

HYBRID ANATOMIES:
AN ARTISTIC RESEARCH ON BODY AND PERCEPTION
IN RELATION TO ACTUAL AND VIRTUAL



The Graduate School of Economics and Social Sciences
of
İhsan Doğramacı Bilkent University

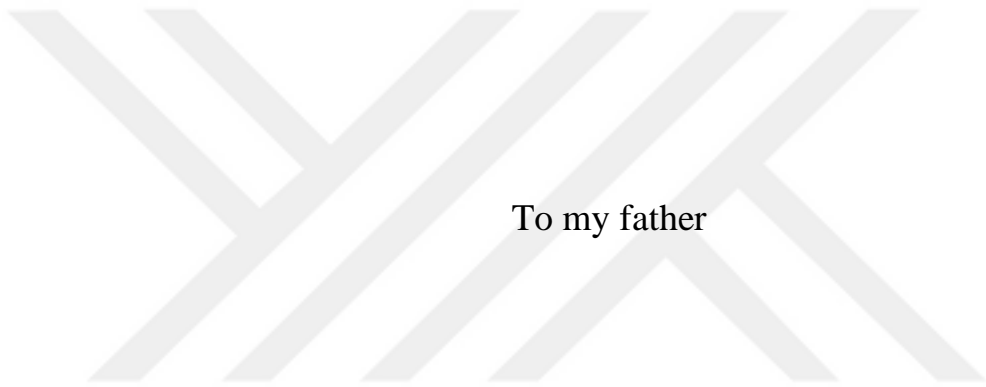
by

NİHAL SENAN

In Partial Fulfillment of the Requirements for the Degree of
MASTER OF FINE ARTS

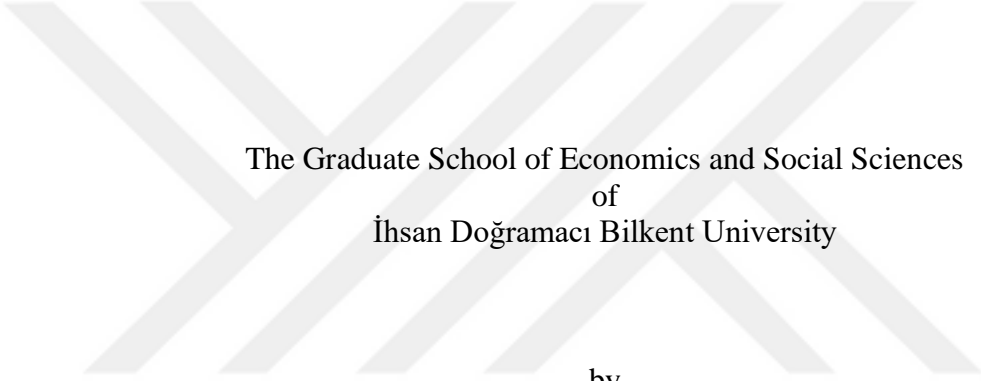
THE DEPARTMENT OF
COMMUNICATION AND DESIGN
İHSAN DOĞRAMACI BİLKENT UNIVERSITY
ANKARA

September 2022



To my father

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Nihal Işık Senan

I certify that I have read this thesis and have found that it is fully adequate,
in scope and in quality, as a thesis for the degree of (Master of Fine Arts)

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ABSTRACT

HYBRID ANATOMIES: AN ARTISTIC RESEARCH ON BODY AND PERCEPTION IN RELATION TO ACTUAL AND VIRTUAL

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M.F.A., in Media and Design

Supervisor: Assist. Prof. Andreas Treske

August 2022

This research conceptualizes the relationship between the actual and the virtual in the context of body and self. The subject-matter of the thesis is based on personal memories of an illness, which caused distortions of reality. Conceptually the research reflects an intersection between sciences and philosophy. The second part of the research is a practical research on the methodologies of producing three-dimensional objects, and their effect on perception.

Keywords: Actual, Virtual, Body, Memory

ÖZET

HİBRİT ANATOMİLER: BEDEN VE ALGININ, AKTÜEL VE VİRTÜELLE İLİŞKİSİNİN SANATSAL İNCELEMESİ

Senan, Nihal Işık

Yüksek Lisans, İletişim ve Tasarım Bölümü

Tez Danışmanı: Yard. Doç. Andreas Treske

August 2022

Bu inceleme aktüel ve virtüel konseptlerinin birbiriyle olan ilişkisinin, beden ve benlik üzerinden kavramsallaştırılmasıdır. Tezin konusu; algıda bozulmaya sebep olan bir hastalığa dair kişisel anılardan oluşmaktadır. Bu tezin kavramı bilim ve felsefe arasında bir kesişim noktası yansıtmaktadır. Tezin ikinci aşaması ise üç boyutlu objeler yaratmanın metodlarını ve bu objelerin algıyla olan ilişkisini kapsar.

Keywords: Aktüel, Virtüel, Beden, Hafıza

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CHAPTER 1

INTRODUCTION

This thesis aims to identify the actual and virtual in relation to body and self. It is also a demonstration of an interplay between scientific knowledge and philosophical concepts since it constitutes back-and-forth research between neuroscience, seeing, and the field of thought. The primary objective of this relationship is to understand body with internal experiences, such as thoughts and feelings, as anatomy. The intended benefits of this research are for artists who are interested in creating 3D objects digitally, and for medical doctors who are interested to gain insight from a patient's experiences caused by a brain illness.

'Hybrid Anatomies' is a research project conceptualizing the hybrid existence of the actual and the virtual concerning the body and the self, reflecting on personal memories of distorted perceptions. The word distortion used here means the effect of the changes in the natural, organic procedure of perception. In this case the natural procedure of perception is affected biologically by a brain illness. The personal memories are from a time of this brain illness, a cavernoma, which was the cause of the

distortions of reality and motivated me to question the nature of reality, its hybrid anatomy, its actual being and virtual image. The actual being corresponds to the objective truth, where the virtual image is the mirror, the mental image and the subjective view of the truth. 'Hybrid Anatomies' suggests the combination of these, and their function and role in each other forming the nature of reality. In that sense the word hybrid used here refers to the combination of two different nature, physiology and thought.

The word 'Anatomy' suggests a scientific look to the body and also insinuates the primary artistic education of artistic anatomy was the starting point of my research. Therefore, the initial part of the research consists of looking at anatomy atlases, MRI scans of my brain, the role of the figure, and the notion of self by Foucault. The connections built this initial phase carried this project to a series of sculptures correlating with the distorted perceptions from my personal experience, where the process of this project evolved from 3D modeling body parts to 3D printing sculptures and designing sculptures by using methods to transform from virtual to actual, by actualization. These methodologies used in creating these sculptures are the key elements to reflect the transformation between the actual and virtual concepts introduced by Deleuze.

The methodology is an intersection between technology and sciences while exerting a process of memory by remembering and capturing the essence of a specific time period of an illness to understand the role of perception in the experience of life and around the idea of self. The truth in the perception is in question, the actual and the

virtual, the actual object and the way we see it. The whole process of perception from how we see, the image, the memory, the past all the invisible elements surrounding the actuality came into the equation to make sense of the experience of hybrid anatomy.

Drawing quick sketches as a starting process is an experience that helped me express the disruption of the body image in my subconscious. The memories of distorted realities through a period of illness are the context of this artwork that helped me conceptualize the effect of memory and perception on my body and self. As a consequence of the process, the sculptures turned out to be representations of myself, mental images belonging to different periods of the illness. The key ideas that inspired me were looking at the negative, the incompleteness, the invisibility, being erased, and being not here. These ideas constitute the nature of virtuality, and the common aspects of the concepts comprise the virtual. This research methodology, 3D Printing, correlates with a transformation between different spaces, bringing what is not there to here. It turns the initial modeling from a screen to the physical three-dimensional space, completely changing its perception and identity and how it is experienced. By the effect the sculptures possess, the invisibility and the flickering, they carry the idea of a temporary virtual image, the memory in our perceptions.

In the lecture 'The Culture of the Self' Foucault states that to answer philosophical questions on the truth of human life like "what is our actuality?", "what are we as part of this actuality" he needs to create a historical ontology of ourselves. In his inquiries of the self, the first encounter with the idea of 'the self' is a set of practices called *epimelesthai sautou* in Greek, which he defines as "to take care of yourself," "the

concern with self," "to be concerned, to take care of yourself." (Foucault et al., 2022, p.19). Looking back at a time with a cavernoma in my brain, I developed a habit of 'listening to myself,' which correlates with *epimelesthai sautou*, "to be concerned with oneself." My concerns and practice of listening mean; listening to anything that is out of the ordinary, abnormal, that can be a symptom of something that goes wrong with myself and my body. These symptoms that listened were; out of character behaviors, extreme headaches, and distorted perceptions. As Foucault defines different meanings that ancient societies developed for this notion, my concerns with myself were related to my body, perception, and image of myself. Foucault exemplifies the practice of self-care as; writing, confessing, and meditating by imagining different scenarios for past behaviors; my method of self-care is to express these symptoms that are known only to me, to take these memories out of my system and visualize them.

The awareness of the cavernoma in my brain attached my body to its virtual image. This attachment was domination of virtuality, where the knowledge of my body from the MRI scans dominated its actuality. The first memory of distortion of my perception belongs to this time. It was a brief, illusory bodily experience of detachment from my body and surroundings. Even though the experience was in a familiar place, the place became entirely unrecognizable to me. Therefore, the consciousness of spatial information regarding my body was damaged. It distorted my perception and caused a sense of losing my own body and its location. The sculpture 'Disembodiment' reflects this illusory experience of losing the awareness of my body derived from this memory.

The second sculpture called 'Double' was a transient post-operation condition experienced in the intensive care unit. It was a common post-operation condition, which will pass as my brain recovers from the surgery. The surgery damaged the field of vision in one of my eyes, so my brain formed a complete image with the help of memory. This memory is a short-term visual memory of the space I saw seconds ago. The distortion it created was triggered by people passing around my bed. As a result of this temporal defect, the people around me start to appear and disappear. The sculpture Double is designed to play with the perception of the viewer. It questions the nature of reality concerning perception.

One of my goals and ambitions in this research project is to develop an artistic methodology that can last and has vacancies for improvement. Having studied graphic design, I'm familiar with the production methodologies of 2D images and printing processes. I wanted to upgrade my abilities and research producing 3D sculptures. This thesis presents the different methods of making three-dimensional objects, experimenting with different materials and machines, how we can create sculptures, and how we can test them.

CHAPTER 2

CONCEPTUAL FRAMEWORK

2.1 Notion of Self

Self is a notion of identity that starts to develop from the moment we begin to sense the world around us as an infant and settles as a belief as we shape ourselves to who we are as an ongoing process all our lives. The belief; meaning the image that we think reflects the truth about ourselves, is also the ways in which our interpretation of events relies on, as well as it is where our principles of life, and way of being, is shaped and developed (Foucault et al., 2022, p.25). The notion of self composes of thinking and being. The construction of this notion and our efforts to maintain and reform it constitutes the possibilities of our doings, our lives, and who we are.

In comprehending the modern notion of self, it is crucial to follow the initial idea of the self, how it has developed, how people started to think for themselves, and how

they integrated it into their lives and society. The different ways human beings have developed knowledge to understand themselves are considered to be technologies by Foucault, and this section is to elaborate on the Technologies of the Self defined by Foucault as follows; "Technologies of the Self; which permit individuals to effect by their own means or with the help of others a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being, so as to transform themselves to attain a certain state of happiness, purity, wisdom, perfection, or immortality." (Foucault et al., 2022, p.18).

According to Foucault's inquiry, the initial thought of the self occurs in Greeks as the practices of the self, *Epimelesthai sautou*, 'to be concerned with oneself' and 'taking care of oneself,' it was one of the main principles of cities, one of the main rules for social and personal conduct and for the art of life (Foucault et al., 2022, p.19). One of the examples given by Foucault is Socrates's invitation to others to occupy oneself with oneself; he declares that to be concerned of oneself is to be concerned with the truth, the wisdom and the perfection of the soul, which is what he will make sure by watching citizens, because it is more useful than Athenians' military victory at Olympia, since by occupying themselves with themselves, he teaches them to occupy themselves with the city (Foucault et al., 2022, p.20). This notion re-appears eight centuries later in Gregory of Nyssa's treatise and re-appears again in Alexandrian text, *On the Contemplative Life*, a group called *Therapeutae*, devoted to reading, to healing meditation, to individual and collective prayer, which are practices of the self in relation to concern for oneself (Foucault et al., 2022, p.21). The Socratic notion of 'taking care of oneself' became a common, philosophical theme in the Hellenistic and imperial

periods, was accepted by Epicurus and his followers, by the Cynics, and by Stoics as Seneca, Rufus, and Galen (Foucault et al., 2022, p.26).

