch, or as social time as it corresponds to the external environment, to nature and ecology.[25] In the past, this constituted a consideration of time based on the mobility of populations influenced by environmental conditions, such as the fertility of soil, the availability of resources, or of the structure of landscapes. Today, such passage of time is frequently visible in gaps, or in rural spaces, or in terms of the mobility of climate refugees displaced in fear of (or because of) climate disaster.

[24] Tsing, 196.

[25] Georges Gurvitch. *The spectrum of social time*. (Dordrecht: D. Reidel Publication, 1964), 40.

3.5 DEPICTION OF GAPS

Gaps are tangled spaces of overlapping biomass, which are orientated to ecological time and comprise zones of non-development. This is perhaps presentable through traditional media. However, in the beginning of this section, I spoke of the use of evolving modes of communication and expression. The use of such novel modes of expression, such as virtual space through computational platforms, allow me to visually portray these gaps. This methodology, and the artworks which influence it, are described in the following section.

4. METHODOLOGY

Queering Virtual Space is a project of relations and interpretations visualized through new media platforms. Much of this project makes use of game engines (software used for the creation of video games) for the display of certain virtual narratives. Therefore, some insights into virtual visualizations come through a breakdown of the video game.

Alexander Galloway, in *Gaming: Essays on Algorithmic Culture* breaks down the *video game* into constituent parts, and these constituent parts offer some ways of interpreting virtual space. According to Galloway, the video game can be understood in terms of gamic action, something which is "separate, semiautonomous and removed from normal life".[1]

In this semiautonomous space, Galloway considers the role and action of actants within narrative space (moments of gamic action).[2] The actants in this case are the machine and the operator (the computer and the player).[3] The narrative space of the video game is the sum of diegetic and nondiegetic actions performed towards the completion of the video game.[4]

4.1 NON-DIEGETIC ACTIONS

Video games are a potent part of today's media landscape. They are also still largely undiscovered. Many video games use menus and inventory systems, particularly those which are

[1] Alexander R. Galloway, *Gaming: Essays on Algorithmic Culture*. (Minneapolis: University of Minnesota Press, 2010), 6.

[2] Galloway, 17.

[3] Galloway, 5.

[4] Galloway, 7.

role playing games (RPGs) or have mining and gathering components (popular games like Minecraft, for example). In these games, Galloway describes nondiegetic operator acts as the use of "start", "play" and "pause" functionalities within a video game, the use of cheat codes, or of interface menus. The interfaces are part of the experience of gameplay, despite not having any narrative contribution.[5] Examples of nondiegetic machine acts could be the "Game Over" sign flashing at the failure of the operator to meet narrative ends.[6]

Most common of such menus are those which display signs of "victory/defeat" and "success/failure". This expression of signs conveys a binary where the accumulation of many victories and successes can be compared to the accumulation of capital (and quite largely is, in certain popular industries such as e-sports). In *Homo Ludens*, Johan Huizinga provides a critique of contemporary play.[7] Huizinga writes about the ever increasing need to mark records of achievement and set a measure of play which stresses on victory (rooted in what he calls the "spirit of the professional").[8] The celebrations of records, of flashing screens of victory, of point systems, describe the ever-increasing compartmentalization (or even "Booleanization") of play. If we consider the endings of contemporary video games (usually governed by winning, losing or records beaten), does that imply that the state of play has ended with the simple display of text?

Huizinga considers the "club" (which can be reworded as the "gamer community" in video game context), an entity remaining permanent even after the completion of the game.[9]

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[5] Galloway, 13.

[6] Galloway, 29.

[7] Johan Huizinga. *Homo Ludens: A Study of the Play-Element in Culture*, (London: Routledge & K. Paul, 1949), 197.

[8] Ibid, 197.

[9] Huizinga, 12.

Gamer communities retain some qualities of such clubs, where participants of the video game share experiences, discuss elements of the game, offer insights to achieve narrative ends (cheats, hacks, tutorials). In a different perspective, Peter Gray talks about social play. For Gray, the great challenge of social play is to "keep all the players happy without the violation of the rules of the game."[10] Such play involves voluntary participation, autonomy, equality, sharing and consensual decision making.[11]

If one were to think of play in social terms, the ludic state is not a Boolean value that is necessarily true or false. Through my project, I propose ways of questioning the need for a specific set of either nondiegetic operators acts or nondiegetic machine acts. The removal of such constraints poses some interesting questions in blurring the line between the gamic action and reality to reveal a virtual space that is coherent with real occurrences.

4.2 DIEGETIC ACTIONS

Galloway describes operator and machine actions which contribute to the completion of a video game narrative as diegetic.[12] Elements such as characters, environments, dialogues and movement which move towards the completion of the game are part of these diegetic actions. The diegetic operator acts constitute the various actions that involve human performance in the imaginary space of the video game. [13] In contrast, diegetic machine acts refer to those actions

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[10] Peter Gray, "Play as a Foundation for Hunter-Gatherer Social Existence", *American Journal of Play* 1, no. 4 (2009): 484.

[11] Ibid, 484.

[12] Galloway, *Gaming: Essays on Algorithmic Culture*. 7.

[13] Galloway, 22.

instigated by the machine.[14] As the creator of this virtual space, the diegetic elements (rules of the virtual world, if you will) have been defined in *Section 2*. This project thus conflates and intermingles *suburban space* and *queer time* by expressing them through virtual reality software.

4.3 VIRTUAL DEPICTION OF SUBURBAN STRUCTURES

The initial scene presented is a reproduction of certain photographs (explained in *Section 4.2*). This reproduction seeks to transport the operator to a specific place, the Czech neighborhood, in this case. The virtual buildings, houses and streets are created based on the emblematic red roofs and cobblestones, motifs that historically convey Prague as a city. Certain

Figure 4: Creation of virtual models of the Czech suburban space

[14] Galloway, 12.

computer programs (further explained in *Section 4.3*) display these models through a graphic interface: this allows the viewer to perceive my recreation of this neighborhood.

There are no characters, or dialogues. The focus of this project is on the architectural structures, their power in the cartesian plane and in the visual field. The environment is thus the narrative. These suburban architectural models are made using 3D modeling software (the software program Houdini, in this case). The completed models are then placed on hexagons and mapped to visualize the suburban space (Figure 4).

Digital images are used as textures to give the impression of certain materials, such as concrete, ceramic, stone, wood, and glass. Multiple variations of the houses and of vegetation are placed on hexagons which are then mapped on a 10x10 square to provide a terrain on which the operator can move. This movement is a simulated process, it is done using algorithms which calculate and alter the GUI (graphic user interface) system to visualize the movement, alongside bringing and removing various virtual objects from the cartesian frame. Such algorithms are part of the Unity Game Engine (described in *Section 4.3*).

It is important to mention that these digital images used as material textures (such as concrete and wood) were not created by me, but are simple images taken from online sources.[15] The rationale for not making these textures myself is due to the amount of time required to create textures which are seemingly seamless (or procedural) in order to depict certain materials as they seem to appear in real life. I have instead spent more time creating 3D models. Furthermore, these textures have been manipulated and altered within the game engine. They are not used as they were intended during their creation. For example, one for the sample textures appropriated is a photograph of white paper. I have used this texture to visualize white paint on a building in

[15] This project contains assets from ambientCG.com, licensed under CC0 1.0 Universal.

virtual space. It is my opinion that they serve the same objective, even though I could have achieved some state of photorealism if I had taken photographs of white paint on concrete and spent time generating seamless textures out of these photographs. Photorealism is not my objective, and for my intention in this research, simple photographs which approach certain interpretations are sufficient (even though the process of creating them may have been bypassed).

The use of open-source textures comes with other benefits. Many of these textures are used for the finalizations of 3D models that are to be used in video games. Their placement and subsequent alteration in my created virtual space provide a reference point, a point of transition between normative and queer spaces.

4.4 QUEER VIRTUAL SPACE

What happens when one tries to enter these suburban dwellings? Almost all of the Czech buildings were gated, with massive doors to allow the entrance of accepted actants and prohibit that of the unwanted. It is my objective to imagine and depict the interior of the house, but I do so based on certain theories.

Queer interiors: In the previous section, I refer to Sara Ahmed's use of the flow of consciousness to describe my sense of disorientation when I perceive the Czech neighborhood. I will now suggest a different feeling, one which is more common to me, which Ahmed describes as a "slantwise" viewing of the world.[16] Ahmed refers to queer orientations that allow the viewing of objects in ways that are different from those effectuated by normative bodily

[16] Ahmed, *Queer Phenomenology*, 107.

horizons.[17] Furniture is the focus of Ahmed's theory in this regard. Ahmed talks about disorientation when furniture is moved or turned so that different faces become visible. Furniture has the power to queer our perception through altered faces but keeping our interpretation the same.[18] Furniture in this regard is very interesting. In French, as it were, furniture is *meuble,* a gendered masculine noun. It is also an adjective which means "movable". Such an interpretation of furniture allows for a starting point for queer visualizations.

Another site of disorientation comes through fabric. In the documentary film *Paris is burning*, the American drag queen and fashion designer Pepper LaBeija showcased one of her creations made of gold beads and sequins. She used dance to enhance this display and over the course of her performance, she discarded parts of the external garment to reveal a completely different type of clothing underneath.[19] Through this performance, LaBeija allows us to look at the world slantwise, from person becoming object and back again. She demonstrates the possibility of a queer skin, of a queer individual transcending identities using fabric.

This queer skin is one of the methodologies I employ as I consider the interiors of dwellings in the Czech Suburb. I use multiple different fabrics which belong to my mother and grandmother that I photograph and turn into textures (explained further in *Section 4.1*). I then model certain kinds of furniture, which I place within a dark space and use these Indian fabrics as a queer skin (Figure 5).

[17] Ahmed, Ibid.

[18] Ahmed, 166.

[19] Livingston, *Paris is burning,* 0:2:20 to 0:2:45.

Figure 5: Queer skin, queer furniture

Queering Virtual Space is about the discovery of the disruptive qualities of certain materials and the display of such materials through computational devices. A discussion about the nature of these fabrics as queering textures would help convey the ideas that appear in my project. For the entire time I have spent in Mumbai, the city where I was born, I have been drawn to certain fabrics that belonged to my mother and my grandmother. They have the tenacious power to disorient me, through sight, through smell, but more strongly through touch. As my dry fingers rasp through the fabrics, traditional Indian garments made of threads of silk and cotton, I am unsettled.

I will not attempt to trace the origins of individual fabrics used so far, that would be a difficult task and is not my objective for this research. The digitally photographed fabrics used in this project were acquired over many years and have been passed through many hands. I will instead refer to the processes through which they were created, in consideration of the craft that survived through the ages to be documented and presented in my work.

Many of the fabrics worn by my mother and grandmother were made of silk, woven through sericulture (the manufacture of silk using silk cocoons). This process required the artisan (in this case, the Indian handloom weaver) to stay with silkworm during the days of its birth, its hatching, its feeding, and its pupating. To obtain silk yarn, the chrysalis is put to death through steaming or boiling the silk cocoon. The silk yarn (should it be adequate) is then exposed to

sunlight, unraveled, washed, and finally reeled into thread. This thread is then woven into fabric by handlooms, (wooden contraptions such as locally crafted branches, which held the thread stiff so as to assure a tightly woven cloth).

Other fabrics worn by my mother and grandmother were made of cotton, where the artisan works with cotton yarn. The raw cotton is picked from the cotton plant at a particular time, the knowledge of the quality of the cotton yarn, the smoothening out of uneven material, the intimacy with the spinning and weaving processes, the force applied to the tightening of each thread, all of these are various steps in the handcrafting of the fabrics. Each of these steps leave behind noticeable idiosyncrasies that are apparent in materials which are made through human craftsmanship. This can be in the form of embroidery, certain styles of weaving, certain use of dyes or cultural patterns, etc.

In *Crafting the Nation in Colonial India*, Abigail McGowan outlines the stark difference between Indian handcrafted textiles and those produced by the machine. McGowan focuses on the "human idiosyncrasy" as opposed to "machinic precision" marks a historical demarcation between Indian produced handicrafts and machine fabricated garments which are a source of much tension in Indian colonial history.[20] In these fabrics, as has been written by McGowan, one can sense the "individualistic", "human", and "distinctive Indian" craftsmanship.[21]

The idiosyncrasy within this crafted object is what I attempt to appropriate, to discover and use to create queer possibilities.

[20] Abigail McGowan. *Crafting the nation in colonial India*, (New York, NY: Palgrave Macmillan, 2009), 76.

[21] McGowan, 76.

Queer floorplans: In *Section 2*, I attempt to trace the flow of consciousness of the operator as it perceives the suburban building (Figure 6). I do so through the conceptualization of the floorplan, where the viewer in reality would pass within and around the chassis of the building itself. In order to enter the building, they must pass through the threshold, in which case they are within the limits of the constructed place.

Figure 6: Flow of consciousness in the interior of a suburban dwelling

I turn once again to a certain French word which helps express what I would like to depict: *immeuble*. *Immeuble* or "building", in context of *meuble,* is something which is physical and real. It gives us the impression of something unchanging, perhaps by its proximity to the French adjective *immuable*. This is perhaps true for the exterior of buildings appear immobile, but as one passes inside and perceives the hollowness of buildings, the sense of moving beyond or within a threshold becomes a disorientating process. On sunny days, such an entrance marks a transition from heat to cool respite. During monsoon, it is a transition from a wet to dry space.

The disorientation of entering then transfers on to the perception and interpretation of rooms. This is an evolving process, given the way furniture is mobile. Each room can thus be constantly reorientated or reinterpreted. Such interpretation changes from culture to culture, and

from season to season. For example, rooms in some western cultures remain unchanged until the offspring leaves the domicile. In other eastern cultures, their purpose is subject to the health and decisions of elders within a familial unit. Furthermore, the subdivision of interior spaces into specific rooms are based on the needs of inhabitants: a place to eat, to congregate, individual places to sleep, etc.

Using 3D models in virtual space, I attempt to trace the flow of consciousness as it perceives the interior and try to find alternate lines of perception. I posit rooms at various points in these new lines in order to queer the imagined interior of the Czech building and to expand the state of disorientation (Figure 7).

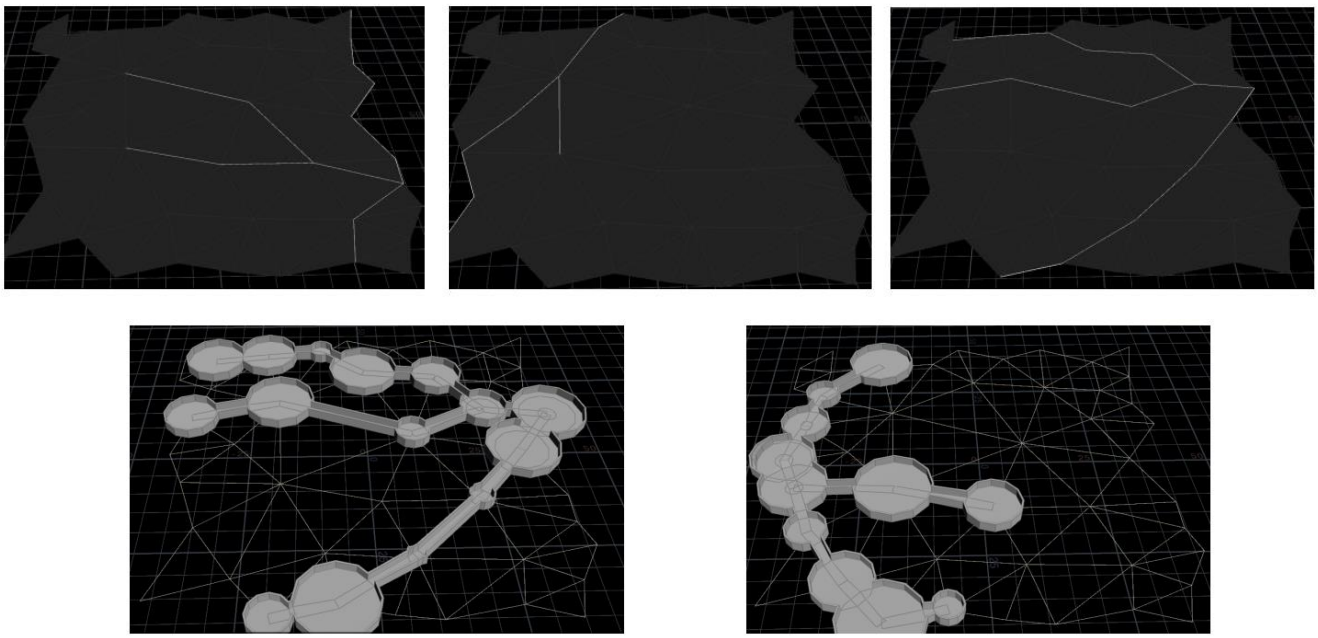

Figure 7: Queered flows of perception in interior spaces

In a converse manner, exiting a dwelling or a place of habitation has always been a complex matter. The reasons for leaving dwellings behind have changed in some ways and

remained the same in others. The decision to pass from a secure space to the exterior, to the unknown (or the unpredictable), could be based on hunger (hunting for food/going to the store), claustrophobia (exploration/entertainment), weather (fertility/sunbathing), danger (fire, flood, wind), etc. I attempt to channel this state of disorientation in order to bring queer objects into view.

A visualization akin to gaps: Disorientation can occur outside of intended cycles of movement. For example, when I consider the year 2021, places of habitation have been greatly threatened by effects of climate change. Tornadoes, storms, droughts, power failures, tsunamis, volcanic eruptions, torrential rains, and extreme temperatures have wreaked havoc across numerous cities across the planet during this year. In the Czech Republic itself, for example, deadly tornadoes swept through the south and the east, in regions of Breclav and Hodonin, destroying architecture and displacing human and non-human actants alike.[22]

My final act of resistance against the sinking feeling, the promise of acceptance is thus driven on the basis of ecology. I fear attachment, and acceptance, of sedentary material constructs such as suburban neighborhoods because they are largely immobile and greatly susceptible to ecological collapse.

Collapse of societal systems due to environmental disaster is a greatly distressing and horrific event. Such collapse results in dispossession and the creation of refugees without refuge. I do not believe human technology or human innovation can overcome or prevent such collapse. I must thus come to terms with the idea of collapse itself, that a place as wonderous and calm as the Czech suburb I was invited to visit by some very dear friends may not be everlasting.

