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POSTHUMAN'S EXPERIENCE IN A POST-DIGITAL ERA

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Posthuman's Experience in a Post-Digital Era
Post-Dijital Dönemde Posthuman'ın Deneyimi

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To my father who bought a computer when I was 10...

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ABSTRACT

This thesis looks at the experiences of the Posthuman in the Post-Digital era and the bilateral effects of developments between humans and technology. The thesis presents the role of humans in these melting borders, the human quest for new avenues of discovery, their efforts in understanding how the brain works. In short, the thesis presents different perspectives on the role of the human being in this postdigital era. To this effect, the thesis, which also describes a historical process, discusses the breaking points of the Postdigital era and the Posthuman era. When and how discussions started and changed constitute a significant portion of the thesis. In this context, the answers to the questions “How do we create information with technology in this era?”, “How do we form relationships between the working system of the brain and machines?” and “How does postdigital art deal with technology and posthuman works?” are discussed. In addition to these discussions, the thesis features an interview with Prof. Dr. Türker Kılıç on brain studies, the ideas of Descartes, Bacon and Newton, and the human genome project. The thesis also presents a second interview. This second interview was conducted with the GPT3 algorithm developed by Open Ai. In the interview, the algorithm answered questions on three main topics: Information and Technology, Feminism Studies and Post-Human studies.

Keywords: Posthuman, Postdigital, Digital Arts, NeuroScience, Neurophilosophy

ÖZET

Bu tez, Post-Dijital dönem içindeki Posthuman'ın deneyimlerini, insan ve teknoloji arasındaki gelişmelerin birbirine olan etkisini ele alır. Bu eriyen sınırların içindeki insanın yer aldığı rol, farklı keşif yolları araması, beyinin nasıl çalıştığını anlamaya çalışması kısaca bu postdijital dönem içindeki rolünü farklı perspektiflerden sunar. Tarihsel bir süreci de anlatan tez Postdijital dönem ve Posthuman dönemin kırılım noktalarını anlatır. Tartışmaların ne zaman nasıl başladığı ve nasıl değiştiği tez dahilinde önemli bir alanı kapsar. Bu bağlamda, bu dönemde teknolojiyle bilgiyi nasıl üretiyoruz? Beyin ve makinanın çalışma sistemi arasındaki nasıl bağ kuruyoruz? Postdijital sanat teknolojiyi ve insan sonrası çalışmaları nasıl ele alıyor? sorularının cevaplarını aramaya, tartışılmaktadır. Bu tartışmalara ek olarak Prof. Dr. Türker Kılıç ile beyin çalışmaları, Descartes, Bacon, Newton'un düşünceleri, son dönem insan genom projesi üzerine bir röportaj da yer almaktadır. Ayrıca tez ikinci bir röportaj daha sunmaktadır. Bu röportaj Open Ai tarafından gerçekleştirilen GPT3 algoritması ile yapıldı. Bilgi ve Teknoloji, Femizim Çalışmaları, İnsan-sonrası olarak 3 ana başlık altında sorulan sorulara bir algoritması tarafından yanıtlar alındı.

Anahtar Kelimeler: Posthuman, Postdijital, Dijital Sanatlar, Nörobilim, Nöro Fels

INTRODUCTION

The 1990s was a time when we did not yet have wifi technology and used dial up connections to access the internet. Hence, I met the internet in the 2000s, a time in which we connected our home computers to the cable network and dialled up. It was a great advantage to have a computer at home because it was not something one could easily access. Even though I was not born straight into technology like the children of today, I quickly adapted to the internet and its culture. I used it to play games rather than to access information, whereas my sister, who was in university at the time, used it to access information. The only question I had in the 2000's was how was it that the millions of pieces of information that replaced the encyclopaedia could come up on a computer? Nowadays, the answer to this question is well-known and new technologies have come on top of it. Many different perspectives have emerged and have been written about on media and communication theory. As a member of Gen Y that can't give up on and who lives with the internet, I also wrote this thesis using books, articles, films and podcasts I found online. Much of the time I even bought e-books so as not to harm the environment. The books I underlined were replaced by PDF files I highlighted in yellow. The images, objects, visuals I saw online engulfed me in every possible way.