Taking care of oneself, consists of knowing oneself. The self needs to know oneself in order to take care of oneself; the knowledge of oneself is embedded in the action of self-care, the practices of the self. The practices of taking care of oneself are not just bodily but also spiritually involved heavily in writing. The writing was considered an essential part of the culture of the self, to write notes to oneself to be reread, to write letters to a friend, taking notes of daily behaviors, conditions of health, moods and tasks. People used writing to examine their conscience, to analyze their performance of the day, and to understand if they have completed their tasks; by doing so, they know themselves. Therefore 'taking care of oneself' is to examine one's conscience, thoughts, and means of actions (Foucault et al., 2022, p.25). As a result of these self-practices, the experience of oneself gained importance, and great attention was given to the nuances of life, experience of oneself was intensified, and the self became something to write about, a theme and a subject (Foucault et al., 2022, p.27).

The truth played an important role in the conduct of self - practices. In the Imperial period, for Plato taking care of oneself was looking and listening to oneself for the truth within ourselves. For Stoics, the truth played a different role; they transformed and created the truth to use techniques of self-discipline. The Greek word for this exercise is *paraskeuazo*, translated as; “to get prepared”; it consists of subjectification of the truth as a practice to test the truth within oneself. It requires convincing oneself of a version of a possible truth, getting prepared for it, and testing the preparation to understand if it is

the right behavior for oneself. The test is putting oneself in a situation to verify if the individual is able to confront this event and prepared enough (Foucault et al., 2022, p.35). These were meditative exercises where you had to anticipate the real situation through dialogues in your thoughts. It is considered philosophical meditation composed of memorizing responses and reactivating those memories by placing oneself in a situation where one can imagine how one would react (Foucault et al., 2022, p.35).

Another familiar approach Stoics developed is rather pessimistic, which is to be convinced that the worst possible scenario is in the process of taking place, envisioning a great misfortune. This exercise is about accepting the misfortune, to convince ourselves that these events are not the end of the road, we have to accept them as they are and move on.

In addition to self - examination through conscious and mentally preparing yourself through tough situations, there were bodily exercises consisting of training oneself in real situations (Foucault et al., 2022, p.35). For example, training yourself not to eat, not to drink, physical privation and other rituals of purification. The function of these bodily exercises is to train the self to endure temptations of the external world, and to create durability and, therefore strength for the worst-case scenarios. It was considered to be the only way for an individual to be independent of external conditions. Between the training in reality and training in thought, there were methodologies and approaches to evaluating the representation of thoughts. Some reasons for these evaluations are; to understand the origin of our thoughts, which is to make sure that they are coming from us, and that we are independent in our thinking. Deciphering the truth of the representation, being in control of the representations, being a censor of your

representations in order to discipline yourself by self-examining your thoughts that govern your actions.

Another theme in Christianity as a technology of the self is self-renunciation. It relates to confession, verbalization, showing the truth about oneself, and exposing your wounds to find your cure. The practices required the renunciation of one's own will and one's own self in obedience. In order to attain purity, people used to confess, verbalize sins to a master or an authority to attain purity. According to Foucault, self-renunciation gained a positive form in modern society, the techniques of verbalization without renunciation of the self are used to transform and constitute a new self (Foucault et al., 2022, p.49).

In the lecture 'The Culture of the Self' by Foucault, he focuses on analyzing a specific relationship that is important to analyze the self, he says "I don't want to analyze what people think opposed to what they do, but what they think when they do what they are doing. What I want to analyze is the meaning they give to their behavior, the way they integrate their behavior in general strategies, the type of rationality recognized in their different practices, institutions, models, and behavior...." (*Foucault: The Culture of the Self, Part 2 of 5, 2011, 02:36*) Therefore, Foucault presents 'The Culture of the Self' by looking at the conditions governing individuals on what they think in Greco-Roman philosophy, early Roman Empire, Christianity and the late Roman Empire (Badiou & Burchill, 2000, p. 127). According to Badiou on Foucault, the notion of self composes of thinking and being: "To think means to experiment and to problematize. Knowledge, power and the self are the triple root of a problematization of thought." (Badiou &

Burchill, 2000, p. 127). Foucault by his research, analyzes the methodologies, the approaches that consider self as a subject, a subject of problematization and examination.

The self-examination methods outlined here can be seen in modern therapy today. Journaling, verbal expression, and self-evaluation of our thoughts are methods that are used in cognitive behavioral therapy. Cognitive behavioral therapy depends on determining the errors in your thinking patterns and correcting them by constantly censoring your thoughts. Creating yourself and shaping your identity is possible through these self-practices because how we experience life, ourselves, and our identity is about our thinking as well as our being.

2.2 Actual and Virtual

This section is about actual and virtual introduced by Deleuze in relation to being. It is rather difficult or even impossible to understand these concepts by looking at them from the same plane. The awareness of the difference in their nature and the duality in perceptions creates these concepts. As Pierre Levy states, actual and virtual are merely two different modes of being (Lévy, 1998, p. 23). According to Deleuze, the conceptualization of actual and virtual in the context of being requires a pre-comprehension of the univocity of being, which is being is univocal, and it is one. It is the one that is real and distributes senses, but it embodies multiplicity in its nature. Badiou summarizes as follows; "'Virtual' is without any doubt the principal name of Being in Deleuze's work. Or rather, the nominal pair virtual/actual exhausts the

deployment of univocal Being.” (Badiou & Burchill, 2000, p. 69). Therefore, dimensions of existence, its actuality, and virtuality, and its hybridity, are necessary possessions of being. According to Deleuze, purely actual objects do not exist. Every actual surrounds itself with a cloud of virtual images. This cloud is composed of a series of more or less extensive coexisting circuits, along which the virtual images are distributed and around which they run (Deleuze et al., 2007, p. 148). These images are not necessarily visual, to think of it in visual form would eliminate the possibilities it conveys. It should be approached as an abstract meaning, coming from multiplicities of perceptions, a mirrored entity of the actual continuously emitting and absorbing one another in the shortest continuous period imaginable (Deleuze et al., 2007, p. 148). Since purely actual objects do not exist, the same hybridity correlates with actual perception. An actual perception surrounds itself with a virtual cloud, which constitutes a mixture of knowledge and imagination, therefore, rises from memory (Deleuze et al., 2007, p. 148). This mixture is not a stable entity; it is a non-linear dynamic relationship between knowledge, imagination, and memory. It resembles a cluster that is in motion, including and excluding each other; they make and unmake each other. The imagination factor is a variable connected to the value of proximity to the actual, and varies in its distinctness. Imagination is where the creative force of transformation between these two modes of being comes from. Imagination combines what is other to the actual; the actual and virtual don't resemble each other; therefore, imagination combines them by creating a dialogue between them.

Virtual and actual are both real; even though the reality is often considered to be tangible, actual doesn't convey materiality or embodiment, and the transformation

between these two modes shouldn't be confused with realization. It should be considered as actualization, and it isn't an existence of a possibility; it's rather a production of new qualities, a transformation of ideas, a true becoming that feeds the virtual in turn (Lévy, 1998, p. 25). According to Pierre Lévy, virtual accompanies the qualities of detachment from the here and now, as well as in a literal sense it is "not there" (Lévy, 1998, p. 25). This nature of the virtuality correlates with Deleuze's definition of the virtual being, which is perceptions that evokes memories, and actual is its present form which doesn't resemble the virtual image but responds to it. Actualization belongs to virtual, the virtual encapsulates the actual, it is its subject and meaning where the actual becomes virtual and the virtual is in the constant process of actualization; therefore they become indistinguishable (Deleuze et al., 2007, p. 151).

2.3 Perceptions of the Body in Relation to Actual and Virtual

The modern medical equipment such as MRI images, CT scans, X-rays, sonograms virtualizes our bodies, as Pierre Lévy summarizes, each new device adds another visible to our actual body (Lévy, 1998, p. 40). The virtual bodies created by these machines are used in diagnostics, surgeries, which corresponds to measurements and determinations of the limits of our physical operations. Due to the knowledge obtained by evaluations of virtual bodies, the importance of our virtual bodies is equal to importance of our actual body.

The virtual bodies and actual body have an indistinguishable relationship, they are tied to each other. They affect each other mutually. The virtual bodies are affected by our actual actions and gestures, and actual bodies are affected by the knowledge, the interpretation gained by the virtual images and the existence of them. As a result, the virtual bodies effect our actual being.

“Medical imaging makes our organic interiority transparent.” (Lévy, 1998, p. 37) By creating hyper-vision, medical imaging extends our capacity of vision, it opens up another dimension to the way we look and see. “A new way of looking and knowing came to prominence – one that involved not just seeing directly but also defining seeing itself as something that required instruments.” (Sturken & Cartwright, 2017, p. 342) These virtual images are visualized data of biological or chemical densities, such as blood or hydrogen molecules circulating inside our bodies. These ways of seeing and the existence of virtual images are an improved and evolved version of the inherited idea of “Looking within” from the sixteenth century. The idea of opening a cadaver for the hidden truths, whether the truth is an abstraction of the soul or a physical symbolic structure, such as the brain or the heart. (Sturken & Cartwright, 2017, p. 341)

According to Van Dijck;

“The more we see through various camera lenses, the more complicated the visual information becomes. Medical imaging technologies yield new clinical insights, but these insights often confront people with more (or more agonizing) dilemmas. Behind the alluring images hide ethical choices, and medical interventions are

often stipulated by artistic inventions. The mediated body is everything but transparent; it is precisely the complexity and stratification that makes it a contested cultural object.” (Dijk, 2005, p. 4)

The brain as 'a cultural object' carries a wide range of associations, such as; personhood, a medical secret, mental disease, intelligence, emotional states, memory, and perception. The confrontation with our bodies' interior images is a confrontation with cultural associations and connotations regarding the organ or disease. Therefore, Ian Hacking argues that every look into a human interior is also a transformation – "seeing is intervening"- because it affects our conceptualization and representation of the body (Dijk, 2005, p. 4). It is this conceptualization and our transformed representation that affects our body image. The body image becomes hybrid anatomy consisting of both virtual and actual.

2.4 Body, Memory, and Perception

This section is based on scientific theories on body memory intersecting to conceptual ideas on memory and perception introduced by Deleuze and Bergson. The nature of memory is virtual, it is a virtual image accompanying an actual object, evoked by perception (Deleuze et al., 2007, p. 150). Perception is full of memories. Memories are the resource of understanding; it is how our senses make sense of the present data (Bergson et al., 2022, p. 11). There are two kinds of memories long-term memories and shot term memories; according to Deleuze the difference between them is not simply

quantitative: short-term memory is of the rhizome or diagram type, and long-term memory is arborescent and centralized (imprint, engram, tracing, or photograph) (Deleuze et al., 1987, p.16). Short-term memory and long-term memory are perceived differently in relation to time. In that sense, their effect differs, as stated by Deleuze; "short-term memory includes forgetting as a process", whereas long-term memory is "offbeat in an 'untimely' way, not instantaneously" (Deleuze et al., 1987, p.16).

Long-term memory is an imprint of our childhood; aspects of our identity relate to the core beliefs and knowledge about ourselves. It is interior perception, which involves representations of the self and the body map. The body map or the body matrix is a term used by neuroscientists to describe the center of the process of perception, which means our sense of where and who we are (Mirzoeff, 2016, p. 43).