[22] Rob Cameron, "Czech Republic: Deadly tornado sweeps through villages", *BBC News*, June 25, 2021, https://www.bbc.com/news/world-europe-57605651

Collapse is not an unfamiliar concept in human history. Sites of historic cites are often frequented by waves of collapse and reconstruction, this is part of the cyclical passage of anthropic time. Furthermore, collapse and destitution are intrinsic to the unwanted biomass which is relegated from urban and suburban limits. In reference to the documentary film, *Paris is burning*, queer communities congregated in the collapsed spaces of the New York piers, in a tangle of sexualized bodies, crumbling architecture and unwanted biomass creeping back within city limits during the 1970s.[23]

Collapse also exists in Anna Tsing's gaps, where colonial tools and mechanisms have failed to function as intended. Collapse is thus a crumbling of barriers, an opening of perception and interpretation to new and unfamiliar actants. It is this crumbling of barriers that I attempt to speculate in virtual space. It is clear that such a gap/collapsed site must be a local space that is familiar and alien at the same time.

Through the imagined spaces in my project, the operator leaves the queer interiors to pass into the collapsed space of the Czech suburb. This collapsed space comprises of debris, cracked and rusting metal fixtures, ruins of houses as they have fallen apart. But it is not a desert filled with sand where nothing grows and exhibits the death of systems. The chassis of suburban space has come undone, but it has not turned to dust (Figure 8).

[23] Jack Halberstam, "Jack Halberstam Presents "After All: On Dereliction and Destitution"", YouTube video, 1:32:09, April 8, 2020. https://www.youtube.com/watch?v=6iBYn_2hmLk&t=2334s

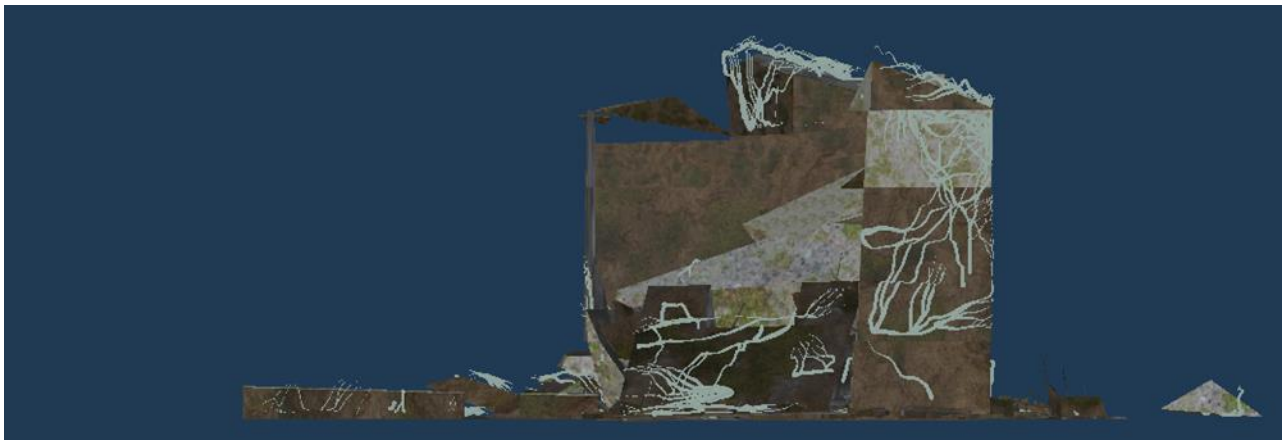

Figure 8: Queer actants emerging in collapsed spaces

Queer actants in collapsed spaces: The visualization of collapse, however difficult, is not destruction. Destruction comes with intent, whereas collapse is far less horrific. The breaking of barriers of urban and suburban limits, while greatly distressing, does leave room for resurgence. This collapsed and abandoned space becomes a site to be appropriated by entities that were previously considered unwanted or undesired.

In order to depict resurgence, I am drawn to create landscapes which are based on experimental realities. Such realities are informed by Donna Haraway's concept of *SF*, or *speculative fabulation*. This concept of fabulation involves multispecies storytelling of tangible existences.[24] An inspiration behind Haraway's speculative fabulations is the spider, which she regards as a being which entwines and interlinks.[25] Through the metaphor of the spider, Haraway refers to the symbiotic, organic biosphere which human actants are a part of. In this

[24] Donna Jeanne Haraway, *Staying with the trouble: making kin in the Chthulucene*, (Durham: Duke University Press, 2016), 31.

[25] Haraway, 32.

manner, multispecies storytelling moves the perception away from the human actant and brings other actants into focus.

What do I speculate is resurging in pockets of collapse? In this collapsed space, I would like to imagine human actants intermingled and tangled in their biosphere. But I do not imagine the human body in its Vitruvian sense, but rather along the lines of an evolved, interconnected parasitic entity which is largely unconcerned with prohibitions or barriers against the flow of biomass. In order to visualize such an altered, symbiotic entity, I rely on Donna Haraway's earlier, feminist authoring of the cyborg in the *Cyborg Manifesto*.

Haraway describes the cyborg as a cybernetic organism, a hybrid creature: it is oppositional, neither public, nor private, entirely perverted, utopian, and needy for connection.[26] I imagine the cyborg to be as tenacious and multilimbed as the spider which inspired Haraway. In order to depict this vision, I use 3D modeling software to visualize such tentacled and viscous entities. They are wrapped in the same fabrics as the queer furniture mentioned earlier (Fig. 9).

Figure 9: A Cyborg entity

As Haraway was influenced by the tentacled spider, I am influenced by weeds. Weeds are the biotic enemy of the colonial, western project: they are unsightly in gardens, unwanted in farms, participants of collapse and the herald of destitution. I imagine the cyborg to be indistinguishable from weeds, entrenched and appreciative of their tangled grasp. Other entities resurge and appear in the sphere of collapse, curious

[26] Donna Jeanne Haraway, *Simians, cyborgs, and women: the reinvention of nature*. (New York: Routledge, 2015). 149

offspring of cyborgs and their organic biosphere. In this context, fungi with bulbous and pulsating caps, vibrant and lively, appear as on the horizon. They spurt underneath the debris and bear remarkable visual resemblance to the entangled cyborg (Fig. 10).

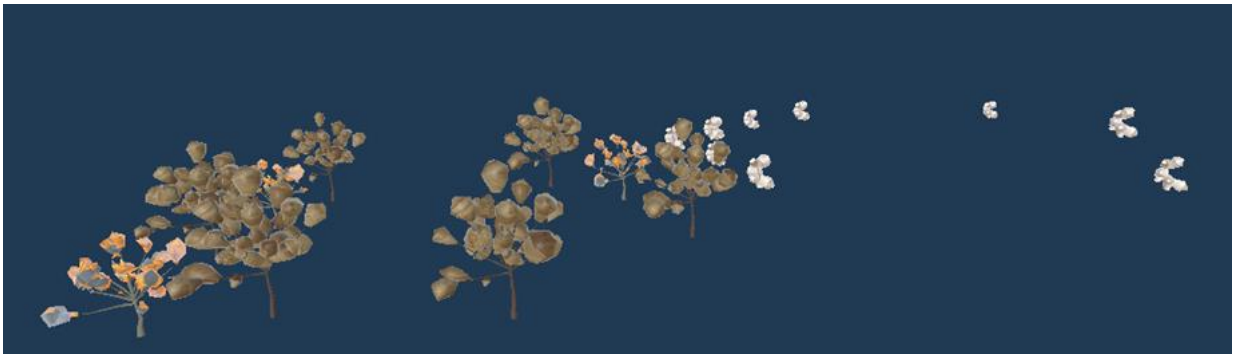

Figure 10: Examples of queer ecologies in virtual space

My visualization of the cyborg is not to propose an entity which resolves the problem of climate catastrophe, or to think of entities that are resilient to such collapse. Rather, I attempt to display human actants in the form of the cyborg, inextricably linked with their biosphere. In this manner, I propose a slantwise perception of suburban space using virtual reality software, which brings certain objects into focus that otherwise remain out of sight.

5. TECHNOLOGICAL ASSOCIATIONS

5.1 REMEDIATION OF CULTURAL ARTEFACTS THROUGH PHOTOGRAPHY

It is imperative to mention that none of the fabrics are a *physical* part of my work. They are represented in the form of digital photographs. Other digital photographs are used as well, but simply as references to depict the Czech suburb. This section discusses the motive behind the use of digital photography in the creation of textures in this project. I will elaborate on my use of digital photographs through a review of two new media discussions brought up by Jay Bolter and Richard Grusin in *Remediation*. These debates explain the use of various photographs as references or representations in *Queering Virtual Space*.

I photograph the fabrics of my mother and my grandmother as digital images to be used as queering textures. The first of these debates concerns the creation of such digital images. The digital image, according to Bolter and Grusin, is "an image recorded by photosensitive cells and never exists except as bits".[1] When this digital photograph appears on a computer screen, they question whether the image itself is interpreted as a photograph or a computer graphic.[2] In context of this project, I would prefer to interpret these images as photographs which have been digitally documented and retouched.

The medium of digital photography is not a process that was innovated in a vacuum, it has relations with older media. Bolter and Grusin define these relations as "remediation" or the

[1] Jay David Bolter and Richard Grusin, *Remediation: Understanding New Media* (Cambridge, Mass: MIT Press. 2000), 105.

[2] Bolter and Grusin, 105.

representation of one medium in the other.[3] I would like to bring up their point of view in the way the medium of digital photography remediates that of analog photography. In this remediation, the concept of immediacy arises, which is important to my project.

Bolter and Grusin define immediacy as the "belief in some necessary contact point between the medium and what it represents".[4] This point of contact, in the case of analog photography, comes at the intersection of two procedures: chemical (the action of light on silver halide film, for example) and optic (the formation of an image from the process of reflection),[5] an intersection which links the photograph to the object.

In the case of digital photography, the chemical point of contact shifts to a more complicated system. Kenji Toyoda, in *Image Sensors and Signal Processing for Digital Still Cameras*, dedicates a chapter to the transition from analog cameras (which record images on film) to digital cameras (which use image sensors and relegate the storage of information to secondary units) in the l970s.[6] Toyoda's analysis displays the technological replacements/advancements which occurred within the camera and the ever-evolving photographical methods documenting the incidence of light.

The onset of Digital Still/Video Cameras (DSC/DSVs, the progenitors of the class of cameras seen in markets today) saw the externalization of the storage of images.[7] While these digital cameras remediate the same processes of their analog counterparts in the optic sense, in

[3] Bolter and Grusin, 45.

[4] Bolter and Grusin, 30.

[5] Roland Barthes. *Camera Lucida* (Vintage, 1993), 9.

[6] Kenji Toyoda. "Digital Still Cameras at a Glance" in *Image Sensors and Signal Processing for Digital Still Cameras*, ed. Junichi Nakamura (CRC Press, 2005), 2.

[7] Toyoda, 2.

the chemical point of contact they are redefined by the integration of image sensors, analog preprocessors reading these image sensors, analog to digital conversion circuits and digital signal processing circuits which contain algorithms that perfect the unwanted idiosyncrasies that existed in the process of documented light on silver halide film in analog photography.[8] These circuits, which are a fixed part of DSC and DVC devices, have evolved from their analog counterparts to offer more functionalities such as image zoom and resizing, compression options for images, their formatting and storage based on algorithms integrated into chips.[9]

Regarding the optic point of contact, Toyoda states that the lenses used in DSC devices and analog cameras remain the same (single lens reflex type cameras), the marked difference is that image sensors and LCDs (liquid crystal displays) are found in DSC devices as opposed to silver halide film.[10]

What can be inferred from this process is that images are no longer captured, but sensed as analog signals, processed, converted to digital signals, compressed, and formatted before being transmitted as information to be reconstructed on displays within the camera or computers elsewhere. These signals, in *Queering Virtual Space*, are thus being advertised as fabrics. This advertisement is based on the concept of immediacy, where I require the operator to believe in the documentation of the incidence of light on fabrics that are reproduced on computer screens.

However, the objective of this research as it uses these fabrics as queering textures subverts this concept of immediacy. Even though the medium of digital photography is being used, the displayed photographs are open to interpretation. Their use in my project is thus to

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[8] Toyoda, 17.

[9] Seiichiro Watanabe. "Image-Processing Engines" in *Image Sensors and Signal Processing for Digital Still Cameras*, ed. Junichi Nakamura (CRC Press, 2005), 257.

[10] Toyoda, *Image Sensors and Signal Processing for Digital Still Cameras*, 13.

create points of comparison between suburban space and queer gaps, in this I simply rely on the process of digital photography to document the details of the fabric and nothing more.

Secondly, I use digital photographs of a Czech suburb as references in the construction 3D models which represent buildings within this suburban space. *How can my reproduction provide immediacy to the operator in this virtual space?*

Given my use of photographs as references, I attempt to reconstruct a memory, which is recorded through digital photography. The second discussion is thus about the possibility of immediacy in the remediation of digital photography through virtual space. Bolter and Grusin consider the possibility of photorealistic computer graphics which convey reality without the need for immediacy. Their discussion is about photorealistic 3D graphics made without physical counterparts that allow the viewer to experience some form of immediacy.[11]

My project questions the need for photorealism in the path to immediacy. In this regard, I refer to Roland Barthes' phenomenological writings on accessing historical events through photographs. Through a consideration of photographs of his mother, Barthes refers to history as "that which separates him from [the photographs]".[12] In this, Barthes suggests history to be exclusionary, in a time when he was not born[13] and in order for history to be "constituted", it must be "considered" and "looked at".[14] He refutes the idea of witnessing[15] or being present in history and in this recounts the difficulties of recognizing (his mother's) identity through

[11] Bolter and Grusin, *Remediation*, 106.

[12] Barthes, *Camera Lucida*, 64.

[13] Ibid, 64.

[14] Barthes, 65.

[15] Ibid, 65.

photographs. He talks about a painstaking "straining" to recognize the "presence of [her] identity", stitched together by the various impressions offered by the photographs.[16]

Even though perfect digital photographs can augment the possibility of immediacy, does this kind of photorealism really have any bearing on recognition? Barthes establishes recognition through impressions of his mother spread across many photographs, which requires a multitude of the media. In *Queering Virtual Space*, it is my objective to have the audience achieve recognition by staying with the collective *impressions* of the photographs, through certain markers, such as red roofs, cobblestones, clear blue skies and organized vegetation. I attempt to present these impressions in tandem and in conflict, in order to see how these divergent and convergent impressions affect the user.

[16] Barthes, 66.

5.2 COMPUTATIONAL DEVICES AND 3D SOFTWARE

I have made use of software-based compositing techniques for the creation and presentation of the artistic elements in *Queering Virtual Space*. The use of these techniques can be understood in a twofold manner, each requiring a need for cultural critique:

1) *Pristine algorithms*
2) *Visualizing remediated data*

5.2.1 PRISTINE ALGORITHMS

Queering Virtual Space exhibits a navigable display of digital images recreated by computers. This navigable display can be interpreted as virtual space. The purpose of this section is thus to consider the various stages that involve the perusal of digital images.

Lev Manovich, in *The Language of New Media*, defines the notion of "computerization of media", or the transformation of "media into computer data".[1] In context of digital images, Manovich describes two processes of interpretation: one is rooted in the cultural understanding of images, or the "cultural layer" where the image reflects physical objects; and the other is a computer file with a "machine-readable header and a set numbers" that is interpreted (successfully or otherwise) by other computer files: this is the domain of "computer cosmology" forming the "computer layer".[2]

The recognition of digital signals that reference analog data, and the format in which they are recorded, read and manipulated are governed by current adaptations of Alan Turing's

[1] Lev Manovich, *The Language of new media*, (Cambridge: MIT Press, 2000), 63

[2] Ibid, 63.

subroutines which were developed after World War II.[3] Manuel DeLanda describes such subroutines as heterarchical flows of control that execute actions outlined by the designer (programmer in this case) to perform defined tasks.[4] Manovich, in *Software Takes Command*, calls this a "software performance". The simple act of opening an image file is a performance of actions executed by predefined algorithms that involve the task of identifying and navigating stored digital signals.[5] This algorithmic performance constitutes "the physical, mechanical or electronic techniques used to navigate, create, edit, and interact with media data." [6]

The performance constitutes the creation, manipulation and display of data which represents real world counterparts (which I will refer to as *remediated data*). I refer to this data as remediate because it contains information about the cultural artifacts, the fabrics which I described in *Sections 2* and *3*.

It is also important to mention that such a performance requires a set of predefined rules for each process: algorithms manifested as digital software by programmers. Since I am not a software engineer, none of the algorithms and their software language referenced in *Queering Virtual Space* have either been created or altered by me. They have been used, as they were intended, to alter and visualize remediated data.

[3] DeLanda, *War in the age of intelligent machines,* (New York: Swerve editions, 2003), 162.

[4] DeLanda, 163.

[5] Lev Manovich, *Software Takes Command*, (New York, NY, USA: Bloomsbury Academic, 2013), 34.

[6] Manovich, 199.

5.2.2 VISUALIZING REMEDIATED DATA

I use various digital software to manipulate data that represents cultural artifacts. The use of digital software for the purpose of manipulating data is grounded in Manovich's theory for the recreation/replication of real-world materials, tools, and techniques in the form of algorithms[7]: a simulation of certain real-world counterparts.[8] Examples of this are algorithms such as cut, paste, zoom etc.

I attempt to manipulate this cultural data to be able to navigate through it. The images of cultural artifacts are sensed/captured through image sensors in digital cameras and are then stored in numerical formats which are transmitted to a computer. These numerical formats contain data for recreating the sensed image across a graphic user interface (GUI, or a computer screen). The data is searched, identified (Windows Search, image-encoding and decoding algorithms in Krita) and recreated by various software (Krita, Unity, 3ds Max, Houdini) as a bitmap image using a grid of pixels, which allow me to navigate and manipulate the data. The navigation, editing and display of this data can be categorized into two broad techniques:

a) Manovich indicates the first of these techniques to be *media-independent*, or techniques that can work with any form of digital data.[9] When the data is decoded and recreated in *Krita*, a digital image manipulating software, media-independent techniques such as cut, copy and paste are used to augment the bitmap image. Other media-independent techniques augment the color, the sharpness and the shape of the image. These techniques are not specific to pixel grids, and in principle are employed

[7] Manovich, 207.