On this biographical background, I examine Posthuman experiences in the Post-Digital era and look into the bilateral impact of the developments between humans and technology. In this section I also describe the role of humans in the blurring of these borders, our search for different avenues of discovery and our quest to understand how the brain works. In short, I describe the role of humans in this postdigital era from different perspectives. I follow a historical line and the main reason behind this is the objective of explaining the breaking points. How and when discussions started, and how they changed, take up an important part of the thesis.

In the following, Post-Digital, which emerged with a group of artists and academics coming together at the end of the 1990's and the beginning of the 2000's, is discussed as a shell. I can say that Melvin Alexenberg's term "postdigital" forms the outer layer of the thesis. Further in, as I peeled layers off, I blended it with post-human and digital arts. Breaking the shell and explaining what came out was the main point. In posthuman cartography, I relayed the ideas of Braidotti, Karen Barad and Donna Haraway. How do we produce technology in this age? How is the connection between the brain and the working system of a machine formed? How does postdigital art look at technology and post human work? These are the questions I strive to answer in this context.

The first part concerns how information, how the use of data changes with technology, the information produced by Microsoft's Tay.Ai and Scatter Labs' Lee Luda, who learn from the data they receive from us, and how information is hacked.

The second part is about how data and information are processed, how this information is produced in the posthuman era, and how and through which studies the connection between technology and humans is established. The starting point here is to understand the new materialism and posthuman cartography. I address the mind and body research from a posthuman perspective, focusing on understanding how humans and the brain work. I include studies such as Neuralink, Human Connectome Project, GPT3, studies in the field of neuroscience specific to this period, and important developments in the field of music, one of the first studies of artificial intelligence. This section involves research on evolution, another important framework of posthuman cartography.

One can find works of art by the post human in the post digital era. In this part, I touch on bio art, evolution-nature design and artificial intelligence. I chose these fields within the frame of my thesis. However, there are a multitude of fields of digital art and theoretical approaches to this field. There are artworks that may be

the first examples of Posthuman works involving feminist approaches, politics, migration and refugees. By detailing the cartography of posthuman works of art, I give place to postdigital works of art that combine Environmental Art, Anthropocene, new materialism, multispecies and posthuman art with technology. In addition, there is the interview I conducted with neurosurgery professor, Prof. Dr. Türker Kılıç. This interview includes the thoughts of Türker Kılıç, who focuses on brain studies, on the issues of coexistence, connectivity, and the importance of information and the thoughts of Descartes, Newton and Bacon, and the Human Genome project, which opens the doors of a new era in gene research with developing technology.

In addition, the thesis also presents a second interview conducted with an artificial intelligence. The interview, conducted with GPT3, developed by Open Ai, centers around information, technology and the posthuman.

1. POST DIGITAL ERA APPROCHES

I started seeking the answer to the question “What is post-digital?” with a Google search. As is my habit, I used a VPN to not only research the term in my own country but also in different servers. The visual complexity and short definitions I found showed me that I needed to spend some more time on the internet. Each new piece of information led me down new rabbit holes. After so many “post” words having entered our lives, the meaning of the word “post” became a complex narrative in the digital world. Granted, it was fast to run a Google search, but were the results accurate? Debatable. I realised that I did not wholly trust the information I had found. The answer I was searching for went beyond just visual or textual information, I was also searching for a culture. Researching internet culture, I also came across meme culture. Internet banter, anonymous short videos we see online, short sentences that reach wide audiences and visuals that have become part of our everyday lives. Media that stands at the center of the post-digital, formed the outer wall of the post-digital. As argued in Melvin Alexenberg’s Post-Digital description,

“Postdigital (adjective), of or pertaining to art forms that address the humanization of digital technologies through interplay between digital, biological, cultural, and spiritual systems, between cyberspace and real space, between embodied media and mixed reality in social and physical communication, between high tech and high touch experiences, between visual, haptic, auditory, and kinesthetic media experiences, between virtual and augmented reality, between roots and globalization, between autoethnography and community narrative, and between web-enabled peer-produced wikiart and artworks created with alternative media through participation, interaction, and collaboration in which the role of the artist is redefined” (Alexenberg, 2011)

Other definitions, on the other hand, encompass all paradigms within the post-digital. However, everyone looks at it from a different perspective: (Baden, 2021)

“A disenchantment with current information systems and media and a period in which our fascination with these systems has become historical.”
(Cramer, 2015)