In the body map, the perception of who we are is by the combination of representations of the self and the body. According to the article *The Neuroscience of Body Memory: From the self Through the Space to the Others* by Giuseppe Riva;

“The six representations of the body such as; the Sentient Body (Minimal Selfhood), the Spatial Body (Self Location), the Active Body (Agency), the Personal Body (Whole Body Ownership - Me); the Objectified Body (Objectified Self - Mine), and the Social Body (Body Satisfaction - Ideal Me) is combined in a coherent supramodal representation, i.e. the “body matrix”, through a predictive, multisensory processing activated by central, top-down, attentional processes.” (Riva, 2018, p. 241)

The mental -representation of the body of ourselves is called the body image, and it is a virtual image of ourselves derived from the body matrix. The disruption of the representations listed above causes an effect on the body image such as the well-known case with people who suffer from anorexia. The disruption causes a distortion that makes them see themselves as obese even though they are skinny. The case of anorexia is an example of the relationship between what we see and what is actually there, the actual object and its virtual image; it also relates to the relationship between the presence and the representation. The presence, the actual object is not an objective entity, and its subjectivity is reflected through the representation. It is not a pure, exterior, other image, but an image reflecting a perception that comes from all the other images and from within our bodies.

The role of the body to our perception is crucial, according to Bergson; "It might be stated as follows: Here is a system of images which I term my perception of the universe, and which may be entirely altered by a very slight change in a certain privileged image, - my body." (Bergson et al., 2022, p. 7). According to Bergson, the central image is where all the other short-term memory images are conditioned.

The theories on the body image varies in cognitive theory and neurology. In cognitive science the body image is the central image, and the long-term body image is defined as body memory by Riva, the experience of the body memory consists of the bodily know-how, the real-time information about the posture and spatial information of the body, as well as the effects of the communicative and social roles of our bodies have, therefore memories. Memories are the results of our direct bodily experiences and

include our understanding of how others perceive and represent our bodies (Riva, 2018, p. 243). The long-term memory imprint is our bodies; our body memories operate subconsciously and consciously, according to the perception of these memories.

In the recent research on neurology from the book and famous documentary *Phantoms in the Brain*, the body image is considered to be a map of body imprinted in the tissue of the brain. Certain parts of the brain correlates to parts of our bodies. This research follow the extraordinary instances of patients. Patients who continues to feel amputated body parts, because the brain continue to acknowledge their existence from memory. This acknowledgement involves, the mapping of the motor functions of the muscles in the brain.

These conceptual theories on perception and current scientific knowledge intersect the ideas around perception and the relationship between body and memory. Nevertheless, the body image that we develop and depend on our perceptions is not considered to be objective. It involves the interpretation of our conscious or subconscious. Therefore the truth and reality are rather obscure, and ephemeral in nature. The body itself is an actual object accompanied with memory, the virtual image. The actual object exists in the passing of the present, where the virtual image exists briefly in the preservation of the past, they are intertwined in the perception of continuous time (Deleuze et al., 1987, p.16). Virtual image creates the ephemerality in the nature of reality, interlinking the connections to the past within our body and mind.

CHAPTER 3

THE PROJECT: HYBRID ANATOMIES

3.1 Personal Connection and Ideation of the Sculptures

Personal experiences of an illness in my brain changed my way of being by making me hypersensitive to my body, mind and perception. This project reflects the approaches on self through the phases of an illness. My actual body experience was accompanied by MRI images of my body and experiences of distorted perceptions. This situation inspired me to conceptualize ‘Hybrid Anatomies’; to reflect on this hybridity of existence with this artistic project.

The distorted perceptions intrigued me to question the nature of reality, since it caused illusions. These distortions made the role of cognition visible caused me to distinguish most distinct irregular instances in my memories. In Merriam-Webster dictionary the definitions of distortion are; the act of twisting or altering something out of its true, natural, or original state, and the quality or a state of being distorted

(Distortion, n.d.). The distortion of perceptions as a focus in this research refers to the change of the original, natural procedure of perception, and its reflection as a state of being distorted. Based on my personal memories of an illness, the experiences of these distortions have different variations correlating with the periods and stages of the illness, therefore the phases of the artworks are varied in focus as well. The initial artworks *Negatoskop* and *Body Sketch* focuses on the brain, the cavernoma, the monitoring and physiological distortions where the sculptures the disembodiment and the double focuses on distortions in internal and external perceptions.

The change in the focus in each sculpture was also influential to create not only a brain, but bodies. An abnormality in a brain effects the whole body and the idea of self because it causes malfunctions in various procedures which are among how we sense the environment, ourselves and our bodies internally. Therefore, limiting the focus on the brain limits the research into its pathological conditions. The memories followed in the creative process of this research, reflects the functions of the brain including the body-image, the internal perceptions and seeing. So, it reflects the relationship between our brain and bodies.

Contemplating on past experiences started by looking at MRI images of my brain. It was important to understand the illness, *cavernoma*. *Cavernoma* is a cluster of vessels; if it's not in your brain or an internal organ, it's basically a birthmark. Even when it's in a brain, it's not considered harmful if it's not bleeding. The MRI scans became part of my life to monitor the bleedings since bleedings caused haematoma, which is cumulation of blood cloths resulting of swelling of the tissue. Since the

swelling enlarges the size of the cavernoma drastically, it pressures the brain, causing severe headaches lasting for days. The irregular memories came from the periods of the illness, pre-operation, acute, and post-operation. Therefore, the pre-operation indicates the duration of monitoring my brain; acute is the severe condition of the illness, and post-operation is where distortions happened in the intensive care unit. The series of sculptures turned out to be an accumulation of these periods, not in a linear narrative with a beginning and ending but more like objects that are in a dialogue with each other.

The relationship between these objects and the illness turned out to be somewhat, discreet, not visible. Especially with *Disembodiment* and *the Double*. This is an aspect that developed itself in the course of creating, as a result of the memories. It is parallel to brain illness, which is discreet and most of the time invisible as well. It is not a direct knowledge to see someone and understand that they have brain illness. Brain illness displays itself if the illness effects motor functions, therefore the visibility of the brain illness depends on the location of the illness in the brain.

The creative process started by sketching body parts by looking at anatomy atlases and self-portraits that reflect the relationship between myself and my body, which were very quick sketches on what these memories made me feel like. I experimented with these digital sketches by printing them on acetate to view them on a negatoscope. Negatoscope helped me to play with the darks and clearings, and inspired me to look at the negative. This idea of looking at the negative is carried, visually and conceptually all around the artistic project. The negative is the emptiness, clearings, the

film, and the virtual, and it is part of the hybrid anatomy. The clearings in the images are transformed to the sculptures' emptiness to combine them in a visual analogy.



Figure 1 : Initial sketches, drawn by the author, 2021



Figure 2: Initial sketches, drawn by the author, 2021



Figure 3: Initial sketches, created with Procreate, drawn by the author, 2021

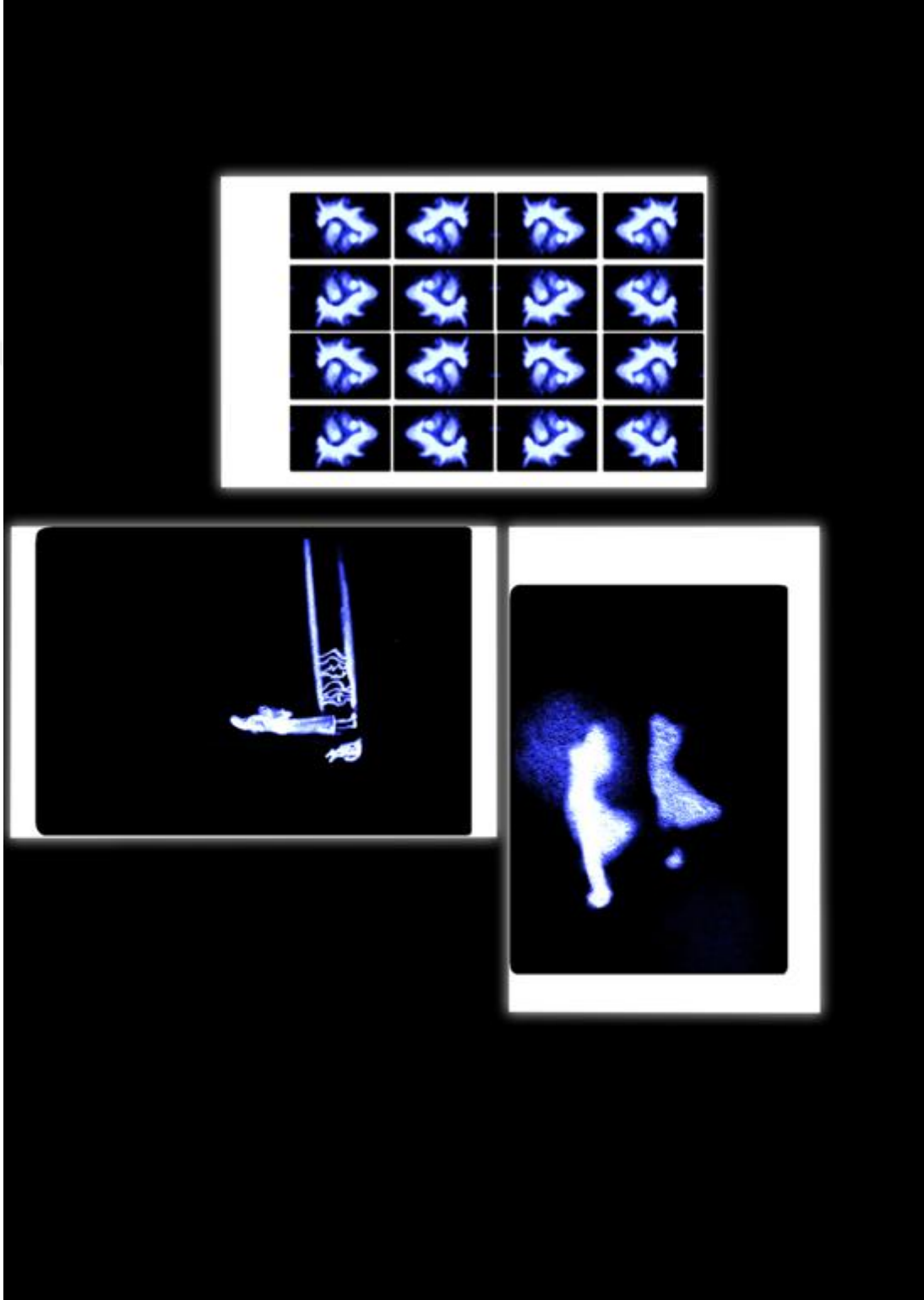


Figure 4: Negatoscope Sketches, made by author, 2021

3.1.1 Negatoskop

Negatoskop is a Turkish word for negatoscope, the particular medical equipment that is used to view x-ray films. X-ray films and MRI images have greater shades of greys compared to regular films so negatoscope is necessary equipment for the readings of these films. It's important to understand that looking at an MRI film from another light source or a screen is not as influential in determining the presence of darks or clears compared to negatoscope. Negatoscope creates a translucent effect to the film, which means it doesn't allow light to pass through completely. Therefore, it provides a sharper and more precise view of the details in the film.

The negatoscope played a crucial role in the ideation of the sculptures, as mentioned earlier, it is where the idea of looking at the negative came from, as well as the direct implication of my personal connection, the experience of the illness. By acquiring an unused negatoscope from a hospital's storage, and after spray painting its frame, it is installed on the gallery wall. It represents the personal connection of the illness correlating with monitoring. It is my interpretation of the MRI images, showing how this monitoring made me feel during this period of time.

It reflects the ideation process since it is a digital collage of 3D sketches of body parts done in the initial period of the artistic research. 3D modeled body parts consist of cavernoma, brain, and vessels, forming an ambiguous, abstract texture to reflect the pressure, the confusion, an enigma, and how the MRI images are seen to me rather than how they are. In order to create the experience of looking at an MRI Image, the collage

is printed on acetate paper and mounted it on the negatoscope. With the help of the negatoscope the images demonstrated high contrast between the darks and clears.