[8] Manovich, 135.

[9] Manovich, 111.

across different algorithms (such as noise reduction, blending and modulation in audio files).[10]

b) The second of these techniques is media-specific: the creation, manipulation and accessing of specific types of data.[11] This technique covers the broad range of software that I use for the generation of new forms of data which have no analog counterparts: 3D software such as 3ds Max and Houdini which simulate form-making techniques, allow for the generation, complexification, contortion and alteration of a specific format of data storage. An example of such alteration during the construction comes in the form of generative algorithms: which are used to generate specific kinds of data that offer a graphic depiction of a desired shape (a cube, a circle, a house, a pigskin) through a computer screen.[12] In large part, the 3D models generated for *Queering Virtual Space* are based on digital photographs discussed in *Section 2*.

The visualization of these models is most evident in the medium of Unity. Unity is defined and understood as a game engine. A wider reading of Unity would reveal it to be a set of heterarchical algorithms which allow the assembling, editing and navigation of a 3D environment. *Queering Virtual Space* relies heavily on this medium, it is the point of accumulation for new forms of data and queer world depicting ideas. This data, the final versions of bitmap images and 3D models are assimilated into Unity, which identifies them across

[10] Manovich, 133.

[11] Manovich, 110.

[12] Manovich, 138.

directories visible to the user through a predefined interface. This predefined interface also consists of a cartesian plane that visualizes depth according to human eyesight.

The 3D models once recognized by the Unity directory, are decoded and interpreted in the form of meshes (which are also visualizable within the interface). Other media manipulation techniques within Unity assess and allow the placement of these meshes along the cartesian plane, the manipulation of their size, their movement, and their identity in cohesion with the interface. The data in my virtual space is transformed further: techniques in Unity allow for the placement of various image formats on 3D meshes (also called rendering). This functionality is offered in the form of *Materials* and *Shaders* in Unity, which then computes the way the human eye perceives them, their highlights, and shadows (through rendering and ray tracing algorithms). This new data format is an amalgamation of decoded digital signals and generated data which contains information about parameters of 3D models.[13]

The result is executed through other techniques within Unity, tasks associated with the assembling of a single iteration of all narrative elements that occur in the cartesian plane into a standalone, executable file. The storage format of this executable file is already wholly different from its component parts, a hybrid data format defined by Manovich as new and unique media.[14] While such formats are commonplace in today's media landscape, I propose that the ones created in this project allow the user to discover news ways of visualizing cultural artifacts.

These hybrid formats can no longer be manipulated, but rather allow the viewer to interact with them. Interaction is made possible through a media-specific technique exported within the Unity executable file: first-person control algorithms, which combine visualization of

[13] Manovich, 176.

[14] Ibid, 176.

human movement, the use of cameras to perceive the cartesian plane, and the incidence of light on the materials enmeshing 3D objects which come into focus.

The first-person control algorithm can be interpreted as a remediation of the subjective shot commonly used in films.[15] The subjective shot in film and video is contingent on the intention of the person holding the video camera. The same contingency is relegated to each new user as they navigate the 3D environments displayed in this project.

[15] Galloway, *Gaming: Essays on Algorithmic Culture*, 40.

6. CONCLUSION

Towards the end of my research, I find myself left with two broad distinctions. The first is the interpretation of virtual space itself. Based on the narrative elements of my research, I make use of hybrid data storage formats to depict entities called cyborgs and spaces known as gaps. This data is thus created and displayed through a medium which has the possibility to depict suburban architecture and visualize ways in which this architecture can be queered. The second is the communicative capacities of new media platforms: the use of fabrics to showcase alternate ways of perception in virtual space has been made possible through software in the form of game engines.

I began my research with the intent of queering virtual space. This research has branched out to find and consider ways of questioning perception and interpretation. Such questioning of perception and interpretation is an evolving process which leads to new ways of visualizing objects. However, through my project, I have come to rely heavily on the visual component of the various senses that come to form human perception and interpretation.

Virtual reality recreates a certain experience (or provides immediacy through virtual means) by enriching immersion through various senses like smell, sound, taste, and touch. While this thesis project focuses heavily on influencing one of these senses, namely sight, the use of different forms of media which influence perception across a multitude of senses would create and communicate a virtual experience that is more profound. The use of such diverse media formats would better relay ways of perceiving and interpreting cultural artifacts.

My research has led me to understand the various ways different individuals interpret what they perceive. What I depict is based on my own experiences, and these experiences

influence my virtual recrafting of a suburban space. An example of such varying interpretation could be understood in terms of scale. While I depict certain objects to maintain or vary in size in virtual space, even slight alterations might be perceived and interpreted differently by the user, to be larger or smaller, to relay certain connotations. It has become clear to me that even the most minute of fluctuations (or lack thereof) have bearing on the final depiction of spaces.

I have also begun to comprehend the importance of alternate perspectives. Alternate perspectives, as opposed to varying interpretations, are different ways of receiving data. A spider or a mouse, for example, would have vastly different systems for perceiving the suburban space in real life. Virtual reality platforms have the capacity to mimic a certain portion of these visual systems within non-human actants. In terms of queer visualizations, such alternate forms of seeing are potent methods of moving away from the normative. These are processes which I must begin to incorporate into my craft.

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APPENDIX A: PROJECT DOCUMENTATION