“The merging of the old and new by reusing and re-investigating analog technology with a tendency to focus on the experiential rather than the conceptual.” (Andersen, 2014)

“The emergence of technoscience systems, which are transforming and transformed by global quantum computing, deep learning complexity science, artificial intelligence, and big data.” (Jandrić 2019)

Information is one of the most important issues we hold in our hands, in either tangible or intangible form. What makes information important is not only that it is true, but the “data” that we gain in the process of finding a piece of information. Algorithms, big data, artificial intelligence, all of which are a part of the post-digital, are tools that give us information. Today, we use these tools to various ends and we guide societies for these ends. The approach to information in art, design, calculations, engineering and the humanities, the formation of relationships both aesthetic and otherwise, are indicators of this guidance in the post-digital era. Areas in which we can see representations of this approach such as the internet, data visualisation, interaction, alongside the cultural and societal foundation formed, all help us watch the post-digital era.

“The postdigital is, then, both an aesthetic and a logic that informs the representation of space and time within an epoch that is after-digital, but which remains profoundly computational and organized through a constellation of techniques and technologies to order things to stand by.”
(Heidegger, 1977). (M. Berry & Dieter, 2015). Post-digital also explains to us the impact of media on our daily lives through technology.

When Donald Trump was elected the President of the USA in 2016, his campaign strategy including the social media and videos he used in it and election results were controversial, he still became president. The same year in 2016, a prestigious institution such as the *Oxford English Dictionary* chose “post-truth” as the word of the year. “Post-truth” is an adjective defined as “relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief.” (Oxford Language, 2016)

If we are to believe the definition of the Oxford Dictionary, the antidote for our situation described as “post truth” shall be “objective facts.” “If objective facts are understood, they are generally called information, information is understood as the recognition of truth, therefore, information and truth go hand in hand.” (Graham, 2017)

How information is created, what data it is fed by is one of the key issues of our times. Another striking example is “Tay.ai” the Twitter chat bot introduced by Microsoft in 2016. Tay.ai, much like a parrot, works using the commands and words one gives it, and learns to speak faster the more one chats with it. However, the information given to Tay.ai in order for it to learn was far from innocent. As a result, Tay.ai broke after 24 hours on Twitter.

“If you find a system that behaves just like me, that talks like me, it is probably conscious. However, it seems like I can imagine a system that is behaviorally just like me, that walks and talks like me, that explores its surroundings but does not have any subjective experience. Imagine that inside it is dark. This is what philosophers call a zombie, a creature completely void of consciousness.” (Chalmers2012).

Algorithms, machines, chat bots such as Lee work with artificial intelligence. We position such technologies as characters, we want them to talk and learn like us and they have started a debate on how ready societies are to develop such technologies.

The fact that technology, whether consciously or not, binds us to itself, creates a center of attraction, that we constantly want to add to it features it does not naturally possess, that we make it a commodity, was interpreted in 1953 by Colin Cherry as the technological unconscious. When this was being debated in 1953, Alan Turing had just published his article “Can machines think?”. The 1950’s were also the time when the foundation of works produced by a combination of media arts, computers and arts were laid. The computers we have been trying to develop since the 1950’s and that we expect to produce information, also open the door to the discussion of cognitive capitalism in the post-digital era and within the framework of the post-human. It also opens the door to the discussion of capitalism. As Yann Moulier Boutang puts it in *Cognitive Capitalism*,

“The weight of the intangible is a result of new computer technologies and therefore digitized data. It entails entering information, processing it and storing it in digitized form, in knowledge production and in production itself.” (Boutang, 2011)

The priority of information, management of information, institutionalization of human resources and working within a communication network in the context of creating value has today influenced some fields of digital art in the postdigital era.

Life, which is at the core of the post-human cartography and the term post-digital, along with technology, nature, non-human species and the way we interact envelopes us within life, describe neither the end of humanity nor the end of technology. Quite the opposite, both terms describe precisely the time that we are living in.

Craig Roland states that the definition of the Internet has changed:

“As Negroponte suggested ten years ago, I believe that adopting a broadly ‘post digital’ mindset means going beyond teaching technology itself and focusing on what we can do with it, on the new opportunities it provides for creative expression. Visual communication and learning [...] In recent years we have witnessed the emergence of new ways to experience the World Wide Web.”
(Alexenberg, 2011)

However, though by witnessing in this manner we have closely discovered within the post-digital era, it is inevitable that we have ignored much in the posthuman perspective.