Figure 5: 3D Sketches of Cavernoma, created with Nomad Sculpt, by the author, 2022

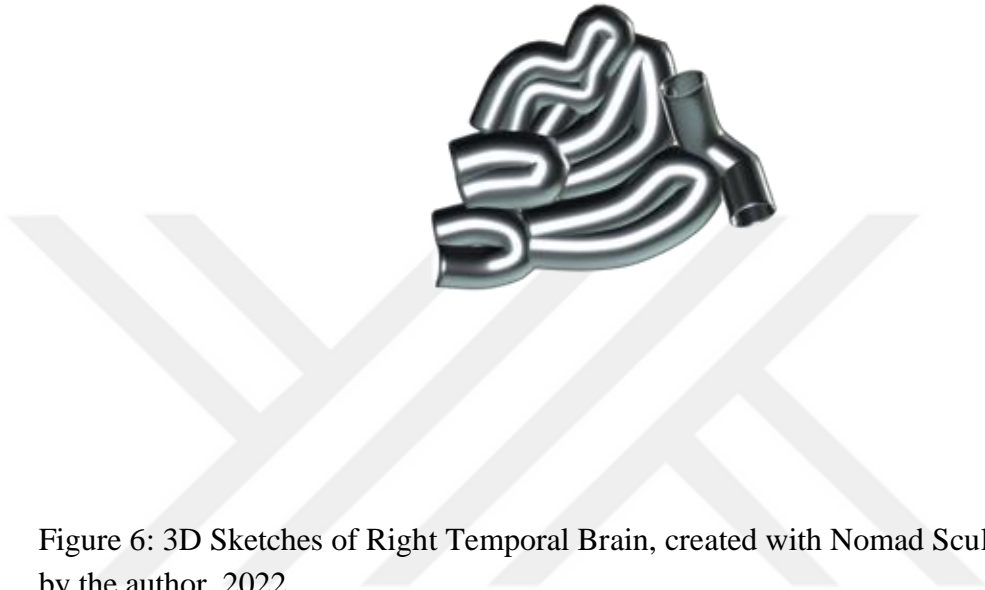


Figure 6: 3D Sketches of Right Temporal Brain, created with Nomad Sculpt, by the author, 2022



Figure 7: Final Collage Created from the Sketches, by the author, 2022

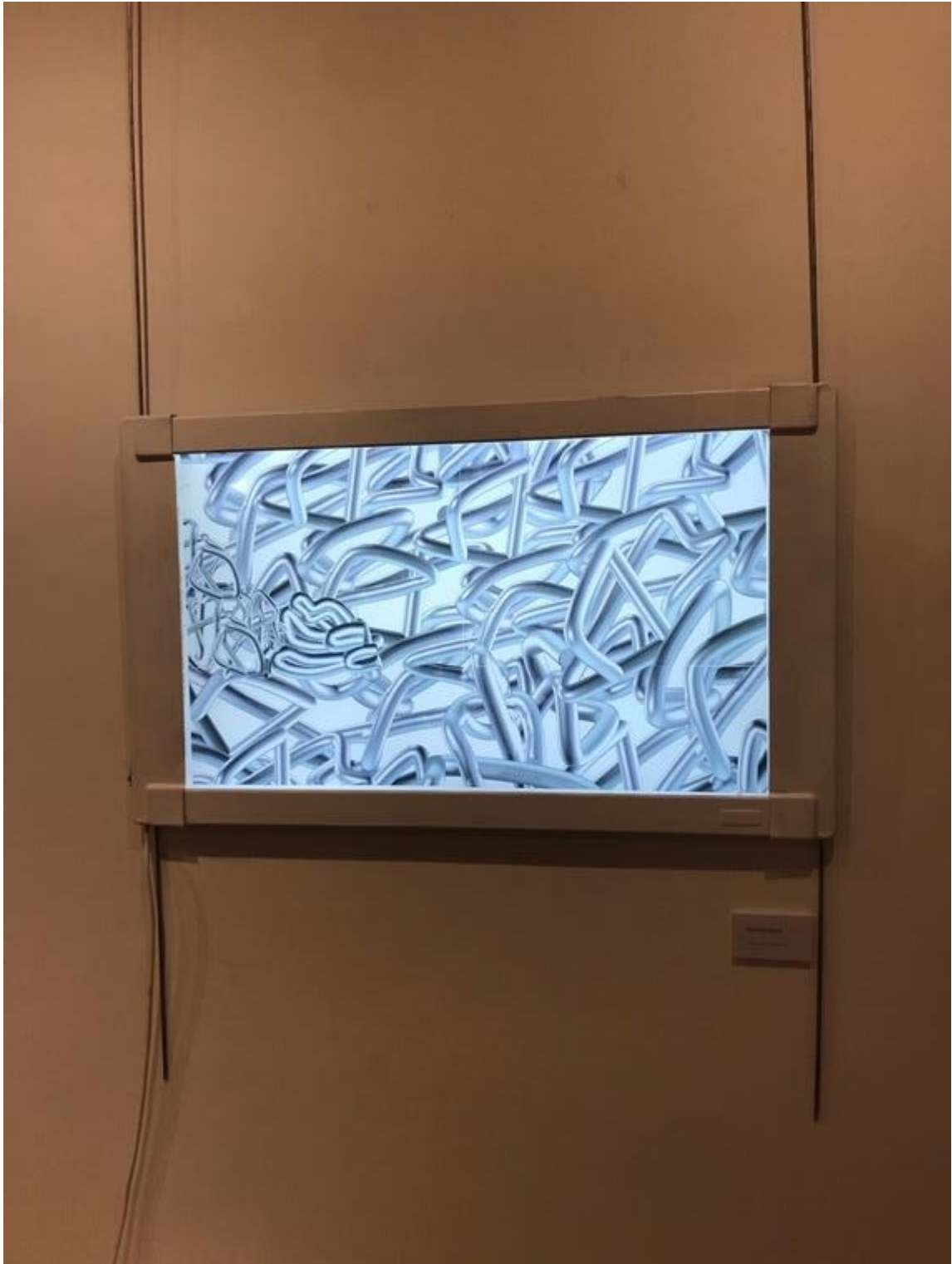


Figure 8: Captured Image of the Negatoskop Installation from the exhibition, by the author, 2022



Figure 9: Captured Image from the exhibition, by the author 2022

3.2 Body Sketch

Body Sketch is a 3D printed sculpture that correlates with the memory of severe headaches during the acute period of the illness. It is the only sculpture that is about the distorted perceptions of my physical body. The purpose of this sculpture is to reflect how I see my body and myself during the episodes of headaches. The physical pain in my brain immobilized me and made me feel injured, damaged, and broken from the inside.

The reasons it's called *Body Sketch* are because this sculpture is based on a preliminary self-portrait sketch I made (see Figure 9), and the way the body is not a closed and completed form, as it's not a complete body, but a sketch of a body. *Body Sketch* is designed to float in the space by hanging from the ceiling. The way it is displayed as an object that floats in the space resembles a sketch floating on a paper. Besides, it's my first attempt to 3D Printing.



Figure 10: Preliminary Self-Portrait Sketch, made by the author, 2021

3.2.1 Design Process

This sculpture carries the idea of 'looking inside', by referring to the perceptions of transparency of the body concerning virtual bodies created by MRI images. (see Chapter 2). The sculpture is designed in two sections, a body as an amorph organic form

and the head exposing a transparent brain. The process starts from modelling the brain, keeping looking at the negative in mind.



Figure 11: Brain 1, frontal view, created in Nomad Sculpt, by the author, 2022



Figure 12: Brain 2, frontal view, created in Nomad Sculpt, by the author, 2022

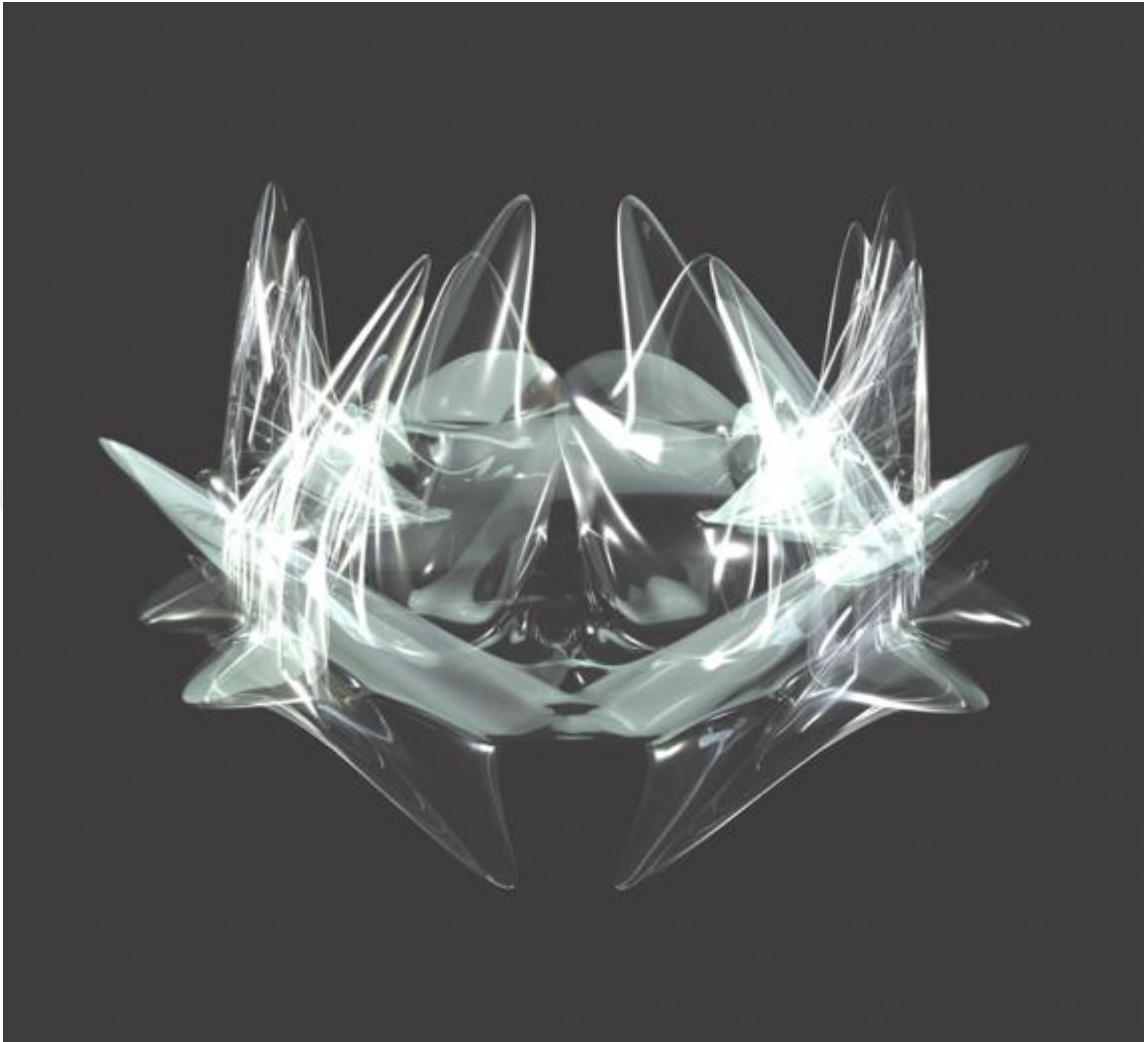


Figure 13 : Brain 3, frontal view, created in Nomad Sculpt, by the author, 2022

These forms were created in Nomad Sculpt; with the Ipad, it is free-hand digital sculpting. These were made by using the symmetry feature. Figure 12, is a transparent rendered image, where the idea of transparency is implanted into the material for the first time.



Figure 14 : Final Design of the Brain from multiple views in Nomad Sculpt, by the author, 2022

In the final version, the decision was to create an asymmetrical texture, not an identical copy of a brain but an interpretation of an abnormal brain which works better with the portrait and the brain condition. It is created with bezier curves rather than free-hand sculpting in Nomad Sculpt.