LIST OF FIGURES

1. SUBURBAN SPACE

Fig 1.1 Suburban street

Fig 1.2 Suburban curb

Fig 1.3 Suburban house one

Fig 1.4 Suburban house two

Fig 1.5 Suburban house two front

Fig 1.6 Suburban house two profile

Fig 1.7 Queer house in the suburbs

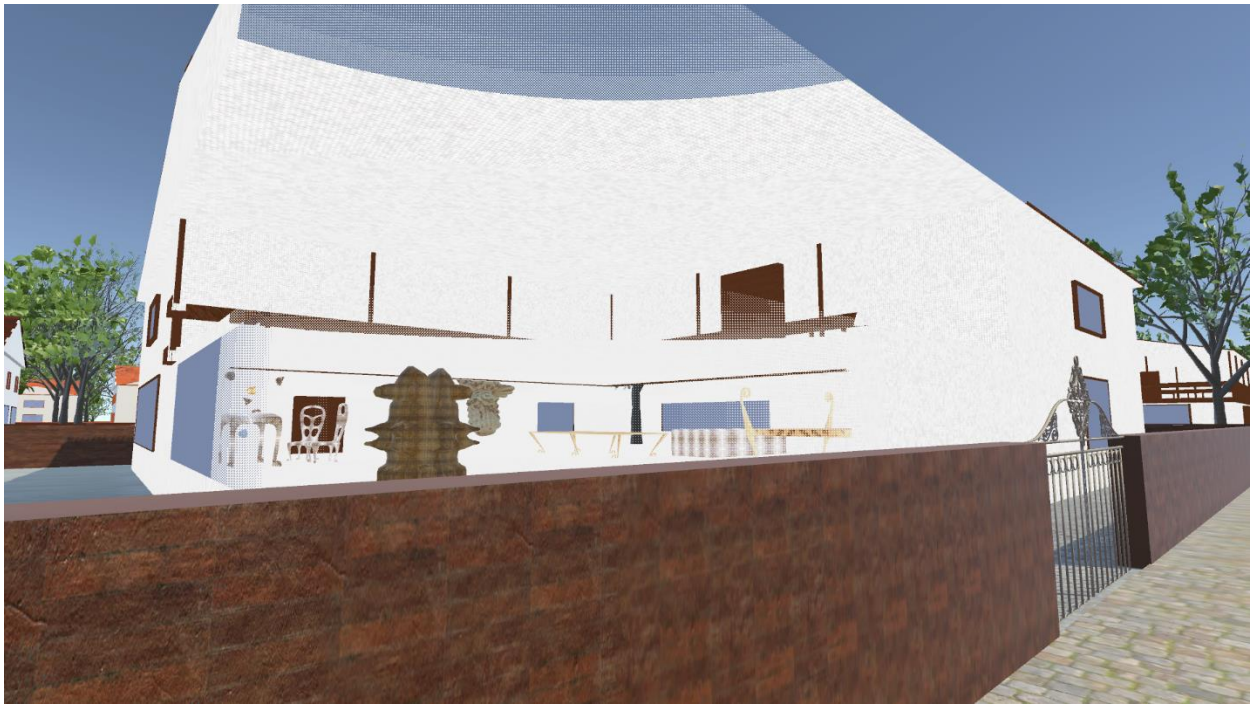

Fig 1.8 Queer house queer interiors

Fig 1.9 Queer house queer interiors two

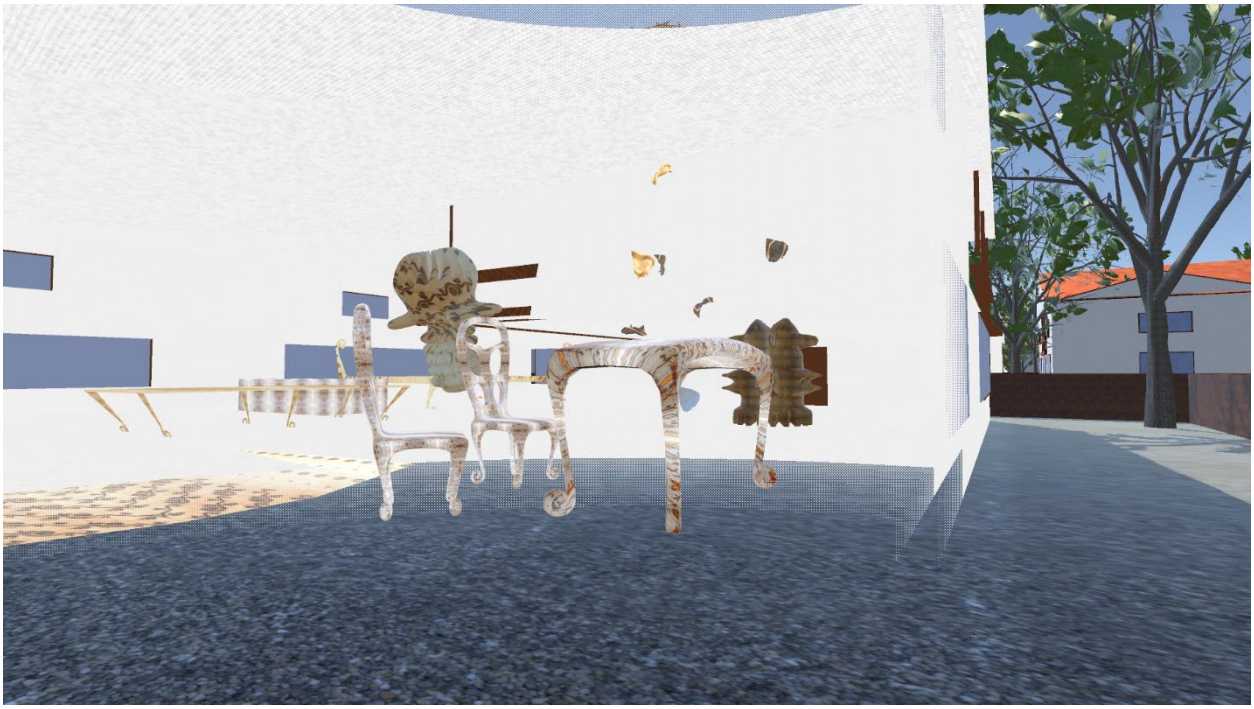

Fig 1.10 Queer interiors detail

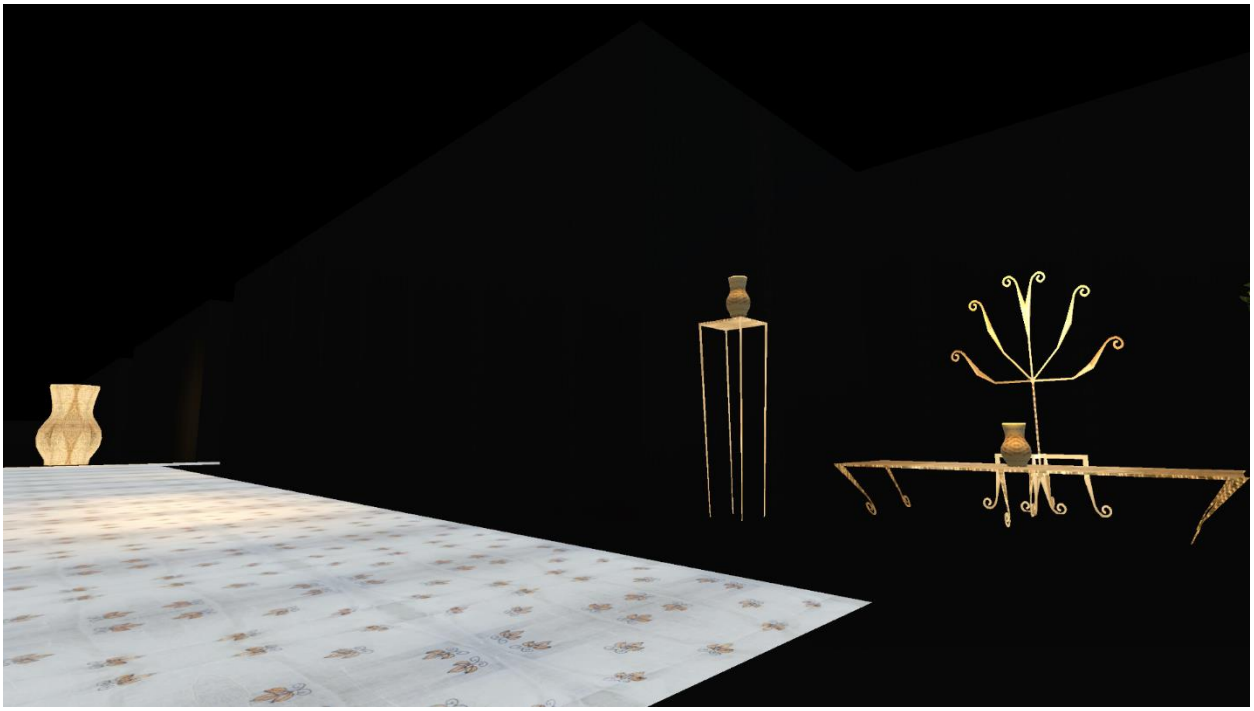

Fig 2.1 Queer landing

Fig 2.2 Queer reception

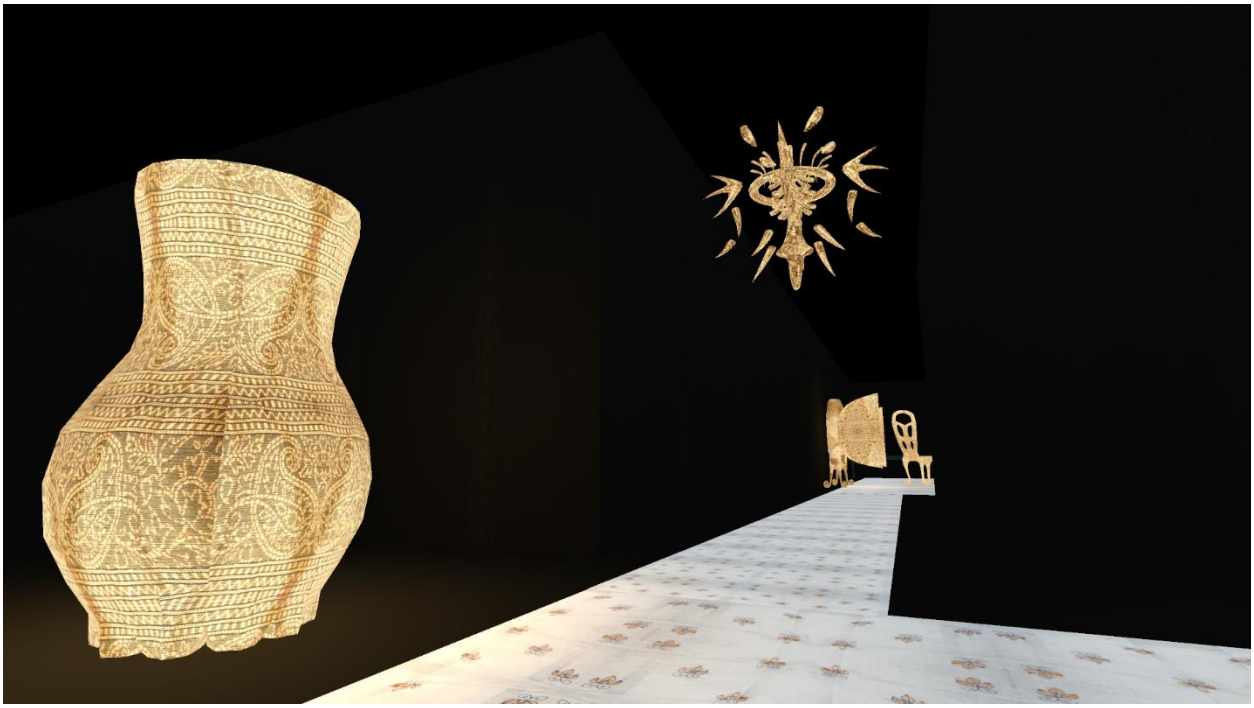

Fig 2.3 Queer corridor

Fig 2.4 Queer chamber

Fig 2.5 Queer chamber detail

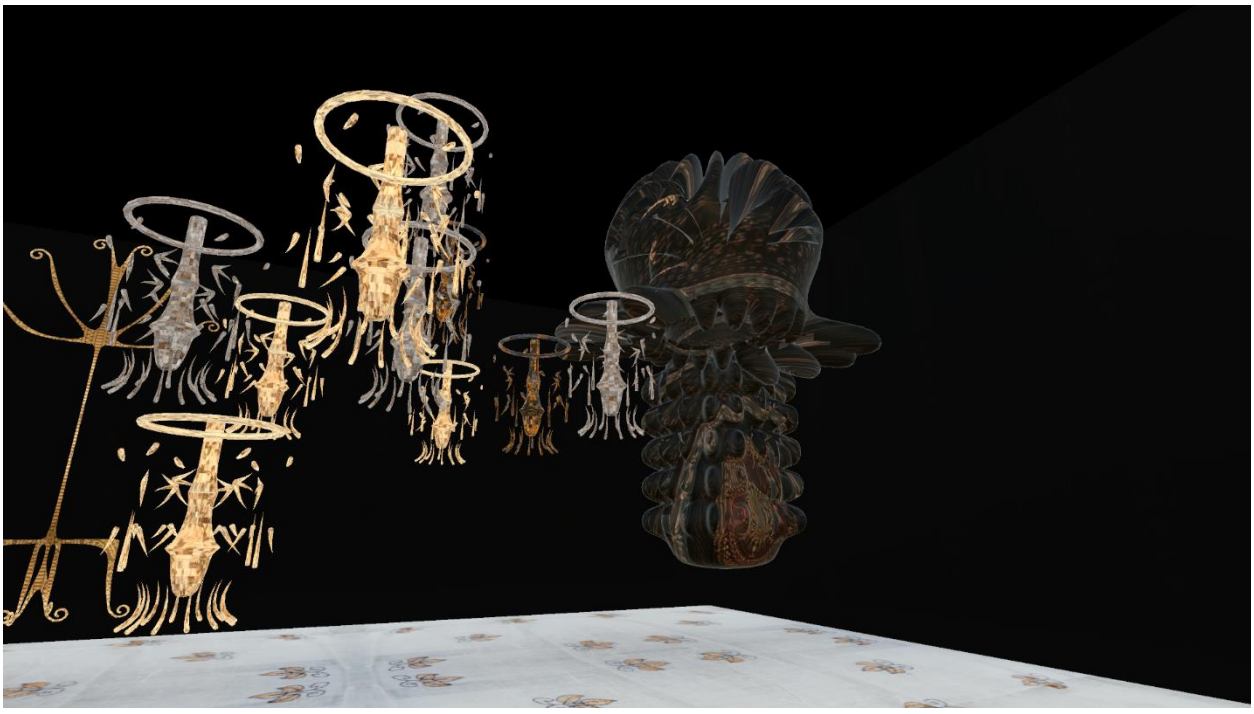

Fig 2.6 Queer actants coming into view

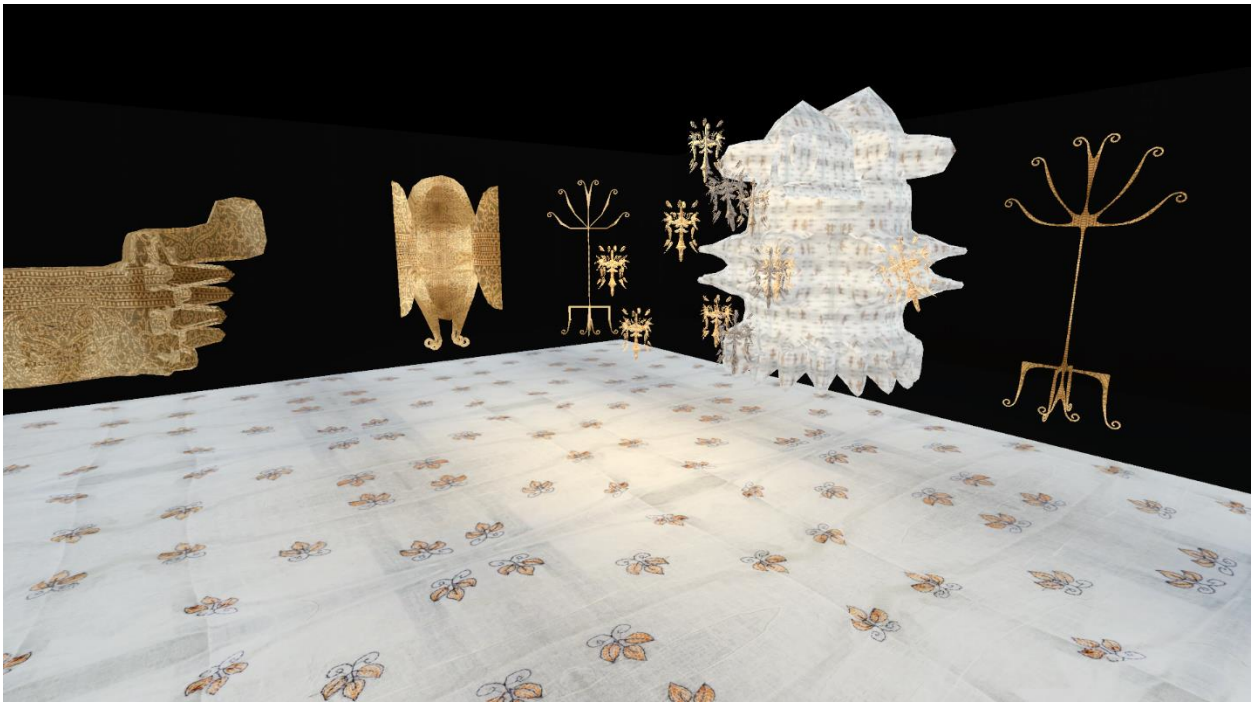

Fig 2.7 Queer actants coming into view two

Fig 2.8 Queer actants detail

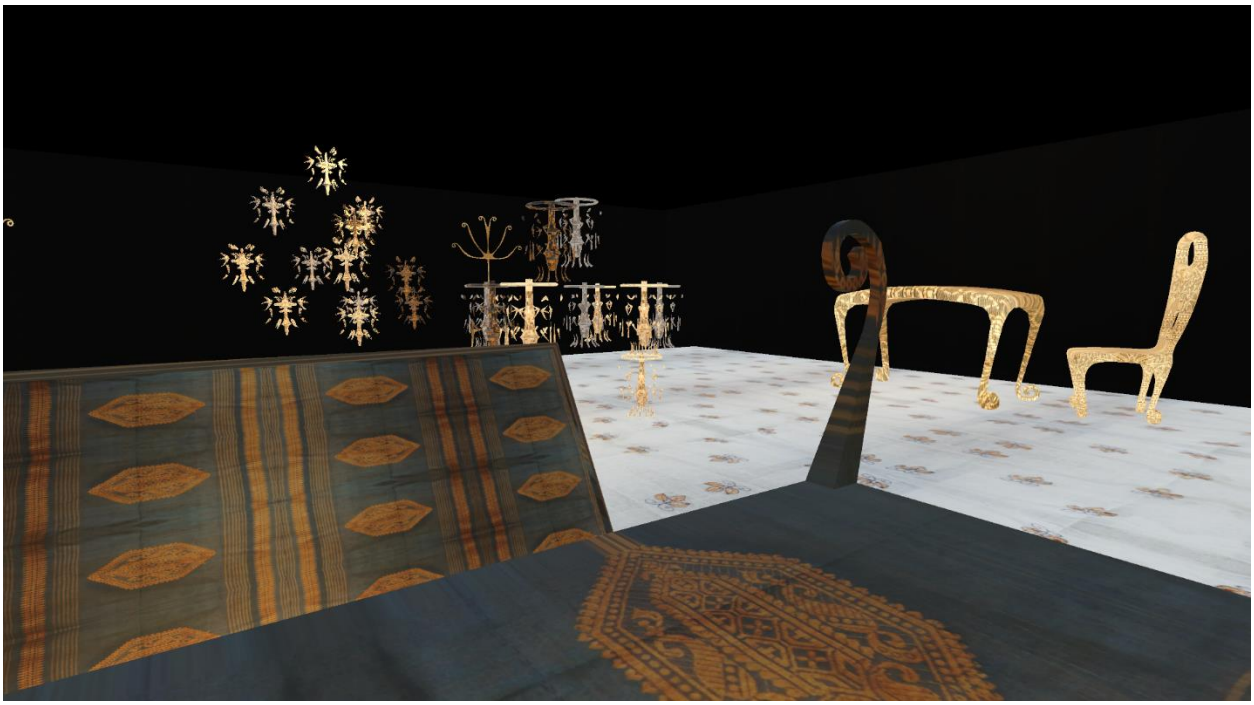

Fig 2.9 Queer chamber detail two

Fig 2.10 Queer chamber detail three

3. QUEER COLLAPSE ONE

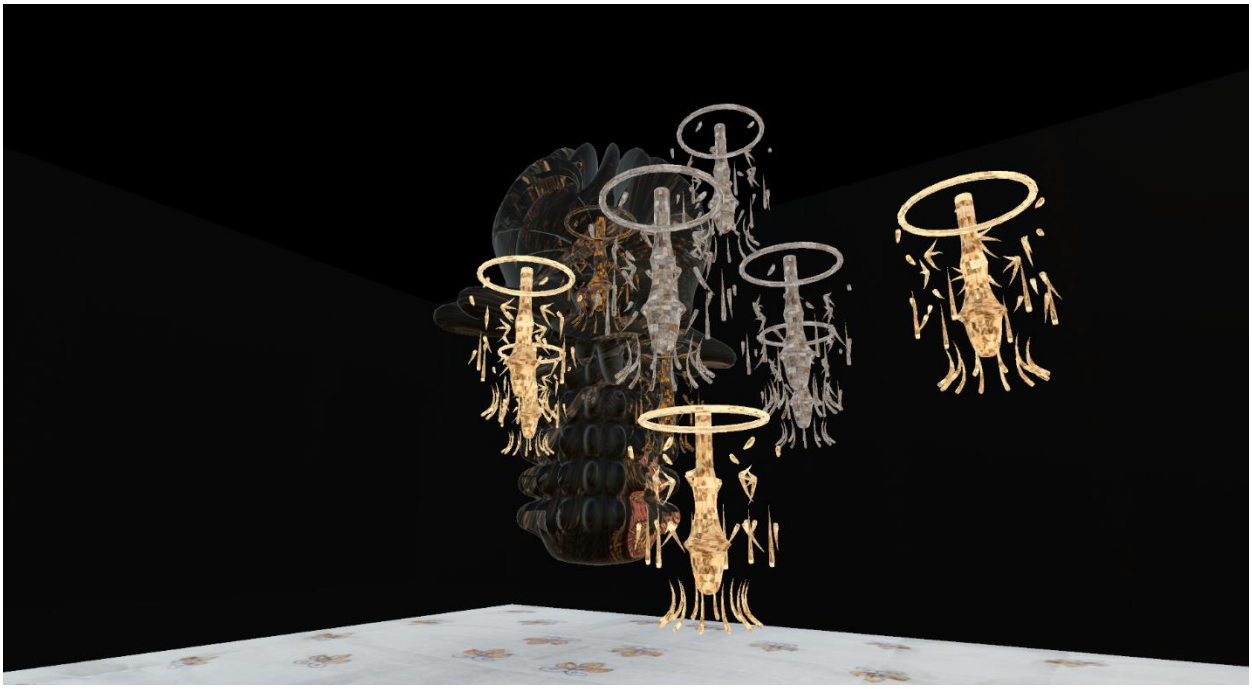

Fig 3.1 Passage to queer collapse one

Fig 3.2 Queer actant in bloom

Fig 3.3 Queer actant in bloom two

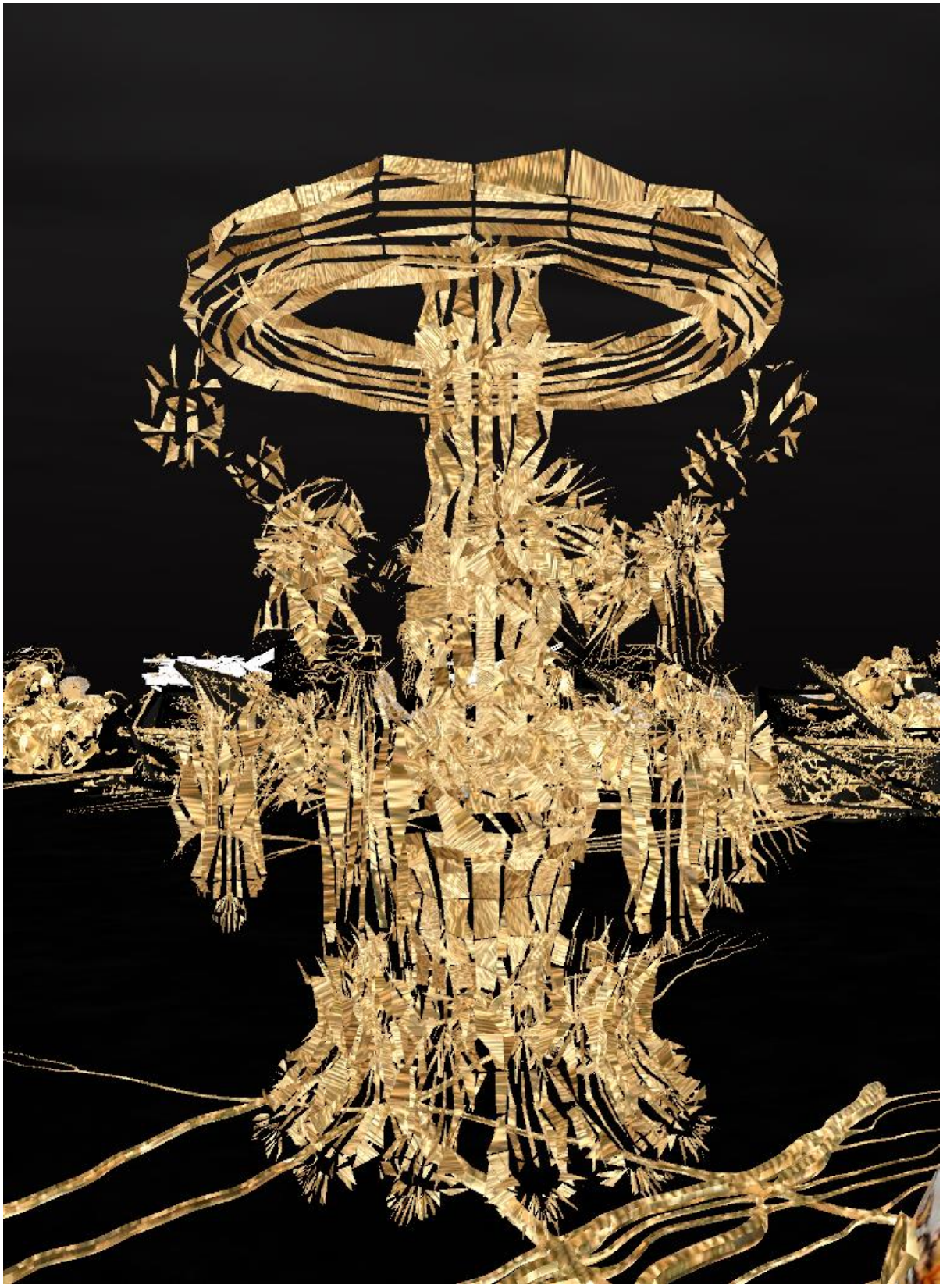

Fig 3.4 Queer actant in bloom three

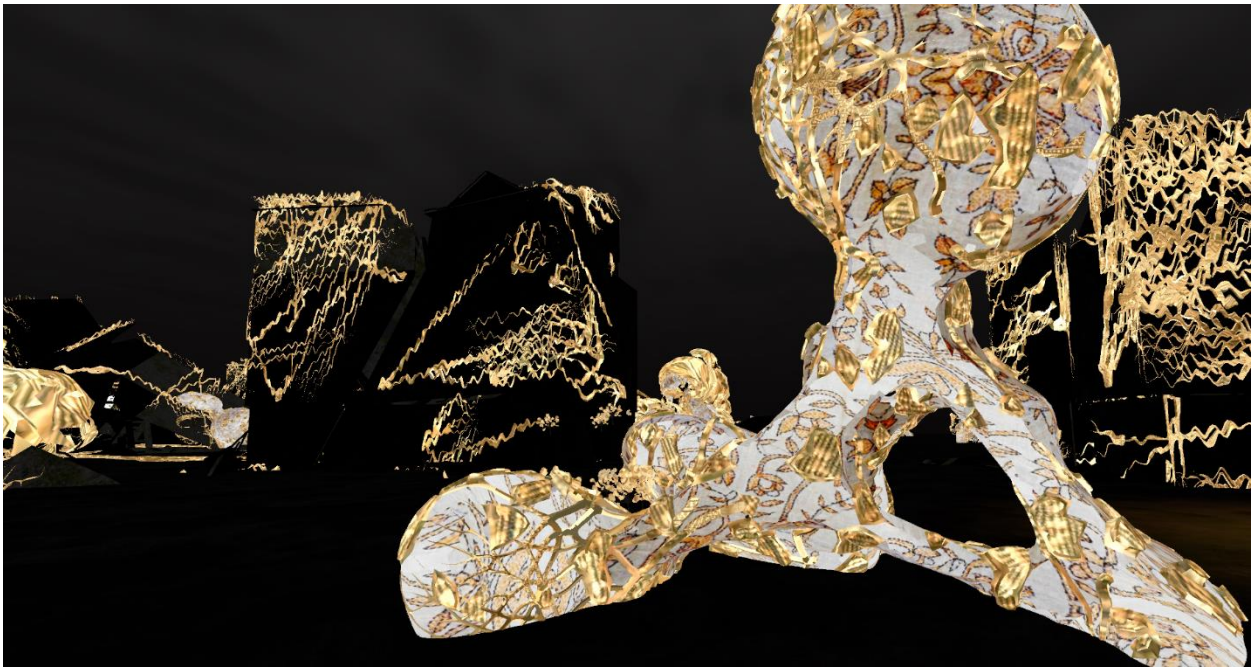

Fig 3.5 Queer collapse

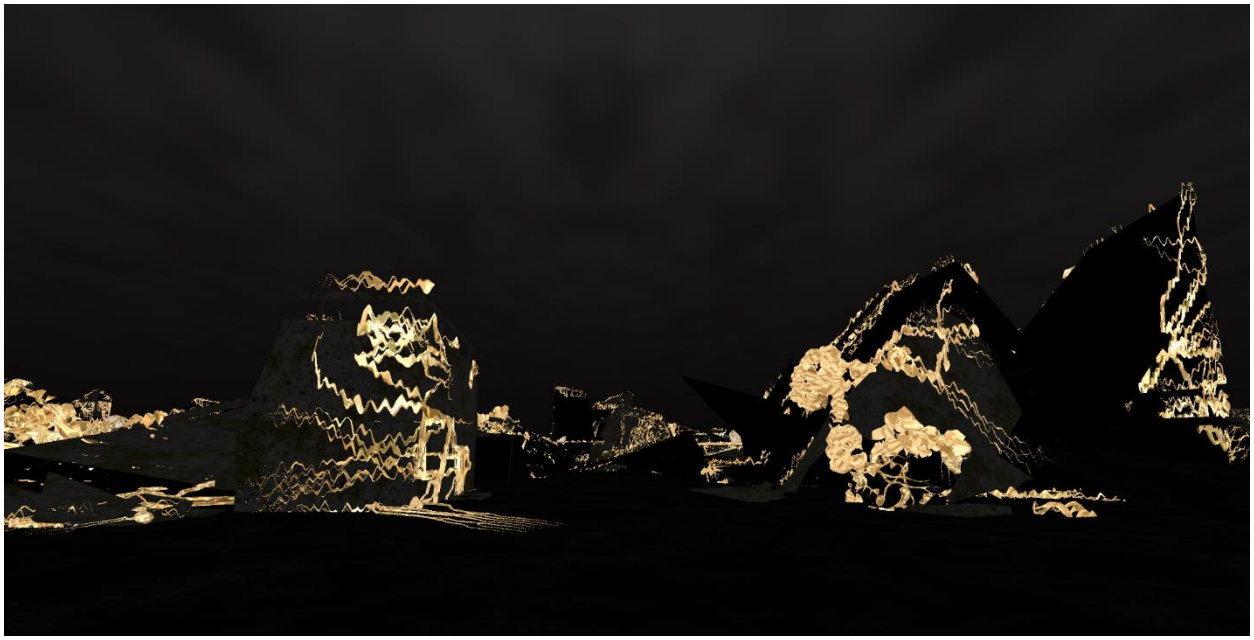

Fig 3.6 Queer collapse detail