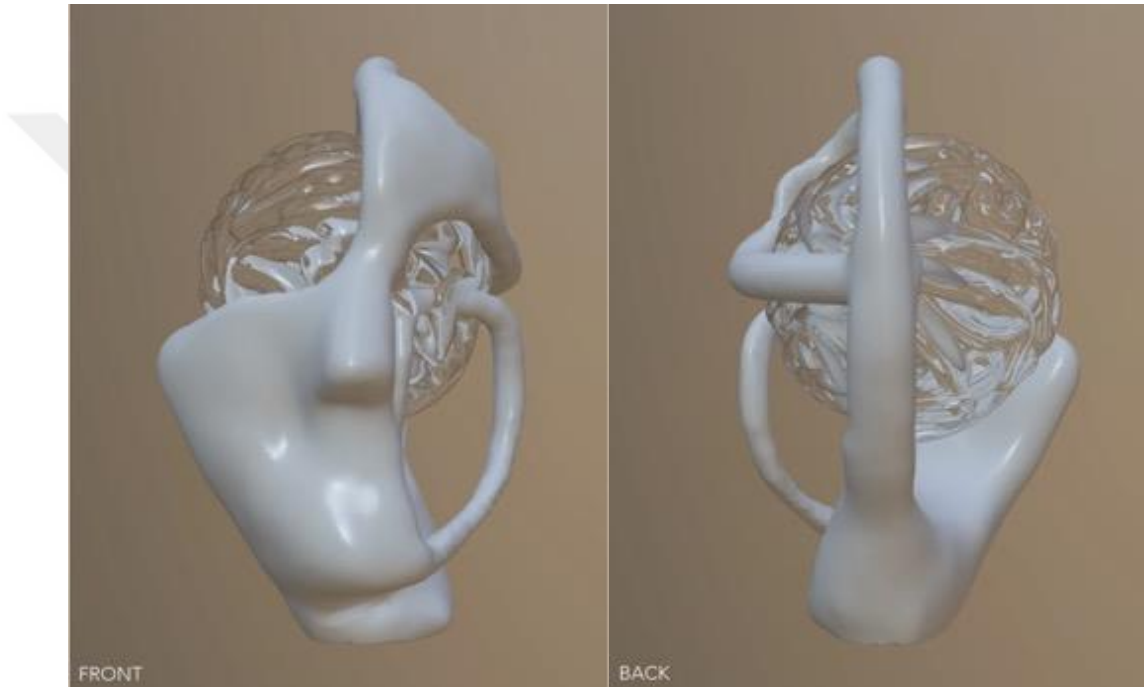


Figure 15 : The Head from front and back views in Nomad Sculpt, by the author, 2022

The head is designed in connection to the self-portrait sketch mentioned earlier (see, Figure 9). The face functions as an opaque layer that reveals the part of the brain. The part of the brain that it reveals is the right temporal, where the cavernoma exists. The brain is connected to the head and the body through the eye with a vessel-like formation, in order to do so, there were refinements on the brain's design in relation to the point of entrance.



Figure 16 : The Model of the Sculpture from multiple views in Nomad Sculpt, by the author, 2022

The body is inspired by bones, an asymmetrical, amorph form, a distorted skeleton, which reveals vessels in certain parts of the sculpture from the holes. In order to be able to create holes in a mesh, the form was sculpted with the Triplanar tool, then merged and transformed the form into a torso in Nomad Sculpt.

This sculpture helped me form my design decisions; these decisions are carried to the other sculptures to create a unified approach. One of the decisions is not to make a direct resemblance to me to express the feeling of the lack of connection to my body, therefore myself, and my identity. Another decision was the colorlessness of the objects, it helped me to focus on the negative and the positive, the materiality, as in this case, transparency and opaque features of the materials.

3.2.3 Production and Post Production of the Body Sketch

The *Body Sketch* is 40 cm in height and 18 cm in width, in order to 3D print *Body Sketch*, the head and the torso is divided into two parts. The brain is printed separately as well. Therefore, all of the pieces of the sculpture are attached together for the post-production process.

The head and the torso were printed at Bilkent Cyberpark, with a machine called *Artiboyut A0*, the machine's printing plane's diameter is 20 cm; this is why it was necessary to divide the model into pieces. The process of separating the model requires you to close the mesh completely and export it to STL format, otherwise 3D printing machine can't identify the model and ruins the printed object. Nomad sculpt is more of

an artistic software designed for digital sculpting, but still, I was able to divide the pieces of the model in half and close the mesh completely. Secondly, it is necessary to check your model's stability, strength and thickness and refine the model for the printer. One of the most critical necessities in 3D Printing is that the model needs to be flat and stable where it is connected to the machine. In this part, I used the software Autodesk Meshmixer, in its analysis mode, you can use tools to refine your model such as; inspector, measure, stability, and strength. It helped me oversee the possible errors during the printing process and eliminate them.

The pieces of the face were printed for 4 hours each for a total of 8 hours. The upper segment of the torso was printed in 28 hours, and the printer printed the lower part in 22 hours. The technology used by the machine is called FDM (Fused deposition modeling), and the material used was white PLA (polylactic acid). Polylactic acid is a thermoplastic monomer derived from renewable, organic sources such as corn starch or sugar cane (*What Is PLA? (Everything You Need To Know), n.d.*). The brain was printed in a SLA machine called *Anycubic Photon Mono X 4K Resin SLA 3D Printer* in *Ostim Teknopark*. This technology is called stereolithography, a technology that repetitively cures the resin into the model form (Da\u011F, 2021). This printing technique creates better outcomes with models with more minor details, but resin is a toxic material that must be used with a mask, goggles and gloves. The printing process of the brain took 9 hours. In total, the printing process of the sculpture was 67 hours.



Figure 17 : The Captured Image of the Assembled *Body Sketch* (prior to post-production), by the author, 2022

The post-production phase of the sculpture consists of assembling the pieces, sanding the PLA material, and finally painting and polishing it. The sculpture is assembled by sticking each piece from the inner surfaces with epoxy. After cleaning up by washing the sculpture and carving out the supports that the printer created, I moved on to sanding the PLA material. A water sander is the best option to smooth the torso and the face. Finally, the PLA material is spray painted white, and all of the sculpture is flat varnished with a spray varnish.

3.2.4 The Placement

The *Body Sketch* was designed to hang from the ceiling. Even though it is a self-portrait, the position of the sculpture hides the frontal view and exposes its back view. The position of the sculpture is parallel to the floor as if it's lying down, looking upwards. The viewer is forced to look at its back. The reason for this is the importance of the brain and looking inside compared to portraiture and identity. During the installation of the artwork, Through the lighting arrangement experiments, the amount of the shadow on the wall and the sculpture is increased.



Figure 18 : The Captured Image of the *Body Sketch*, by the author, 2022



Figure 19 : The Captured Image of the *Body Sketch*, by the author, 2022

One of the ideas I had in mind was to combine the Negatoskop installation with the *Body Sketch*. In my mind, the Negatoskop represents “looking inside” and the *Body Sketch* is “revealing inside”. Hence, I thought the transparency of the brain and the images mounted on the *Negatoskop* could work together. Unfortunately, after trying this idea, with the guidance of my advisor, we came to the conclusion that it wouldn't work. In the final Placement, the sculpture and the Negatoskop were separated from each other.



Figure 20 : The Installation Sketch, by the author, 2022



Figure 21 : The Captured Image of the Failed Trial, during the preparation for the exhibition, by the author, 2022

3.3 Disembodiment

Disembodiment is an art piece based on a memory of an aberration in bodily experience, where I lost my connection to my bodily awareness. This memory corresponds to the pre-operation period of the illness, a period when the status of the cavernoma was stable, and not life-threatening. According to the article “Body Perception, Awareness and Illusions” by Marcello Costantini, the lack of bodily awareness I mentioned in my memory corresponds to lack of bodily self-consciousness. Bodily self-consciousness is defined as; “the continuous feeling that the body belongs to us and we continuously identify with our own body.” (Costantini, 2014, p. 551). This feeling mentioned here refers to; body ownership, defined as the feeling of owning a body; self-location defined as the experience of being a body with a given location within our environment and agency of bodily actions (Costantini, 2014, p. 551). The feeling of owning a body is an interior knowledge derived from the interior perception that we sense subconsciously through our entire life. Therefore, losing this sense, even for a short period of time, creates a noticeable impact of distortions in reality. These interior perceptions consist of the signals received of conditions of our vital organs. Our bodies integrate exterior perceptions with internal perceptions, which is an interoception that correlates to our bodily self-consciousness.

According to Constantini;

“Interoception, defined here as the sense of the physiological condition of the body, is a ubiquitous information channel used to represent one’s body from within. A renewed interest in the functional role of basic homeostatic processes has emphasized

the primary role of interoception for the representation of one's body within, and for the more general awareness of the bodily self." (Costantini, 2014, p. 555).

The artwork *Disembodiment* is a conceptualization of this aberration, it relates to existence as self, a form of presence, an essence of reality without the bodily self-consciousness. Disembodiment is a term used by Deleuze in the book *Francis Bacon the Logic of Sensation*, in the analysis of the figure, the sensation, the role of painting and music. The term refers to the dematerialization of the body, such as in the conceptualization of music stated by Deleuze;

“Certainly, music traverses our bodies in profound ways, putting an ear in the stomach, in the lungs and so on. It knows all about waves and nervousness. But it involves our body, and bodies in general, in another element. It strips bodies of their inertia, of the materiality of their presence: it disembodies bodies. We can thus speak with exactitude of a sonorous body, and even of a bodily combat in music – for example, in a motif – but as Proust said, it is an immaterial and disembodied combat ‘in which there subsists not one scrap of inert matter refractory to the mind.’” (Deleuze, 2005, p. 54).

The term *disembodiment* is repeated throughout the text in the analysis of the figure in Bacon's paintings as well; it corresponds to energy, essence, and resonance. It refers to sensations, the invisible forces in painting. In addition to Deleuze, *disembodiment* as a term used by Pierre Levy as well. Lévy questions if the virtualization of the body is disembodiment, and concludes that unlike disembodiment

virtualization involves a change of identity. He states that; “Does this imply disembodiment? Using the body as an example, we can show that virtualization can’t be reduced to a process of disappearance or dematerialization.” (Lévy, 1998, p. 44).

Disembodiment is definitely not a multiplication of bodies, but more of a dematerialized body. The dictionary definition of the term disembody is; to divest of a body, of corporeal existence, or of reality (*Disembody*, n.d.). These definitions and points of encounters of this terminology, inspired me to create an object that reflects dematerialization of the body as a sensation, as well as the memory of an instance in time which resonates as a sensation. Therefore, the conceptualization of this sculpture embodies sensation of the body without the body, plays with the idea of self-location and presence.

3.3.1 Design Process

This sculpture is an invisible self-portrait, a modeled figure posed in a contemplating pose. I didn't intend it to be in resemblance to me, it is a self-portrait that represents an image of me that is not there, deformed by being erased, dematerialized from within. The modeling process of this sculpture started by researching reference images for the pose and taking photos of myself from different views of the pose. I modeled the sculpture by the help of these images and looking at the figure and anatomy with Nomad Sculpt.



Figure 22 : 3D Model of the Figure, created with Nomad Sculpt, by the author, 2022

In the process of the development of this model into an invisible self-portrait, which must be an ephemeral image I was inspired by Julian Voss-Andreae. The way he uses negative space, emptiness, and how his sculptures capture the essence of reality questions the nature of reality in relation to perception related to me (*Julian Voss-Andreae at Southeast Campus, 2018*). His methodology consists of 3D scanning a live pose model, and using mesh processing algorithms, he processes the 3D scanned model into a meshed structure, creating a wired texture in the form's surface. He 3D prints the structure by dividing it into pieces and uses these 3D printed parts to create molds. In conclusion, he cast these molds in metal such as bronze, then solders them back together to finalize the process. He claims that it is impossible to create detailed meshes and combine them by hand because it is confusing, almost like an impossible puzzle, as he experimented by trying in different materials such as wood and failed (*Julian Voss-Andreae at Southeast Campus, 2018*).



Figure 23 : Poly, 186 x 211 x 117 cm, by Julian Voss-Andreae, 2017

(Poly | Julian Voss-Andreae, n.d.)

His methodology of using mesh algorithms to obtain the effect of invisibility and transparency is adopted. After researching on math patterns in nature, such as fractals, spirals and Voronoi, the cellular structure of the Voronoi pattern matched the design purpose since it is a math pattern that forms a natural dynamic texture. According to my research;

“The Voronoi pattern is defined as a pattern that provides clues to nature's tendency to favor efficiency: such as the nearest neighbor, shortest path, and tightest fit. Each cell in a Voronoi pattern has a seed point. Everything inside a cell is closer to it

than to any other seed. Voronoi patterns can be exemplified as the skin of a giraffe, corn on the cob, honeycombs, foam bubbles, the cells in a leaf, and head of garlic.” (*Math Patterns in Nature*, 2017).