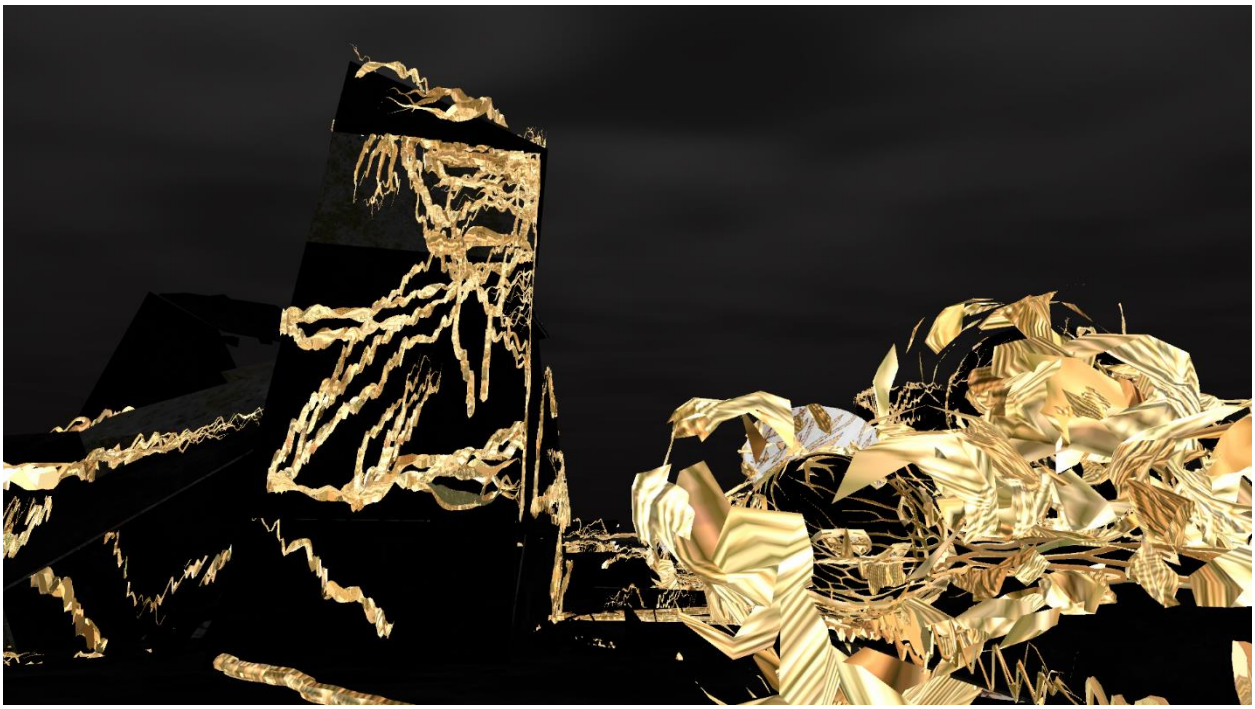

Fig 3.7 Queer collapse detail one

Fig 3.8 Queer collapse detail two

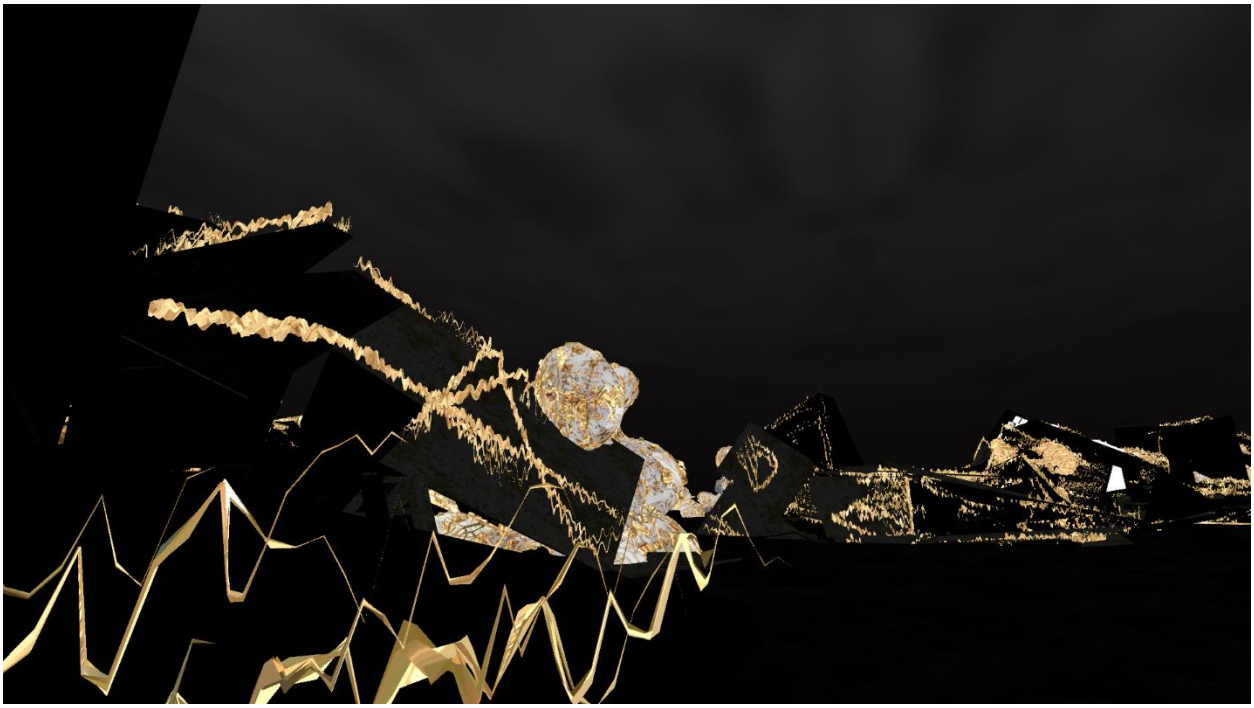

Fig 3.9 Queer vines

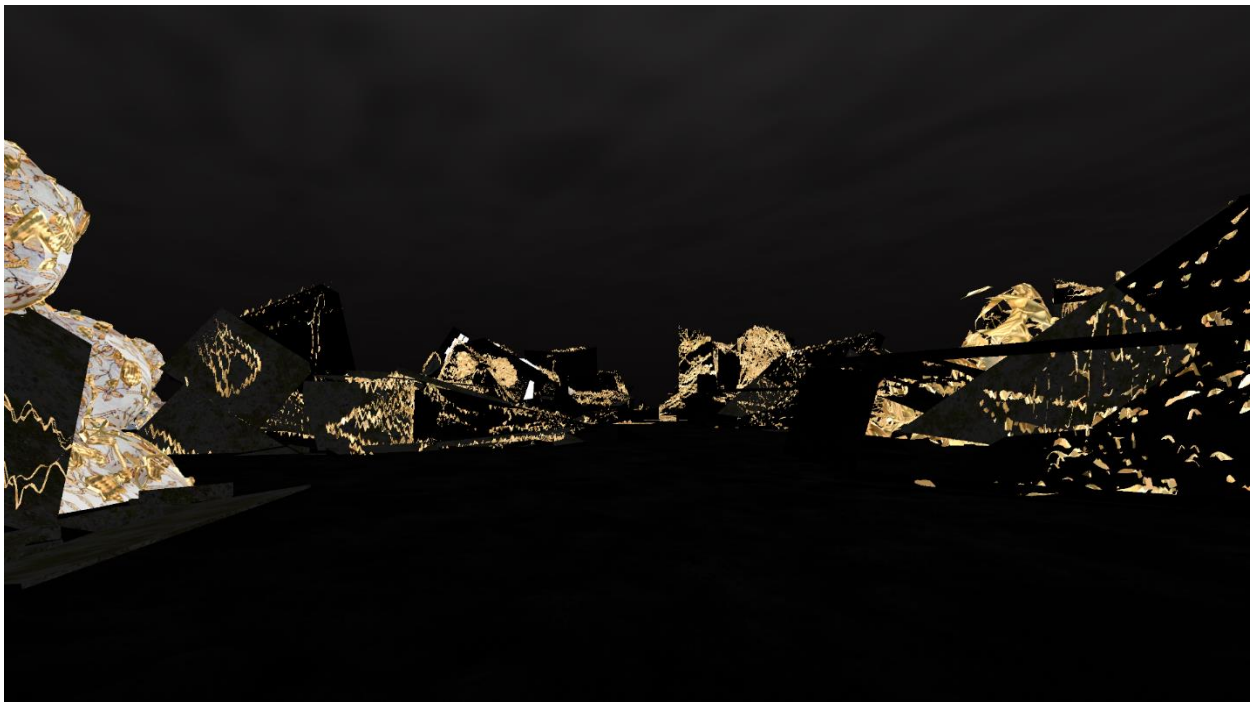

Fig 3.10 Queer expanse

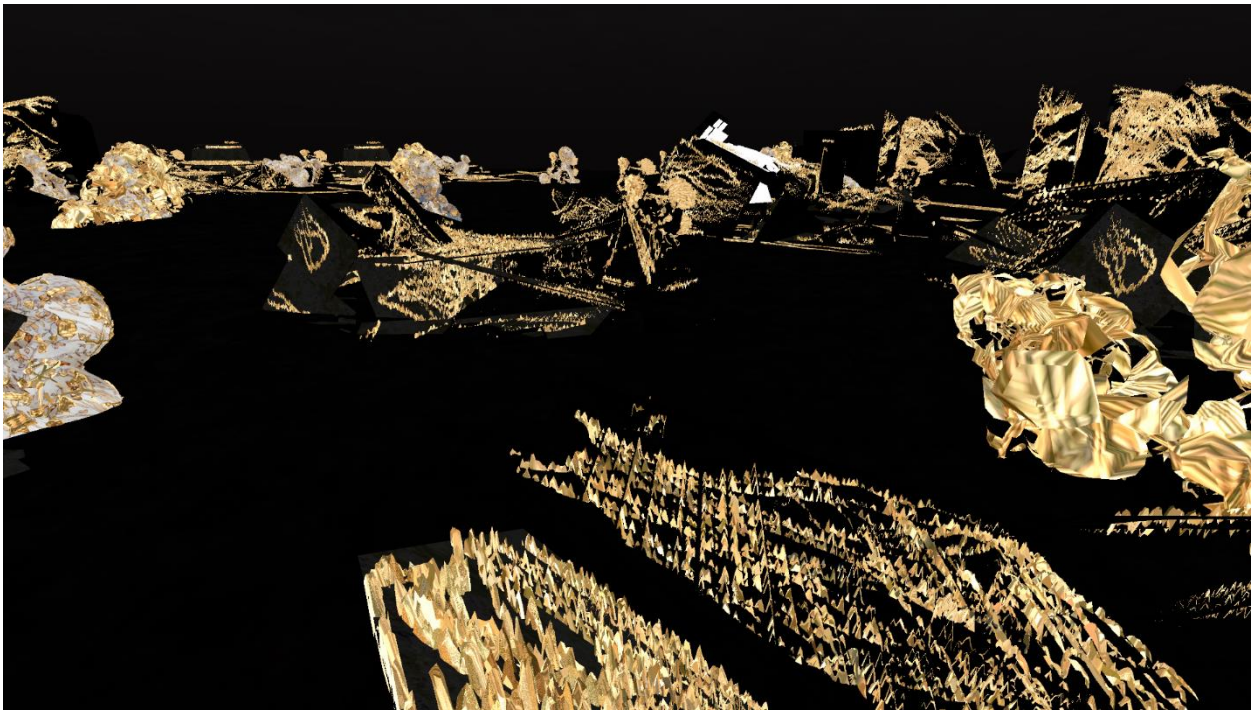

Fig 3.11 Queer expanse one

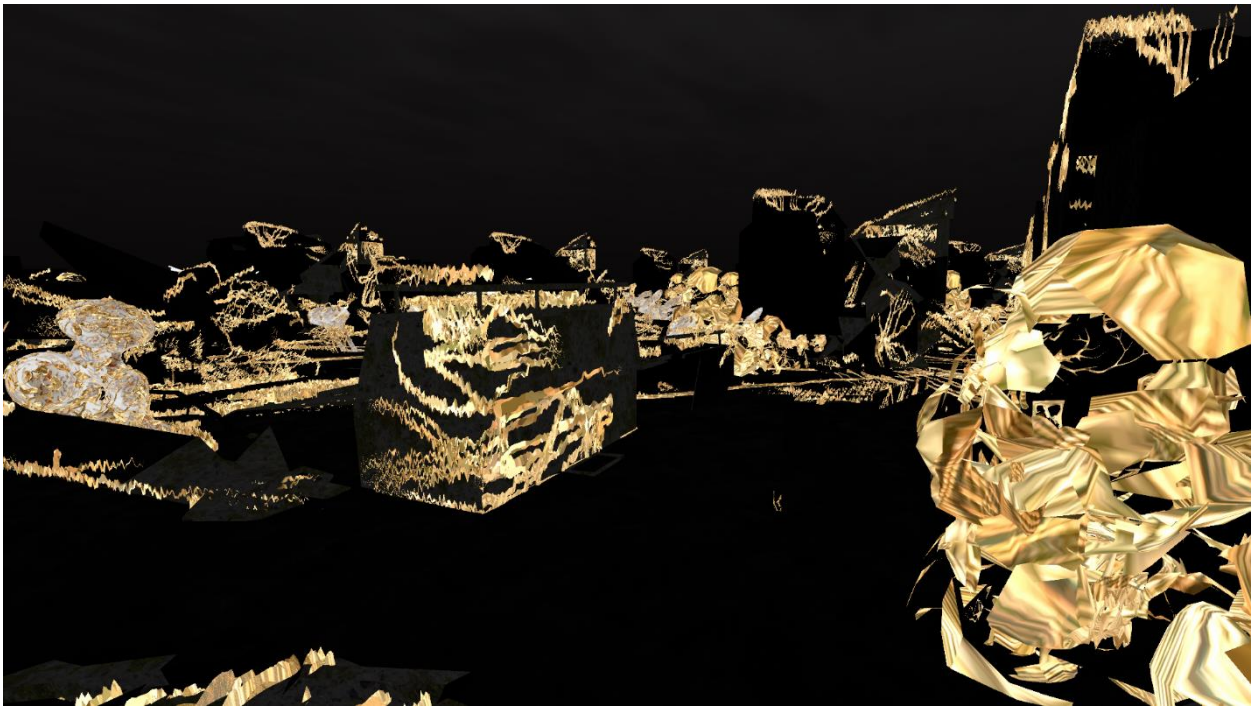

Fig 3.12 Queer expanse two

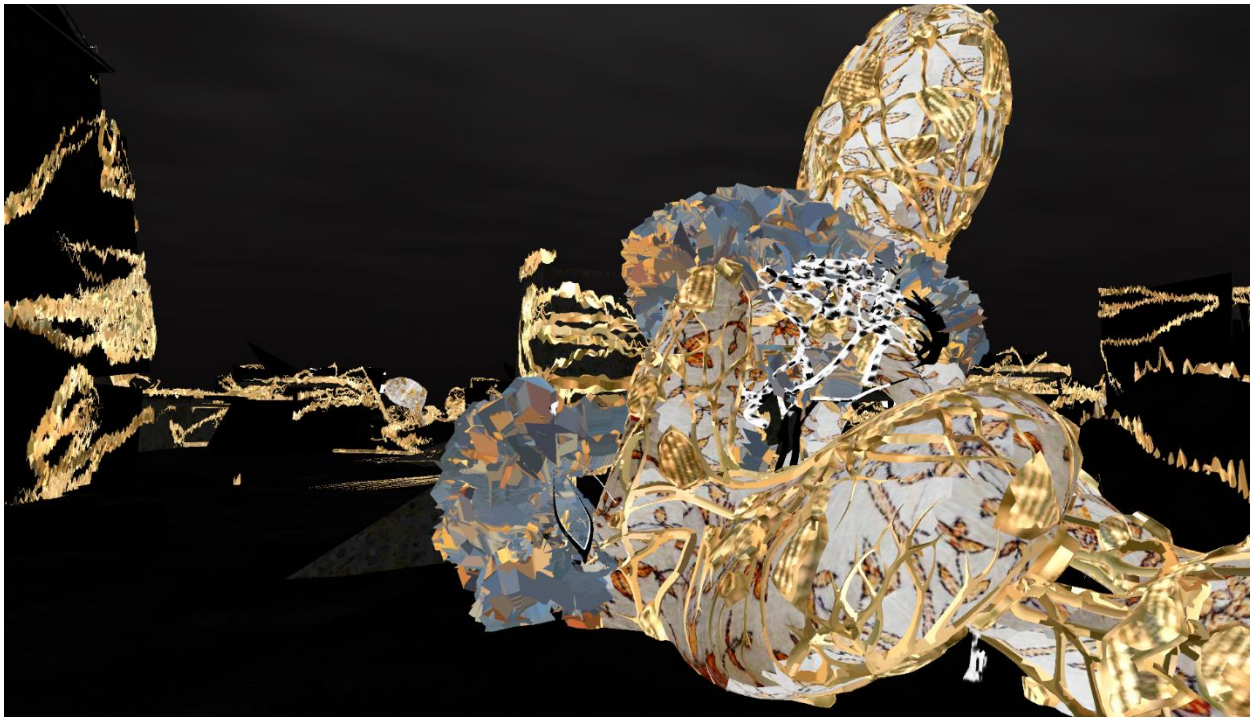

Fig 3.13 Oddbody

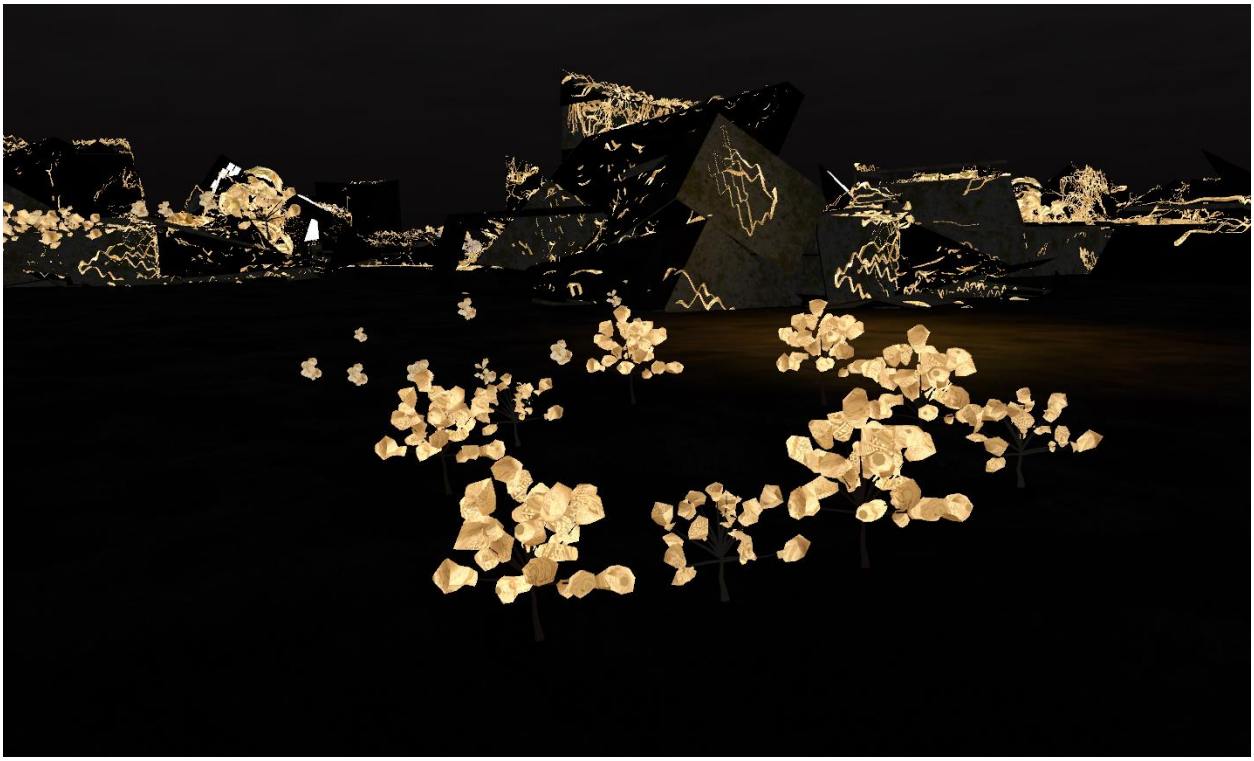

Fig 3.14 Queer flowers

4. QUEER COLLAPSE TWO

Fig 4.1 Passage to queer collapse two

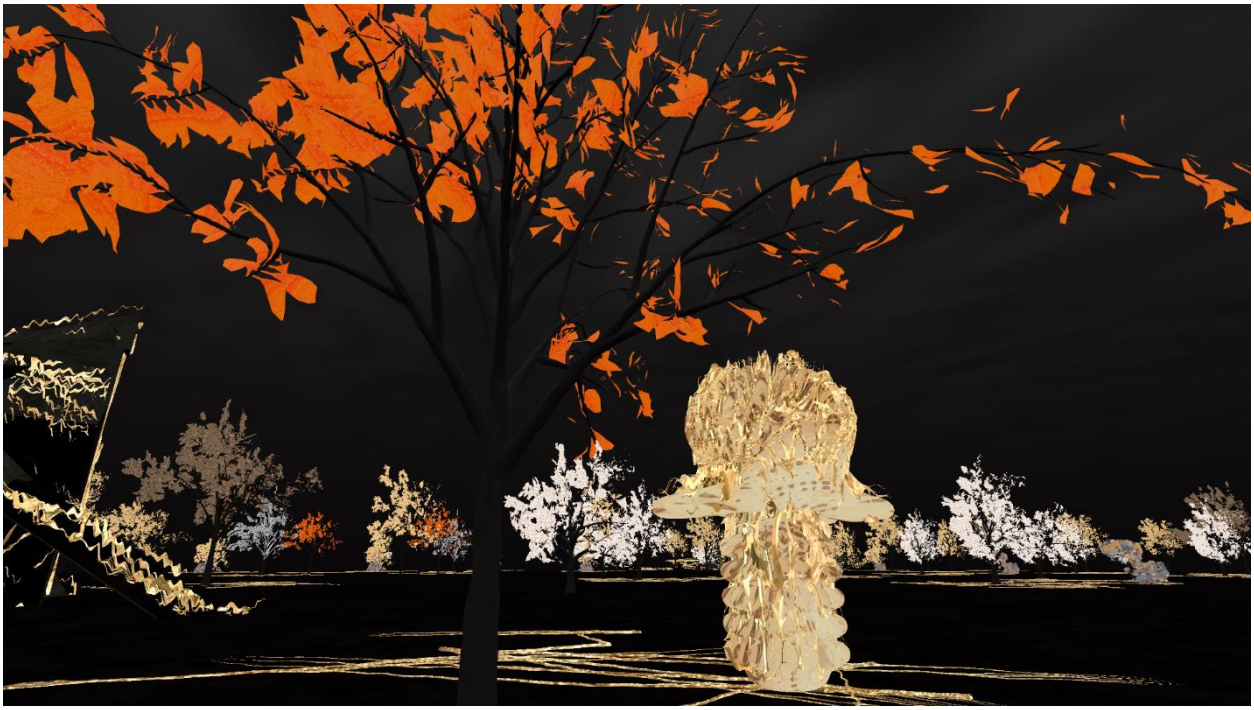

Fig 4.2 Queer actant in bloom

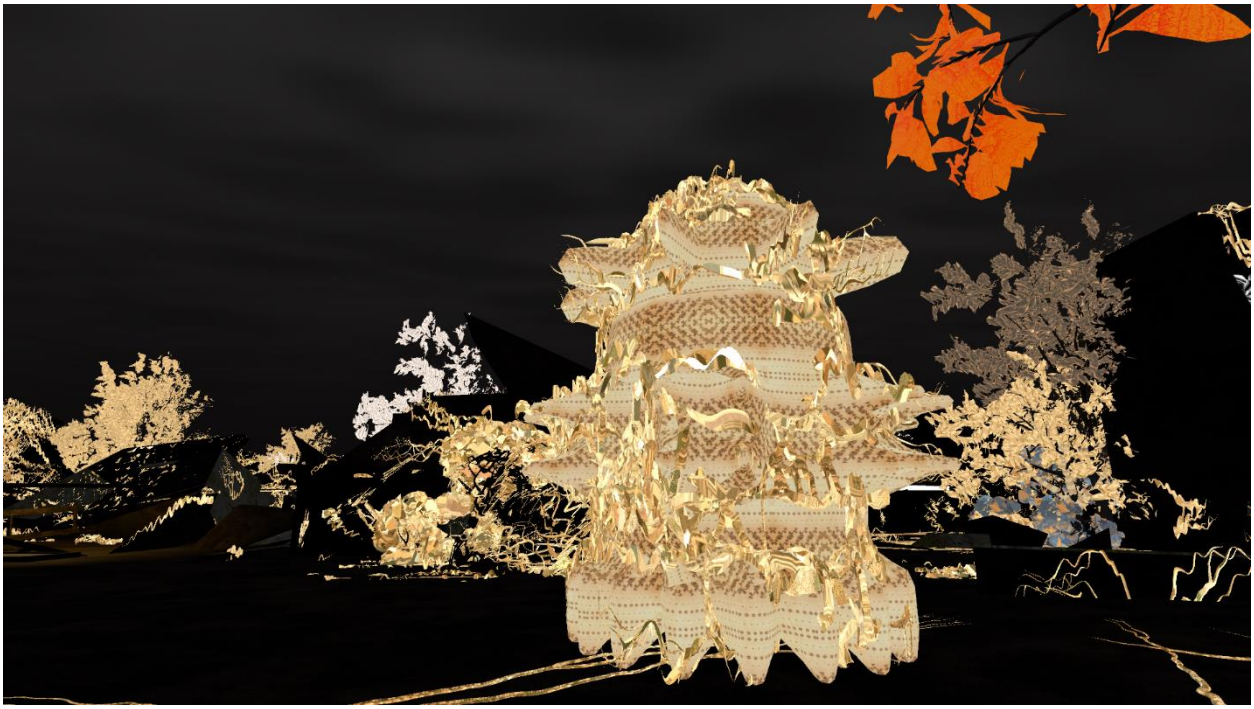

Fig 4.3 Queer actant in bloom two

Fig 4.4 Queer tree

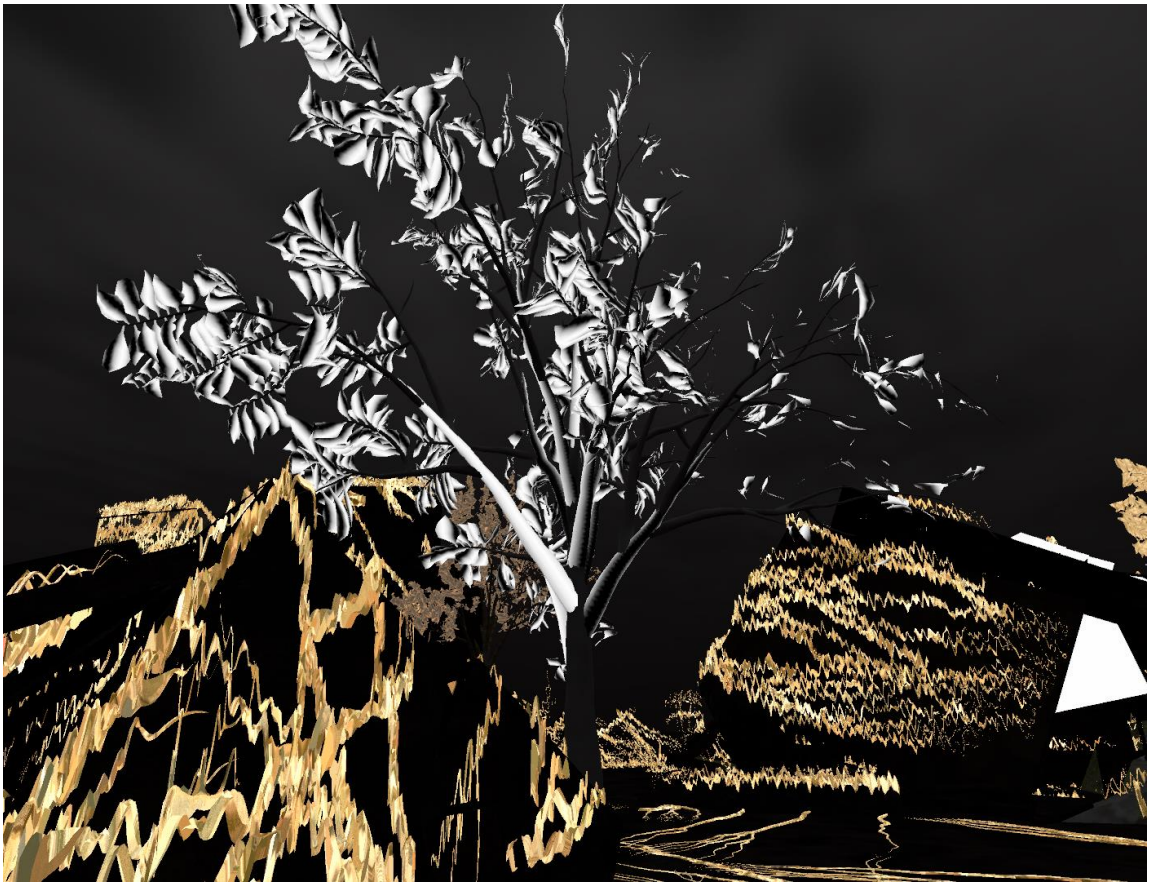

Fig 4.5 Queer tree two

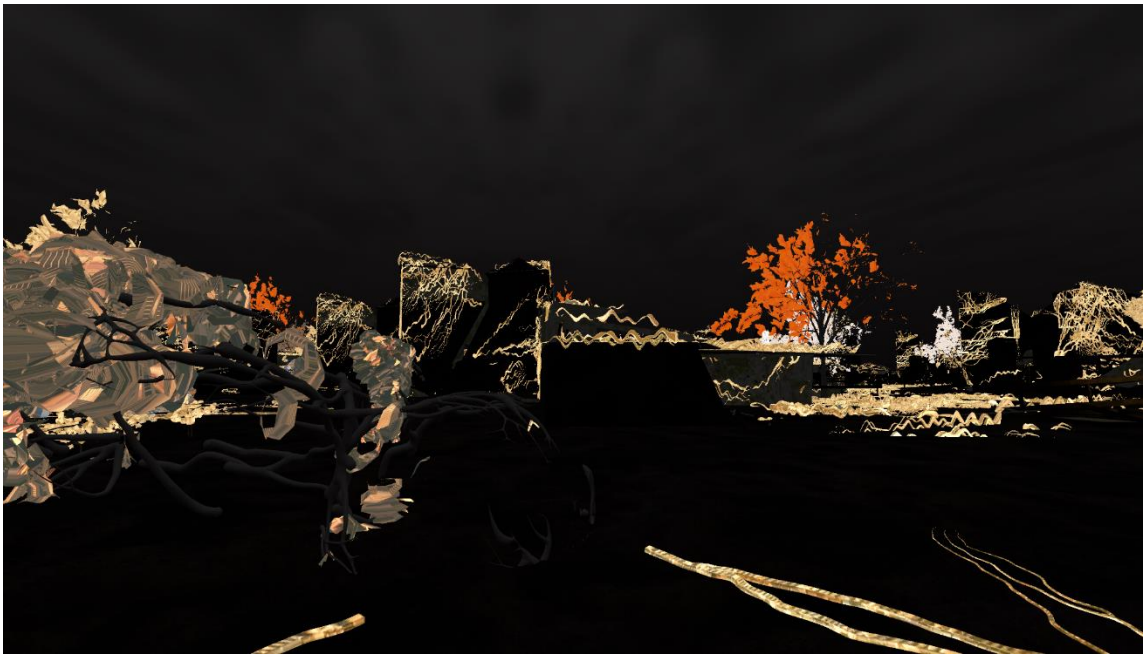

Fig 4.6 Queer expanse

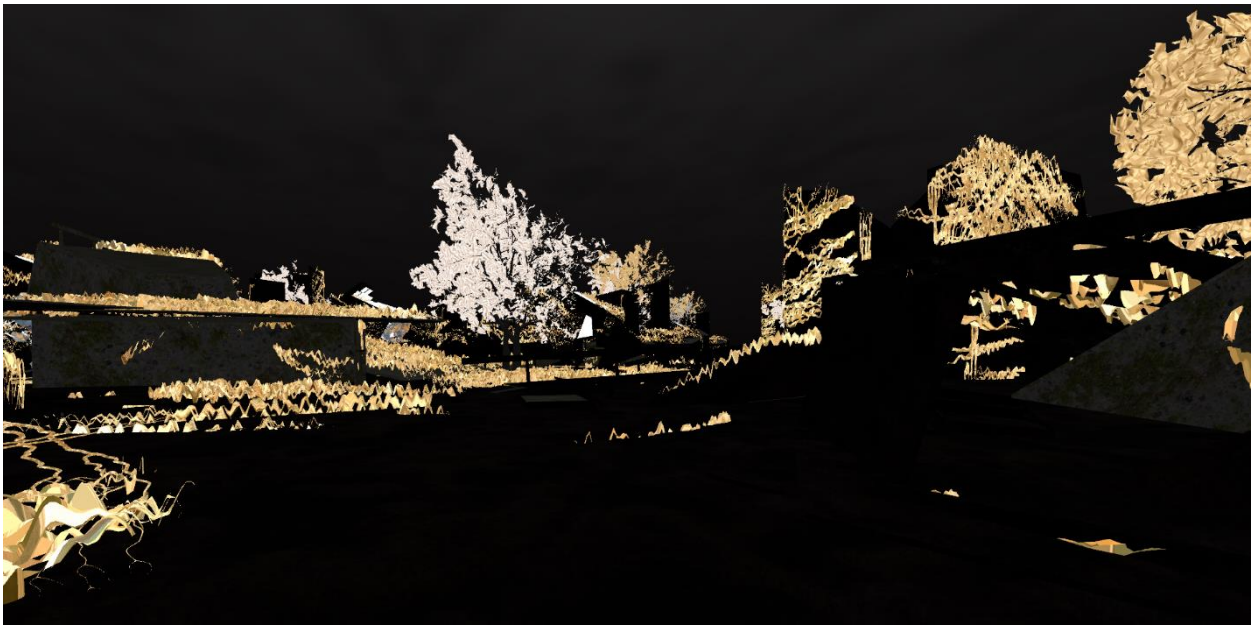

Fig 4.7 Queer expanse detail

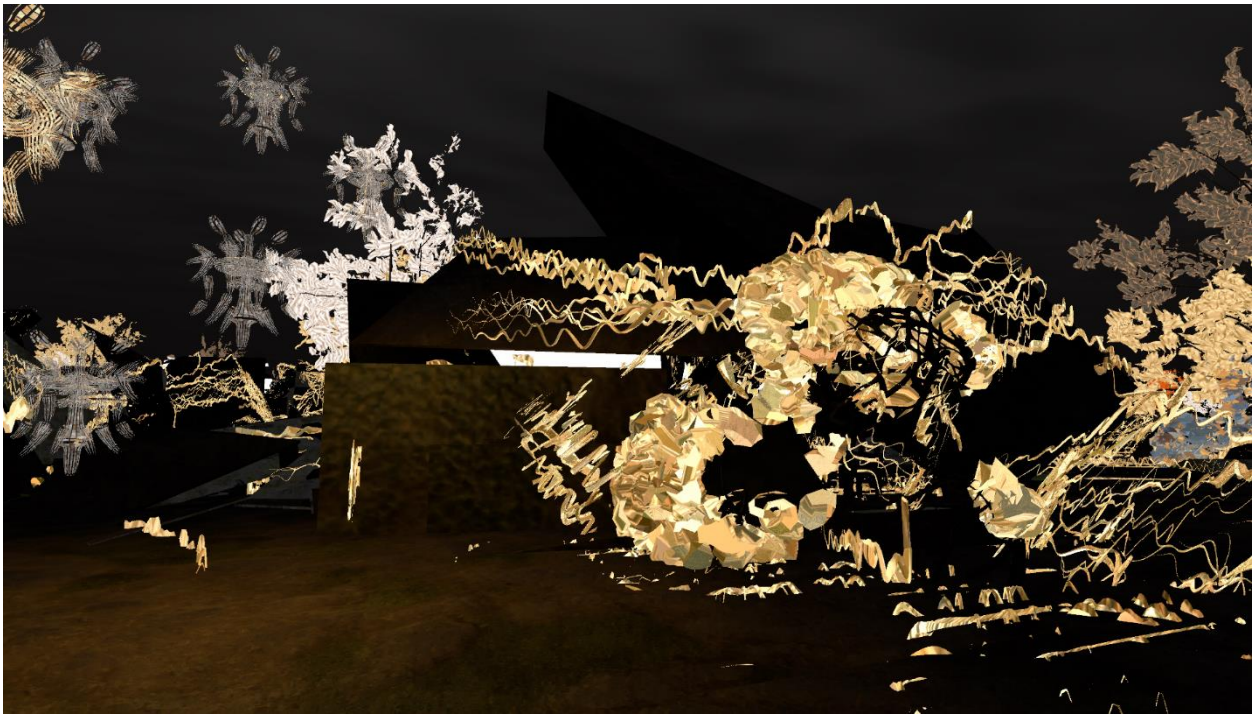

Fig 4.8 Queer expanse two

Fig 4.9 Queer expanse detail two

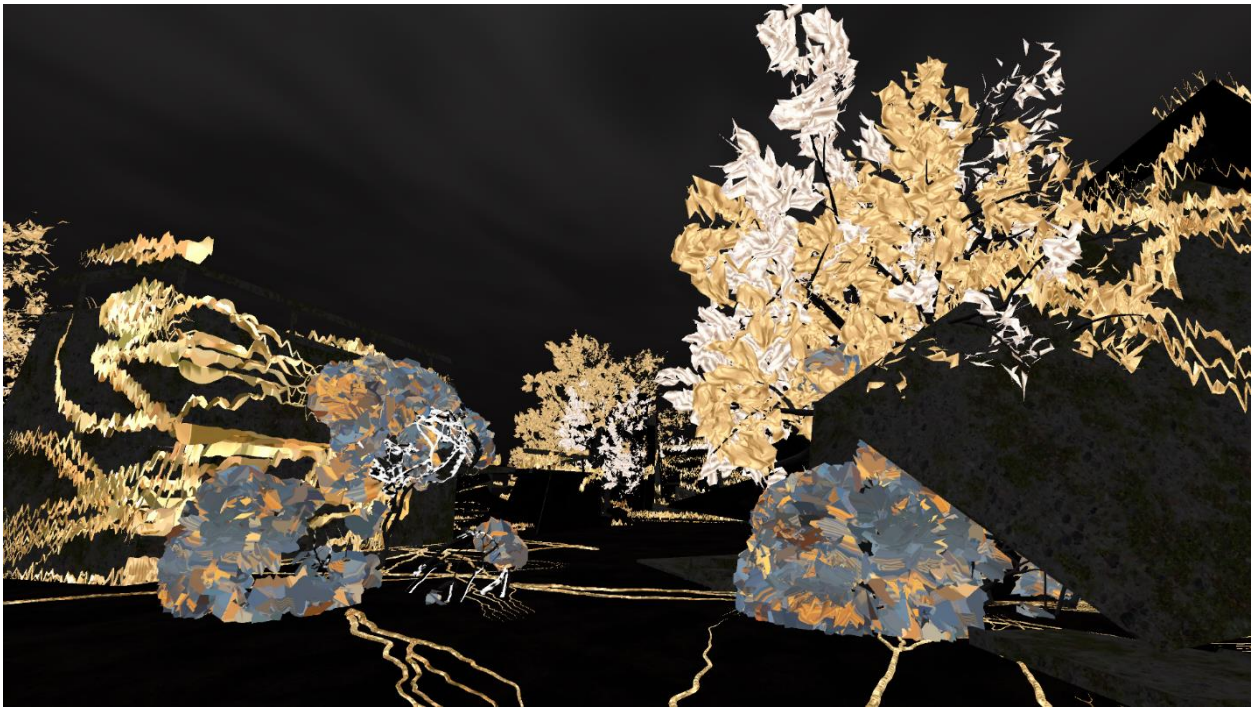

Fig 4.10 Queer frontier

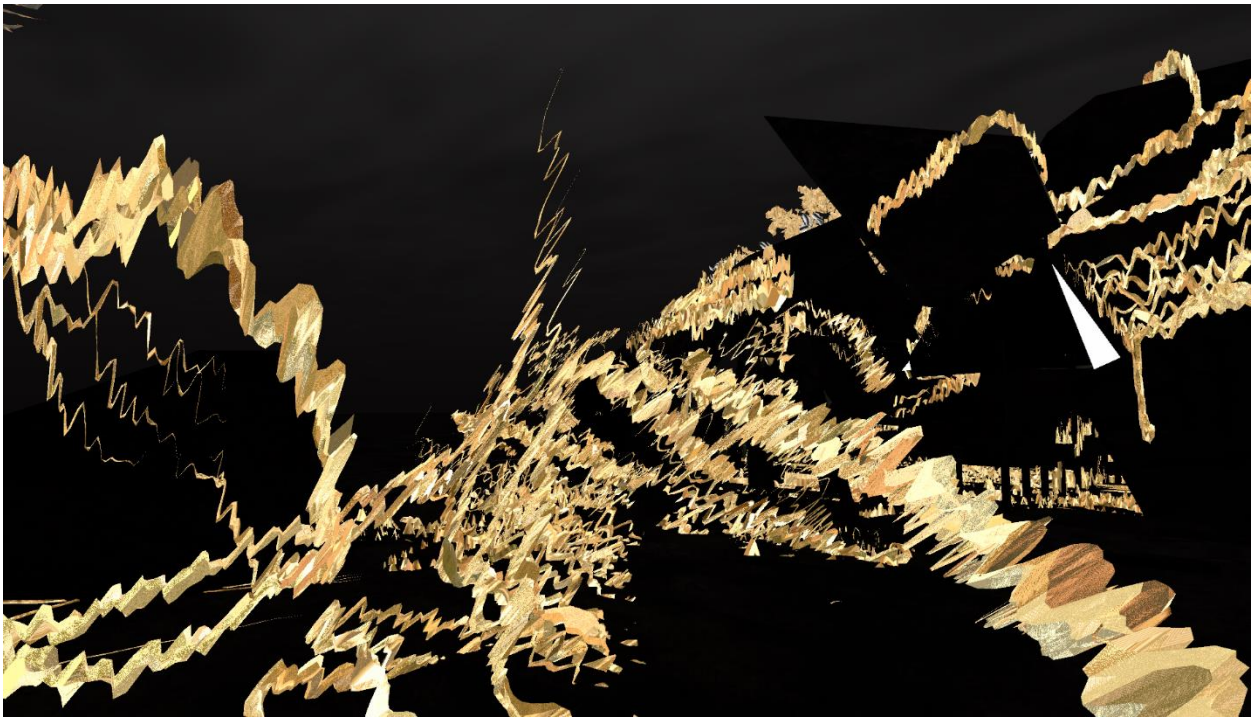

Fig 4.11 Queer vines

5. QUEER COLLAPSE DAYLIGHT

Fig 5.1 Queer actant one

Fig 5.2 Queer actant two

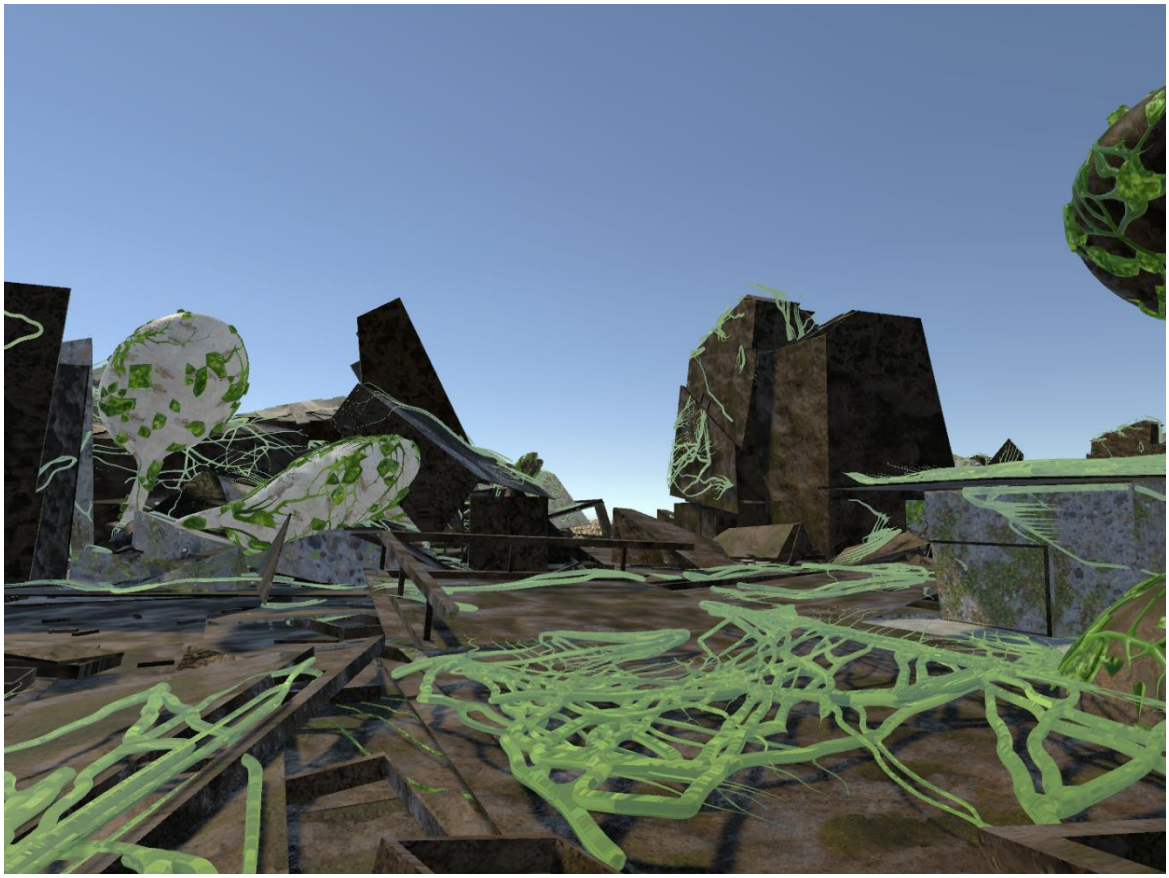

Fig 5.3 Collapse one

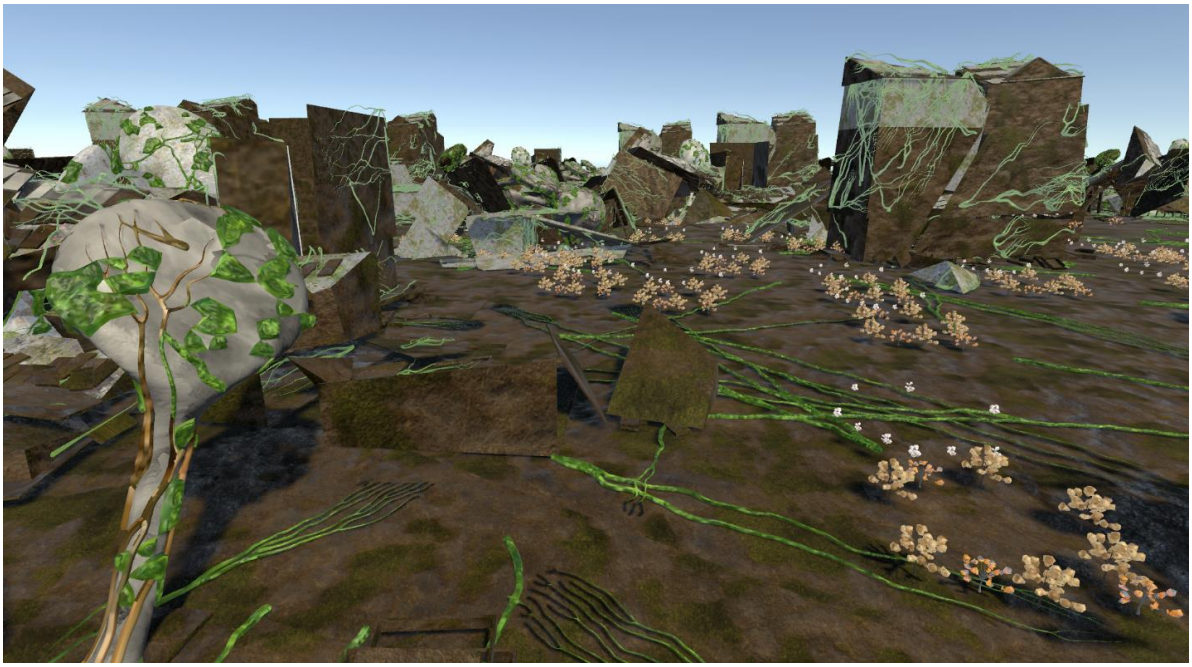