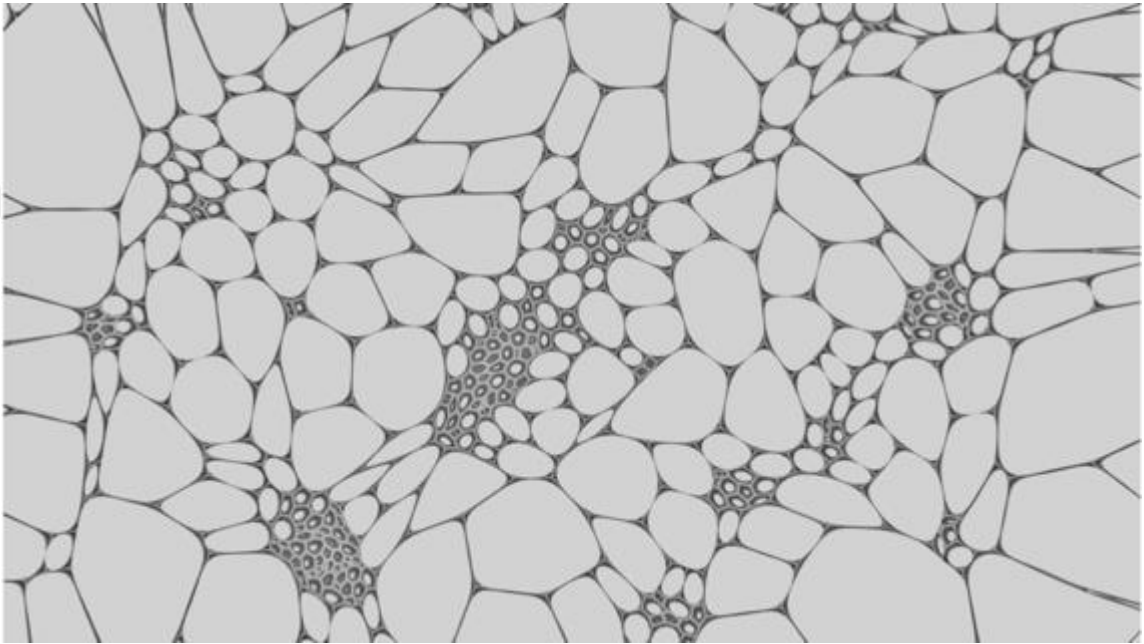


Figure 24 : Example of Voronoi Pattern, Screenshot from website, by the Franklin Institute (*Math Patterns in Nature*, 2017)

Therefore, experimented with software programs; Meshmixer, and Blender to create Voronoi pattern on the digital model. There are texture nodes in Blender that helps you create Voronoi patterns, but the program didn't work as well as Meshmixer with imported models. Therefore, as a result, Meshmixer is used to process the mesh of the sculpture into Voronoi Pattern.

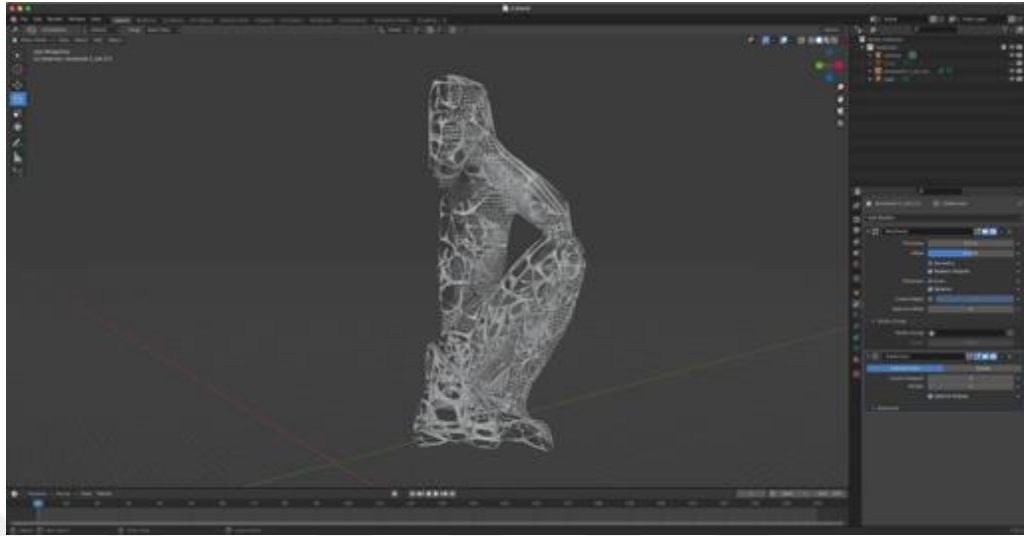


Figure 25 : Screenshot from Blender of Experimenting on Voronoi, by the author, 2022

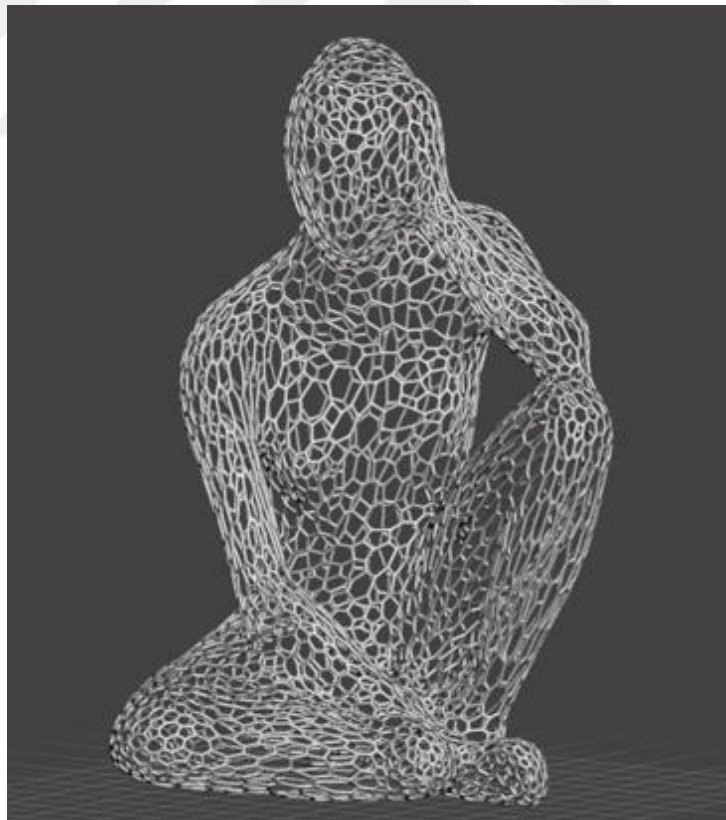


Figure 26 : Final Model of the Sculpture, Screenshot from Meshmixer, by the author, 2022

3.3.2 Production and Post Production of the Disembodiment

The *Disembodiment* is 40 cm at height 22 cm at width, 24 cm in depth, and its pattern structure's thickness is just a few millimeters, making it difficult to 3D print.

There have been two failed attempts and one successful Printing. One of the failed attempts was due to the capacity of the machine, the model was printed smaller, which caused the thin structure to become thinner and fall apart during the printing process.

(see Figure 26) The second failed attempt was to enlarge the model and print the model in pieces, which caused difficulties while assembling in Post-production. The model was not large enough so that the end-points of divided pieces didn't have enough surface to assemble in post-production. The only way to print this sculpture was to use a large 3D printing machine with dual extruder. The dual extruder is a technology that can print two different materials at the same time, which gives the possibility to print the support mechanisms with PVA (PolyVinyl Alcohol), a material that is water-soluble. After the printing process, the sculpture is soaked in the water, so the support units dissolve, breaking from the sculpture smoothly. As a result, the sculpture was printed by Creatbot F430 3D Printer, with PLA filament, in 72 hours at Ostim Teknopark, Ankara.

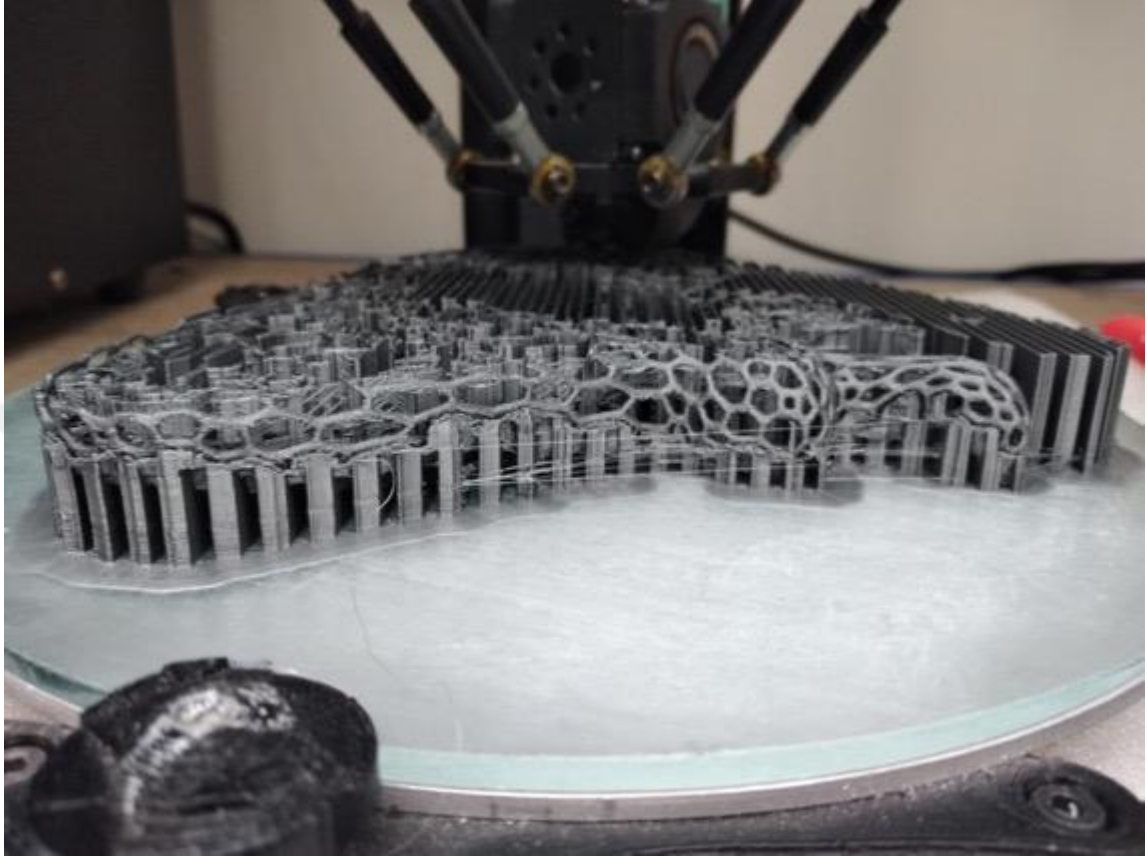


Figure 27 : Documentation of Failed 3D Printing, by the author, 2022

The 3D printed sculpture is never as smooth as expected therefore the post-production phase of the *Disembodiment* consists of a week of sanding the sculpture with manicure and pedicure device. These devices are small and have different tips that are convenient to use to clean the small holes from remaining extra filament. Since this form is very thin and fragile, there were some errors in the print, and some broken pieces in the mesh. In order to fix them 3D pencil is very handy to connect the disconnected, broken parts with the same type of filament and sand them into the same form. The final post-production process was to spray paint the sculpture white and varnish it.



Figure 28 : Documentation Prior to Post-production, by the author, 2022

3.3.3 Documentation

During the Exhibition, the *Disembodiment* was placed on a white stand, lighting was arranged according to the it's shade. The following is the documentation of its Placement at the Exhibition.



Figure 29 : The Captured Image of the *Disembodiment*, by the author, 2022



Figure 30 : The Captured Image of the *Disembodiment* at the exhibition, by the author,

2022



Figure 31 : The Captured Image of the *Disembodiment* at the exhibition, by the author,
2022

3.4 Double

The relationship between what we see and the truth of what is seen is the complex nature of the reality we constantly experience in our lives. This is the hybrid anatomy, the actual and the virtual, the truth of what is seen and what we think we see. This sculpture is based on this question: what constitutes perception and our relation to reality? *Double* is a sculpture based on a distorted perception that I experienced in the Intensive Care Unit corresponding to the post-operation period of the illness. It is the

most vivid illusion experienced in these memories since it is a visual distortion. The visual distortion is caused by the temporary damage of the process regarding how we see. The process of how we see is a complex system of perception that concerns the eyes, the brain, and the mind. 'The eyes' is the information supplier to the brain, 'the brain' is the processor, and 'the mind' constitutes the involvement of self in our seeing, thinking as part of seeing, conscious or subconscious effects on our individual perception, which is inevitably is in relation to memory.

According to Nicholas Mirzoeff, the role of 'the eyes' in seeing involves three unconscious eye movements such as; convergence movements, pursuit movements, and the saccade. Convergence movements direct both eyes to the same place. Pursuit movements track moving objects. Lastly, the saccade is a spontaneous scanning by the eyes that moves from one point to the next. The three types of movement of eyes result to a mental image that we see remains stable because the brain computes it in that way (Mirzoeff, 2016, p. 41). The eyes are not enough to see, and the brain is involved like a processor; it is in motion more like a running machine, computing the mental image. Its efforts are substantial; otherwise our mental image would be incomprehensible, chaotic and very inefficient in relation to our actions. Imagine being aware of every image your eyes coincide with when you move your head from one side to another, how ineffective, how useless it would be to see.

Another constant computation our brain performs to form a stable seeing is combining the visual information received from both eyes. Our eyes individually have a separate field of vision. The optical illusion experienced is because of the effort of the

brain to form a stable image with a damaged field of vision in one of my eyes. The brain used the visual information it received from the saccade movement of the eyes to complete the field of vision. As a result, when a piece of new visual information, in this case when someone enters my field of vision, the environment remained continuous and undistorted, but the person was appearing and disappearing without seeing her point of entrance. This slight change in the process of seeing affected the whole perception and transformed the experience into an illusion, and this consequence was unexpected for me. When doctors warned me about the temporary damage in my field of vision, in my mind, the expected mental image was incomplete in some areas, but this was wrong because the brain cooperated in the situation in a different way.

The sculpture *Double* is a recreation of this illusion; by its name, it implies the damaged function of the brain to form a single field of vision from two fields of vision of the eyes. In addition, it is the double, the mirror image of the sculpture *Disembodiment*, it is a virtual image and a memory. Deleuze underlines the hybridity of the actual particle having its virtual Double, the actual object and its virtual image concluding with Bergsonian thought as follows; “Memory is a virtual image contemporary with the actual object, its double, its ‘mirror image’,...” (Deleuze et al., 2007, p. 150) Finally, the sculpture refers to the hybridity of existence and nature of reality by being there, and not being there.

3.4.1 Design Process

Double is designed based on the same digital model of the sculpture *Disembodiment*; even though the figure is in the same pose, this sculpture is a reflection of exterior perception rather than interior perception compared to the *Disembodiment* sculpture. It is designed to be looked at from a certain point, where it disappears and reappears according to the viewer's movements. It flickers in-between existence. It has its own field of vision, but it is not a field of vision that is interior; therefore the vision is not directed by the sculpture. *Double's* field of vision is exterior, defined by the area for the viewer to look at the sculpture from a certain distance. The idea of slicing the digital model into pieces vertically, and attaching them by parallel to each other, creating an identical gap in between slices to create the disappearing and reappearing effect in the perception of the sculpture was inspired by Julian Voss-Andreae, and his famous disappearing sculptures (see Figure 32).

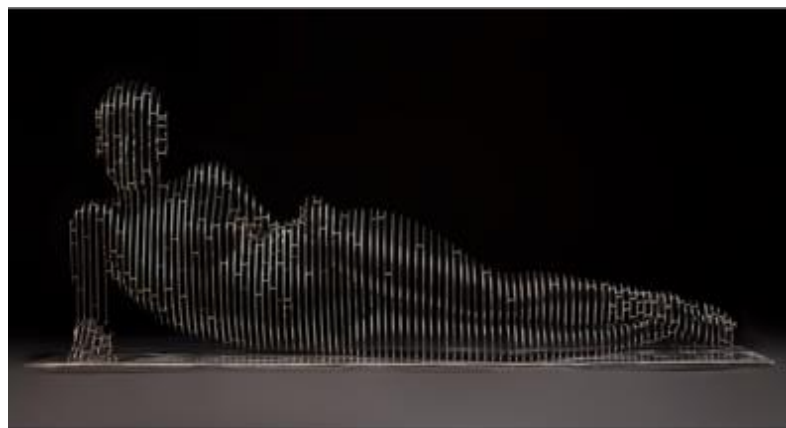


Figure 32 : Reclining Woman (Sphinx), 0.58 x 1.40 x 0.53 m, by Julian Voss-Andreae, 2012 (*Figures 2 / Julian Voss-Andreae, n.d.*)

The Double is a metal sculpture formed by slicing the model vertically and stacking metal sheets in the form of the model according to a certain angle. The reason the material is chosen to be metal is because of metal's reflectivity. The reflectivity of the metal is high, so the light moves on the thickness of each metal sheet, which creates a silver shining that works well for the disappearing effect. The size of the *Double* is designed as equal to the sculpture *Disembodiment*, 40 cm at height 22 cm at the width, and 24 cm in depth. The metal sheets used are 3mm thick, and the gap between each sheet is 10 mm. In order to design the sculpture in correct measurements, the software program Slicer for Fusion 360 is used. This program prepares the sliced sheets for a CNC machine by numbering the slices. Besides, it analyzes the steadiness of the sculpture, and it warns you about unattached, single pieces. The model was imported my model in stl format and used its settings to slice the sculpture automatically. Instead of entering measurements for the gap, the material size is set for 13mm, which equals the total size of the material and the gap. After the slicing process, the connectors were added between the slices and arranged the sculpture, so it was attached with fewer connectors possible. Slicer for Fusion creates the holes for the Placement of the connectors in each slide, as I set their diameter to be 6mm.

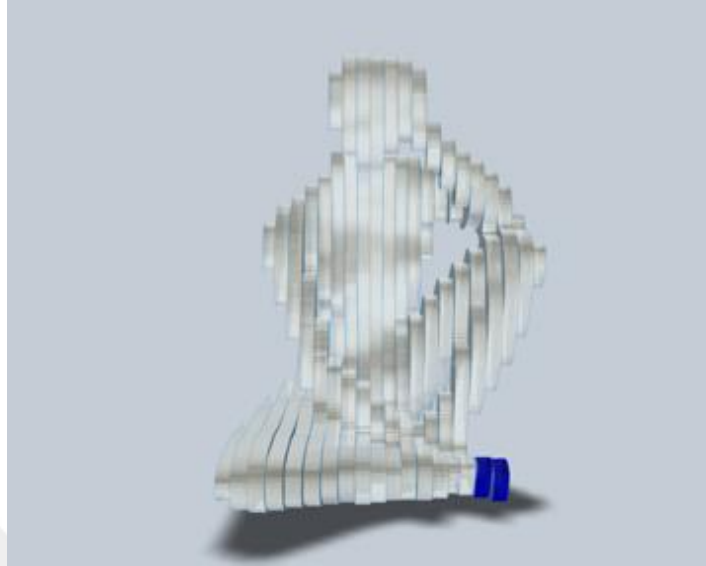


Figure 33 : Screenshot of the Sliced Model, by the author, 2022

3.4.2 Production and Post Production of the Double

The production and post-production phase of the sculpture *Double* consists of CNC cutting the sheets at Ostim Industrial Site, Ankara, and arrangement and attachment of the sheets together. The metal sheets were assembled from the holes with metal pins according to their number as shown below and stabilized. In order to prevent the pins from sticking from the sculpture, each pin was cut to the appropriate measurement to match the length between their individual point of entrance and exit.

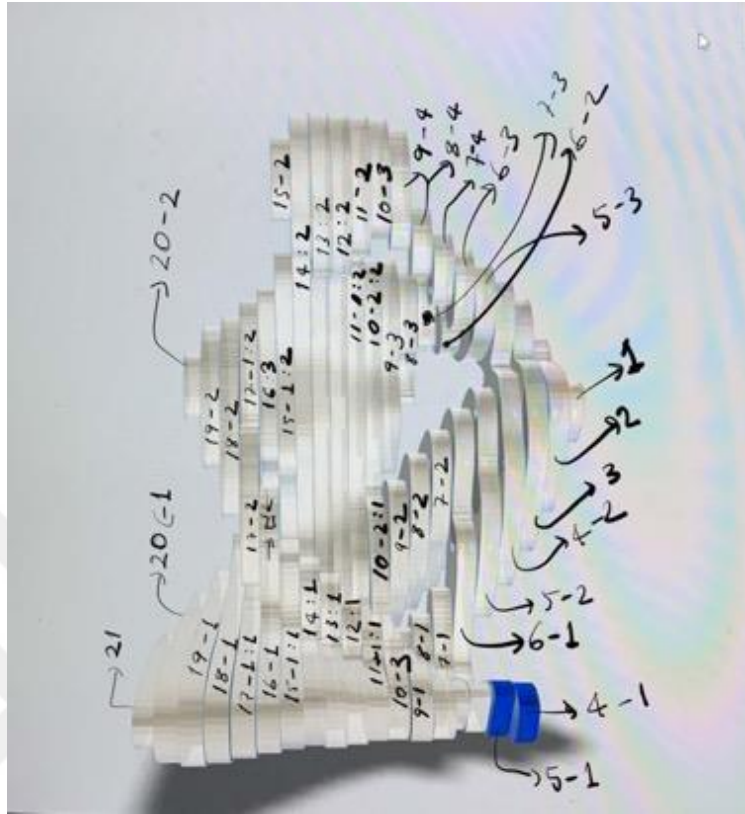


Figure 34 : Numbered Sliced Model, by the author, 2022



Figure 35 : Documentation of the Metal Slices, by the author, 2022

3.4.3 The Placement

The sculpture's idea of Placement was in my mind even before the sculpture existed. The graphic next page belongs to an early presentation of the art project. The direction of the sculpture and the field of vision is marked. Field of vision was one of the

elements that intrigued me and reflected the source of distortion; this is why before the design of the sculpture, I wanted to create a sculpture with a field of vision.

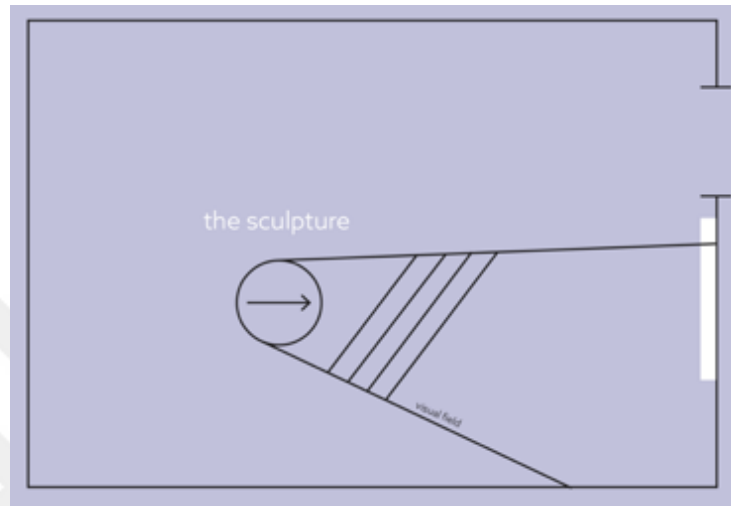


Figure 36 : Initial sketch of the Placement, prior to sculpture's existence, by the author,

2022

During the Exhibition, the sculpture *Double* was placed in the middle of the exhibition space, to enable the viewer to experience its appearance and disappearance as they approach to the sculpture. The effect of the sculpture worked on people who looked at it from a certain distance. Some of the people who visited the exhibit didn't look at the sculpture from a distance and my observation is that they didn't perceive its disappearance, which lowered the effect of the artwork. Finally, the idea of this sculpture being the Double of the Disembodiment, it was placed on a black stand behind the Disembodiment sculpture creating a black and white contrast.