Fig 5.4 Collapse two

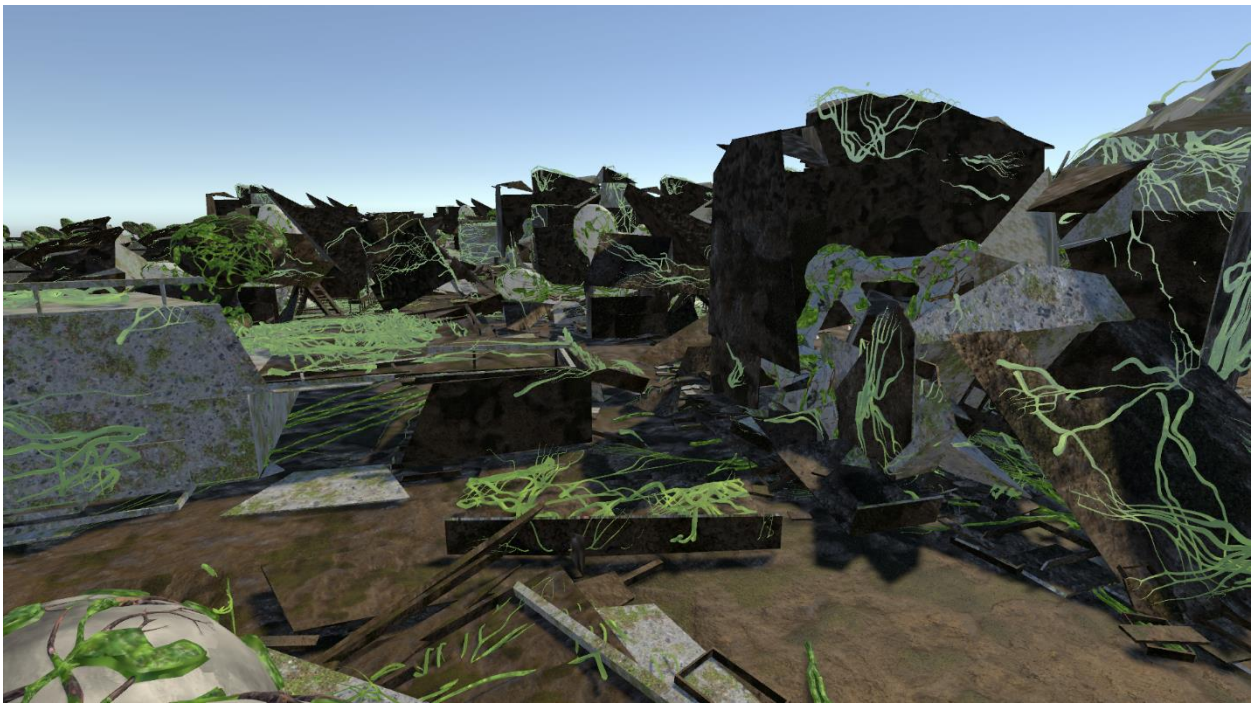

Fig 5.5 Collapse three

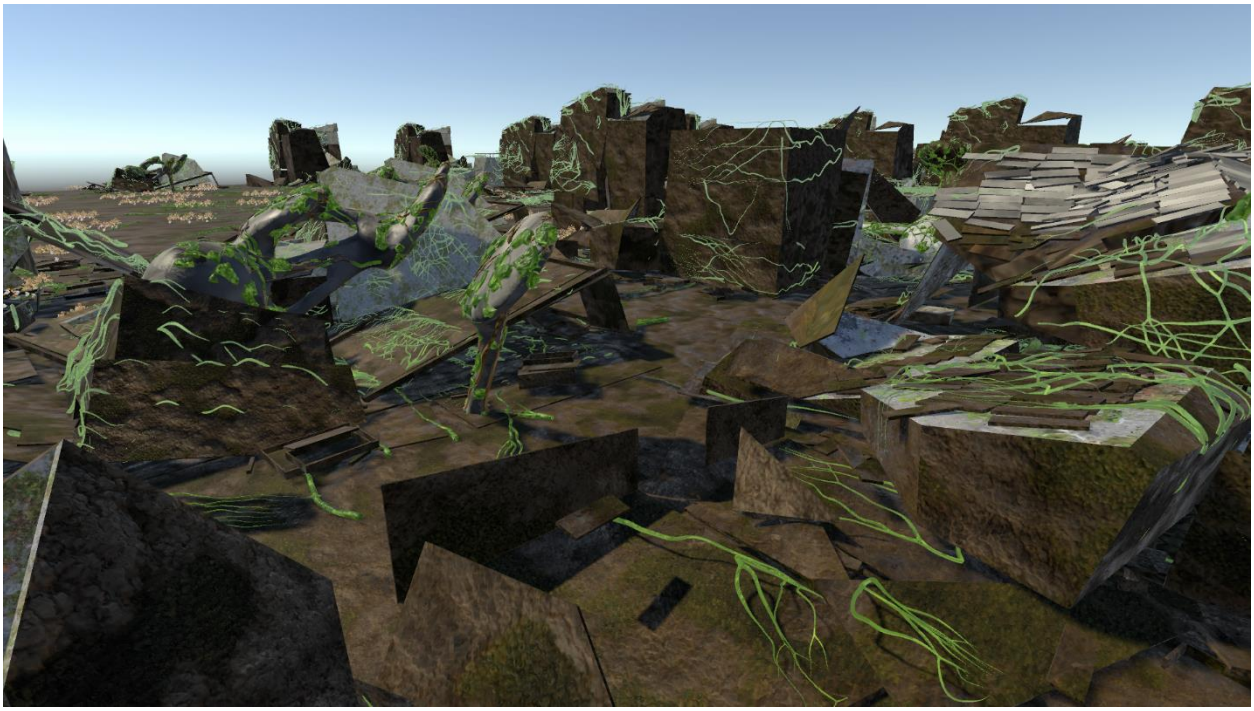

Fig 5.6 Collapse four

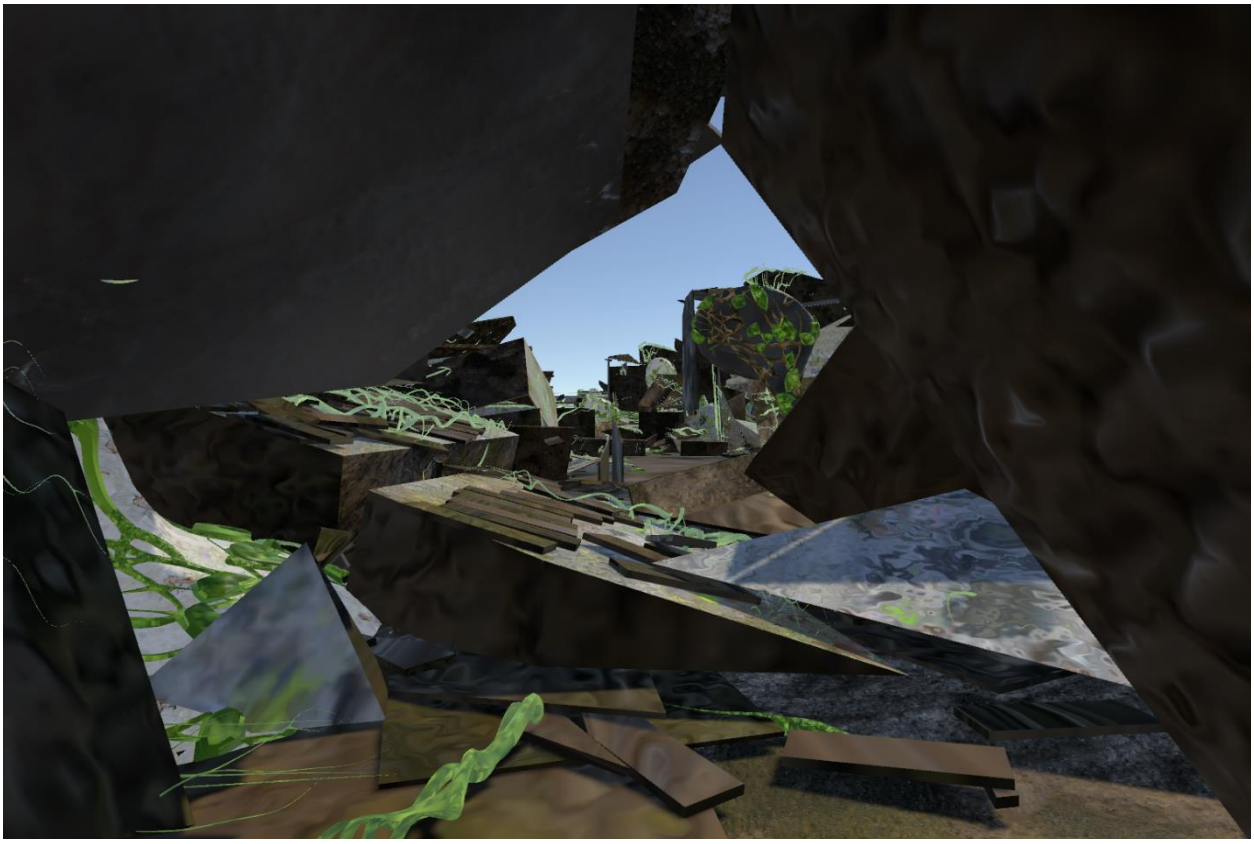

Fig 5.7 Queer crevice

Fig 5.8 Queer crevice two

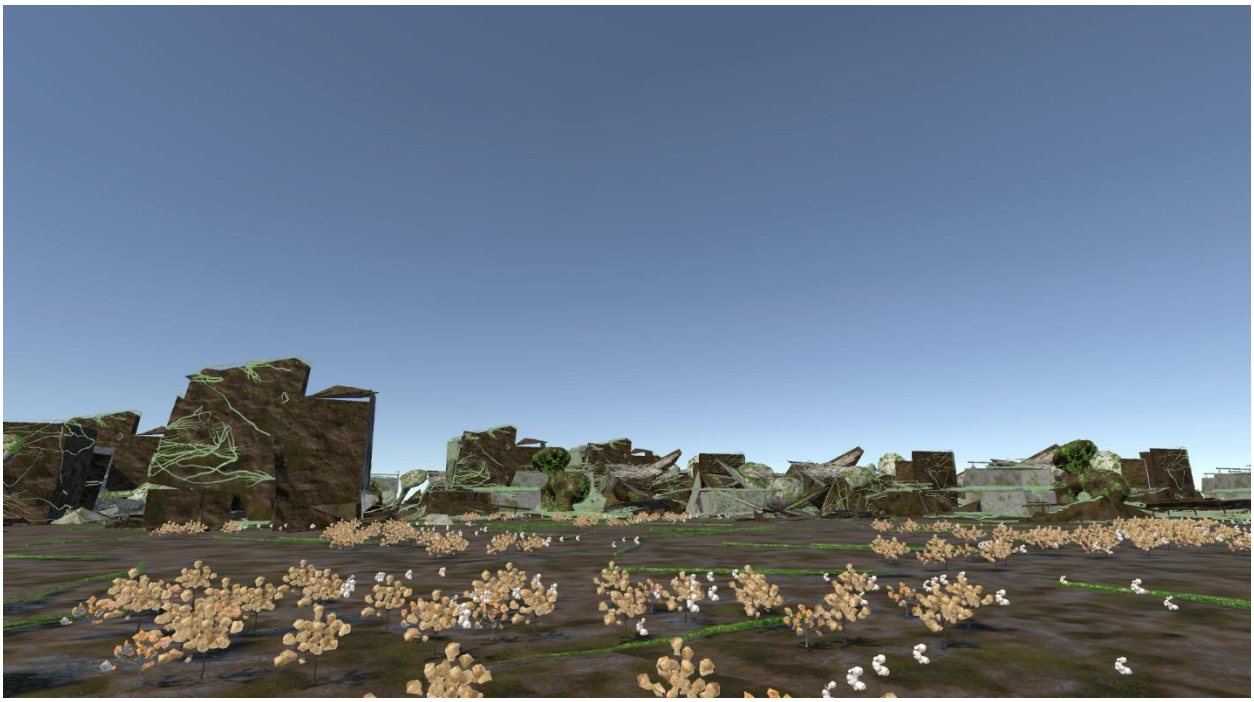

Fig 5.9 Queer bloom

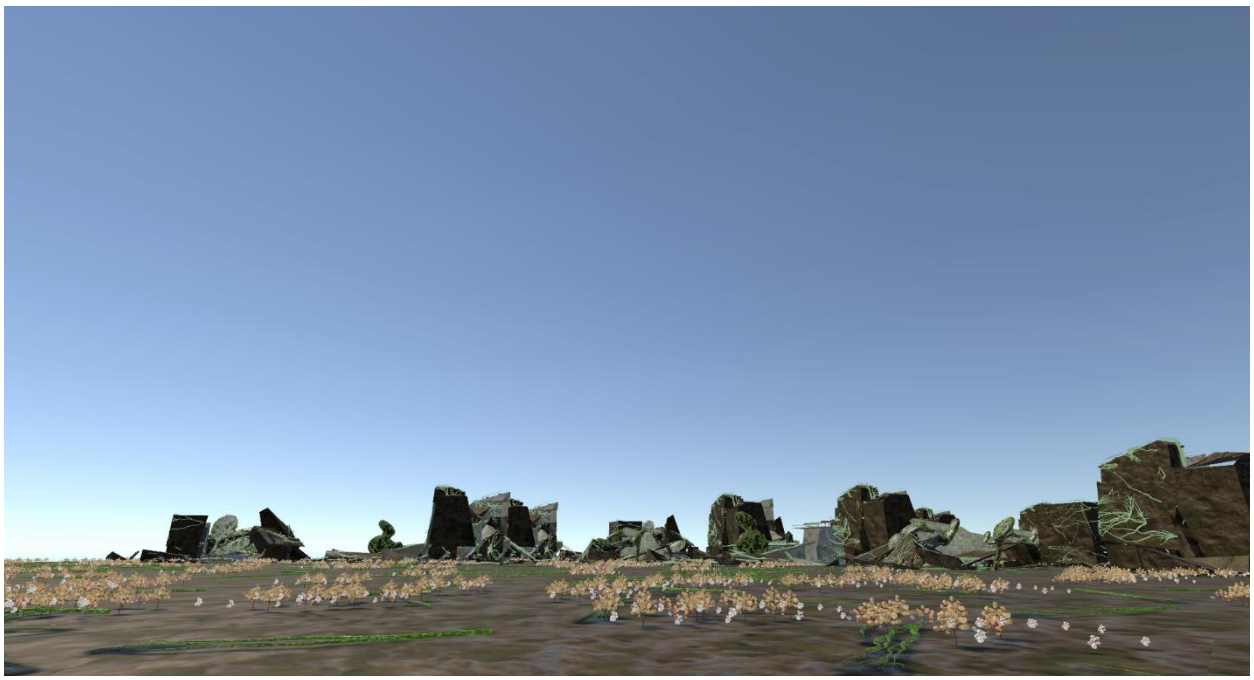

Fig 5.10 Collapse expanse

6. VIEWS FROM ABOVE

Fig 6.1 Top view suburban space

Fig 6.2 Top view suburban space two

Fig 6.3 Top view collapse one

Fig 6.4 Top view collapse one detail

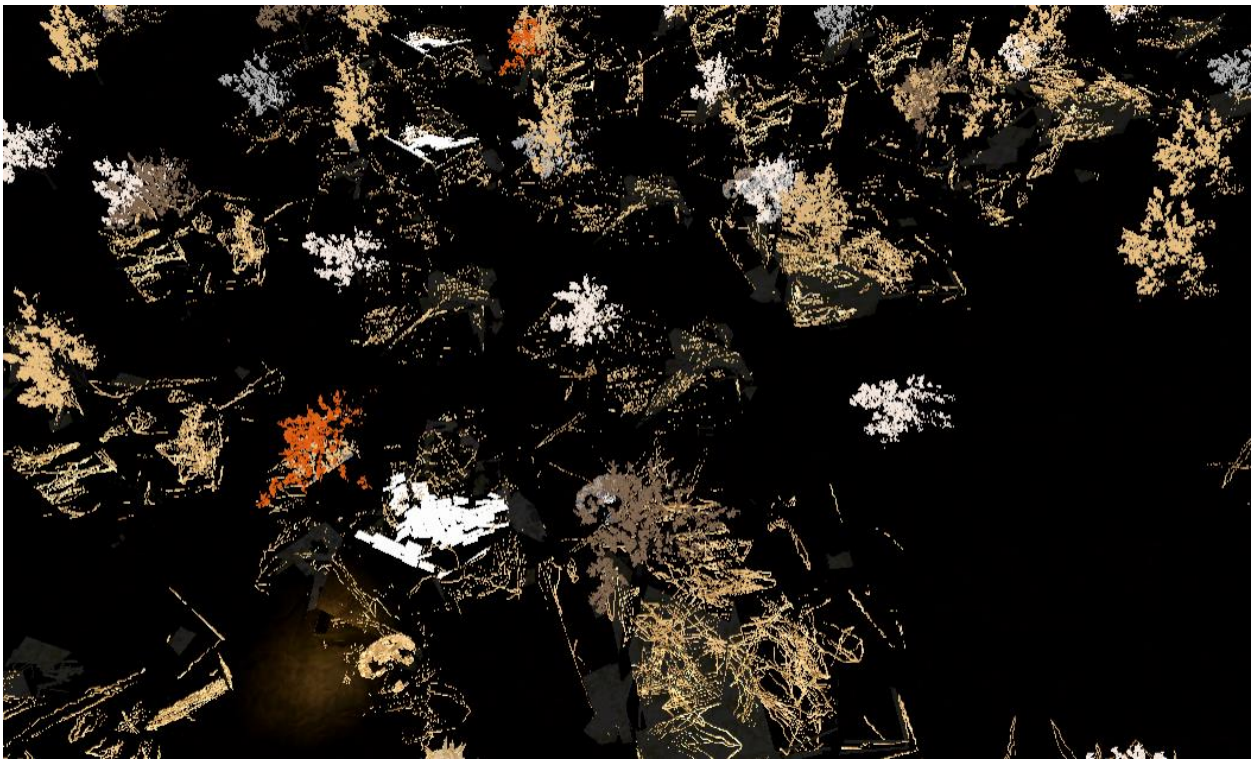

Fig 6.5 Top view collapse two

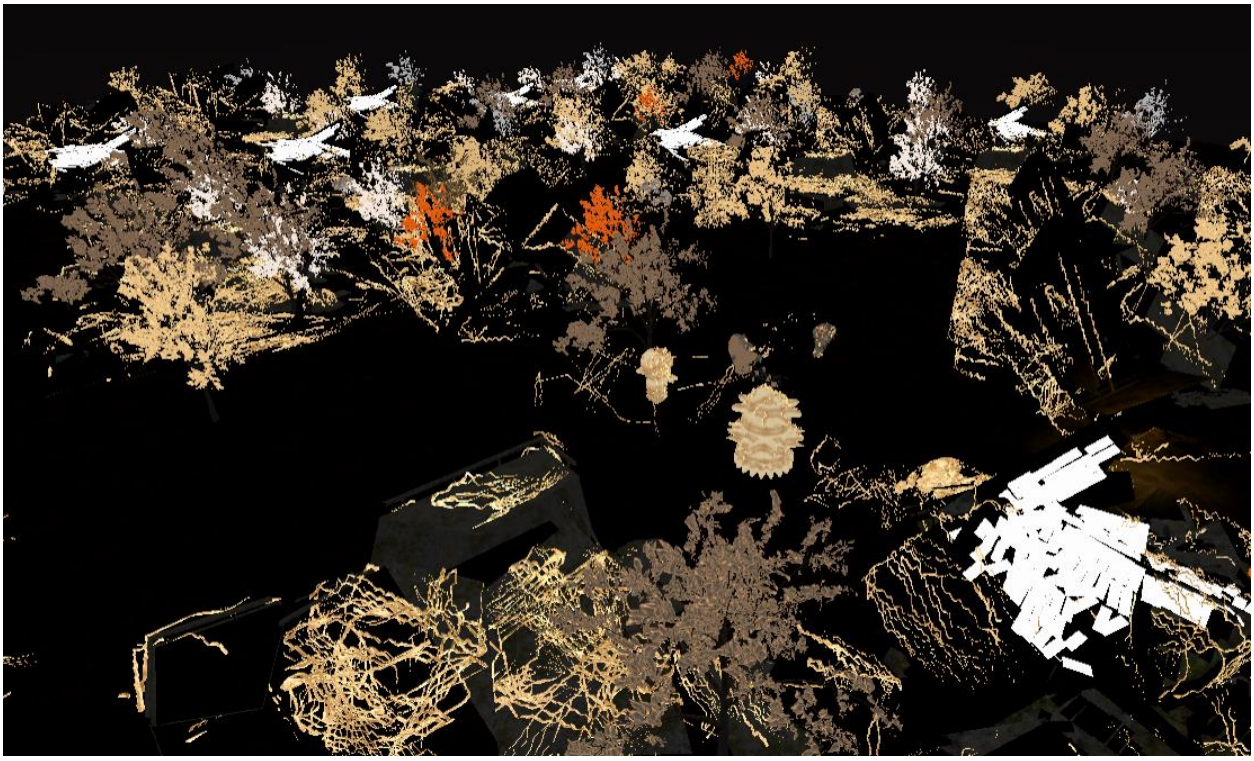

Fig 6.6 Top view collapse two detail