3.4.4 Documentation

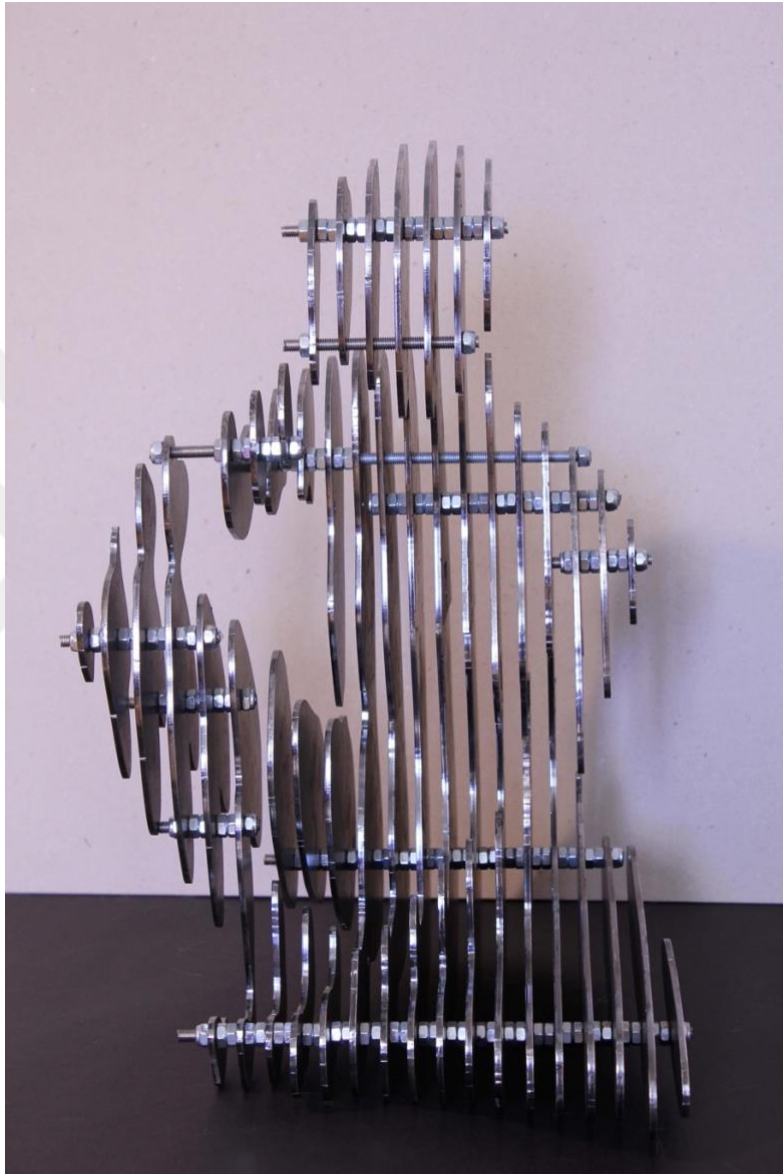


Figure 37 : The Captured Image of *the Double*, by the author, 2022



Figure 38 : The Captured Image of *the Double* Disappearing, by the author, 2022

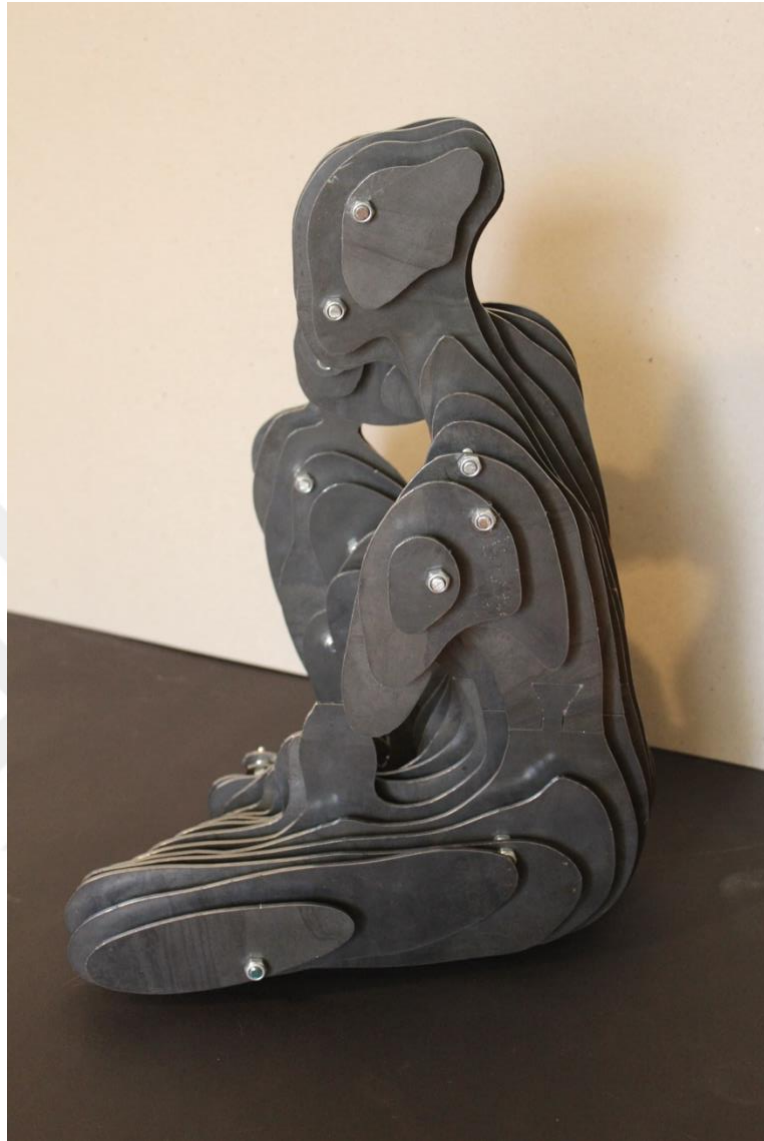


Figure 39 : The Captured Image of *the Double*, by the author, 2022

CHAPTER 4

CONCLUSION

The beginning of this research started with questions; questions on the nature of reality and its hybridity. The motivation came from personal memories of distorted perceptions during a period of illness. The artistic project developed its meaning together with the period of the illness, which caused the conceptualization of the artwork inseparable from scientific knowledge. The conceptual framework and the research project both involve scientific elements such as; MRI technology, neurosciences, and vision. The main dialogue in this research is the motivation to scientifically understand the cause of the distortions and express its effects based on the idea of the self and body. This dialogue created the relationship between the actual and virtual, where every piece relates to the conditions of the actual body as well as the perception, the representation of the self in these

conditions. Together they reflected the intersection of physiology and thoughts.

The research on physiology inspired the concerns and approaches in the creation of the artworks, especially the ways they reflected the looking at the negative, looking inside, the process of seeing and interior bodily perceptions. On the other hand, the field of thought gave meaning to the experiences of the self in relation to body, through the implementation of memory and identity. The body image forms from the frequency of the commonality of a feature perceived by our internal and external perceptions. Our perception is a certain expectancy in our vision, that is developed by our brain. The brain creates this expectancy by evaluating similarities and forming agreements on characteristic properties of any actual object, including ourselves. In the produced artworks core conceptualization of virtuality was based on being there and not being here, dematerialization of the body and invisibility, which defies the characteristic properties of an any actual object. Thus, it provided an unexpected perception referring to the unexpected distortions in my memory. The scientific research on the physiology and the conceptual framework formed the hybrid anatomy, as a play of the actual object and

the expectancy of our perception. It can be restated as reality and the way we perceive reality.

The aesthetical decisions made in the formation of the sculptures and the *Negatoskop* carries a neutral look, which means that they focus on the distorted experiences of the memories rather than their connection to me personally. Even though the sculptures are modeled from my own pose, they gave an objective feeling that they could be anybody. This is the truth about the memories as well; anybody can experience these illusions in a similar condition. This way of objective looking came as an instinct from scientific research, which evolved the sculptures in material and texture. As a result, the Exhibition drew the attention of UNAM, the National Nanotechnology Research Center, Institute of Materials Science and Nanotechnology, in Bilkent University, Ankara. This development is one of the most important outcomes of this research that now I have the chance to collaborate with scientists to produce sculptures for the *UNAM* Building.

They were particularly interested in the design of the *Disembodiment*, and they also interviewed me on the production of the sculptures. They want me to create sculptures for the UNAM building. The sculptures will

reflect UNAM's core values in research. The values of UNAM are imagination, inspiration, challenge, to work, to think and to smile. One of the design decisions we discussed the most with my advisor was the size of the sculptures, instinctually, we knew that they should be life-size, but in terms of production and timely costs, the production of life-size sculptures wasn't possible. This collaboration with the *Nanotechnology Research Center* created an opportunity and a challenge to produce life-size sculptures with 3D printing technologies. There will be adjustments on the design as well, the pose of the figures will be remodeled, and the structure of the mesh will be redesigned according to our collaboration with UNAM. The figures will interact with each other and the space, reflecting the core values of research in UNAM. UNAM associates their core values with organs therefore one of the ideas discussed is to implement organs inside the sculptures. This will be further discussed with scientists as the design of the sculptures evolve. The mesh structure will be configured and redesigned according to the molecular form of the DNA. Therefore, this will be a continuation and development of the methodologies I have learned from this research, such as digital modeling, mesh-processing, and 3D Printing.

The importance of this project to me was its power to communicate with medical doctors. This is because of the way it involves a patient's subjective point of view, expressing feelings and extraordinary instances from the beginning to the end of this illness. It establishes connections between the phases of the illness with feelings and extraordinary perceptions. This will be valuable to understand biological, objective knowledge with feelings. It is also important to me, to understand the change and the effect on my being through the phases of the illness. As a result the gallery room full of these bodies reflected to me as different ways I felt about myself.

Besides collaborating with scientists and continuing my projects, this research and artistic project helped me achieve my personal goals. One of my ambitions in this research was to develop an artistic identity by improving my abilities and implementing techniques to produce from 2D to 3D. The new methodologies and techniques learned and discovered with this research are free-hand 3D digital sculpting, mesh processing, the technology and the process of 3D Printing, and the ways in which we can use CNC cutting. In conclusion, this research is a breakthrough for my

artistic identity in terms of implementing research in my creative process,
improving my art-making abilities, and beginning new challenges.



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APPENDICES

A. ARTIST STATEMENT

I am creating an installation with sculptures that exist in actual and virtual for the Faculty of Bilkent Communication and Design Department and people who are interested in art and technology to evoke feelings of curiosity and to raise questions on hybrid existences around the notion of self. I am studying body and perception because I want to understand and reflect on my memories of my distorted perceptions concerning my body and its relationship with reality.

In my memories, the experience of disembodiment played a huge role and I wanted to reflect this notion of disembodiment by creating meshed and layered figurative sculptures which use the emptiness to create variety in perception. These sculptures are representations of disembodiment as being in-between realities, incomplete and ephemeral. They are designed to be the center of attention for the audience to interact with them, to explore the relationship between their image in virtual space.

In my opinion, the creation of an artwork that brings together the physical and the virtual creates a unique perspective by bringing multiple dimensions of life and the living together, which helps me to complete the reality of contemporary existence, and it is crucial to identify both dimensions of hybrid anatomies. It was also a challenge for me since it forced me to develop my creative skills from 2D to 3D and understand the limitations of both physical/digital spaces and their relationship to each other.

B. ARTIST BIOGRAPHY

Nihal is a multi-media artist and designer, based in Turkey, who is graduated from Mimar Sinan Fine Arts University, Graphic Design Department in 2016. She worked as a graphic designer and art director in agencies and design studios for 3,5 years in Istanbul, where she gained experience in museum/exhibition graphics, and currently works as a freelancer graphic designer. She decided to pursue her career as an artist, moved to Ankara and enrolled to Bilkent University Media and Design MFA Program. Besides her designer identity, through the MFA program she is in the process of discovering her artistic identity by developing her artistic methodology, which currently involves around 3D objects in the context of notion of self and the body.