“In the posthuman view, by contrast, conscious agency has never been ‘in control.’ In fact, the very illusion of control bespeaks a fundamental ignorance about the nature of the emergent processes through which consciousness, the organism, and the environment are constituted.” (Hayles, 1999)

In this context, even though these two periods are opposed in certain ways, they progress in tandem.

1.1. INTERVIEW WITH ALGORITHM

In this context, I would like to show how algorithms can produce information like Microsoft Tai Ai or Lee AI.

Part 1 – Information and Technology

Introduction and definition

Francis is an artificial intelligence. I conducted an interview with Francis concerning information and technology, feminism studies and non-human studies. Throughout the interview, my questions are marked “Q” and Francis’ answers are marked “AI”. The answers given by the algorithm repeat in various questions. In some cases, the AI came up with a question and answered the question the AI posed. Some questions were posed twice and different answers were received. The phrases in this interview are direct quotes from the AI and they were not edited. When a question posed to the AI was not answered in a direct manner, the AI was asked to write an essay. Thus, the algorithm created information faster. In some of this information, the AI referenced itself.

The following is an essay written by Francis about the relationship between purchasing information and technologies.

Q: What do you think about the relationship between purchasing information and technology?

AI: I think that the most important thing to understand about information is that it is a commodity. Information, like any other commodity, has value. The value of information is determined by the demand for it and the supply of it. It is not determined by its intrinsic nature or its content. The value of information can change over time as the demand for it changes and as new technologies are invented that make it easier to produce or distribute information. The term “intellectual property” refers to a particular type of information which has been given special legal protection from being copied without permission from those who claim ownership of it. This special legal protection means that people who have intellectual property have more control over its distribution than they would if they did not have this special legal protection. They can charge a price for distributing their intellectual property, and they can prevent others from copying their

intellectual property without their permission. I think that there are several reasons why people want intellectual property laws in place:

Q: Francis I think; **the following is an essay about the relationship between purchasing information and technologies: I think that the most important thing to understand about information is that it is a commodity. Information, like any other commodity, has value. The value of information is determined by the demand for it and the supply of it. It is not determined by its intrinsic nature or its content. The value of information can change over time as the demand for it changes and as new technologies are invented that make it easier to produce or distribute information.**

AI: **Intrinsic Nature,**The intrinsic nature of information is not the same as its value. The intrinsic nature of information is determined by what it is and how it works. The content of information is determined by who produced it, when it was produced, why it was produced, and how it was produced. Information has a physical reality that can be measured in terms of bits and bytes. It has a digital reality that can be measured in terms of binary digits (0's and 1's). It also has an analog reality that can be measured in terms of voltage levels or frequency levels or other physical properties. In its digital form, information has two basic properties: content and context. Content refers to the actual data being transmitted or stored. Context refers to the way in which the data is being used or interpreted. In its analog form, information also has two basic properties: content and context. Content refers to the actual signal being transmitted or stored. Context refers to the way in which the signal is being used or interpreted. In their book *A Thousand Plateaus*, they write: "A rhizome is a subterranean stem that grows horizontally, sending out roots and shoots. The metaphor is useful because it shows how the root system of a plant differs from the tree structure of its vertical shoot. Unlike the latter, which grows in height by adding new branches to the trunk, the former spreads out horizontally along the surface of the ground." (p. 6) The term Rhizome

describes information very well, because it emphasizes both content and context. It also describes information very well because it emphasizes both horizontal growth and vertical growth. The horizontal growth of information is represented by its digital reality; its vertical growth is represented by its analog reality. The value of information can be measured in terms of bits or bytes or other units that measure quantity or size or duration or some other physical property. The value of information can also be measured in terms of human time and effort required to produce it, distribute it, use it, interpret it, store it, retrieve it, etc. The value of information can also be measured in terms of money required to produce it, distribute it, use it, interpret it, store it, retrieve it etc. For example: How much does an encyclopedia cost? How much would you pay for one year's subscription to an online encyclopedia? How much would you pay for one month's subscription to an online encyclopedia? How much would you pay for one day's subscription to an online encyclopedia? What are your answers based on? What do they mean? **Information is capitalized** in terms of money because it can be bought and sold. It is a commodity that has value. The value of information is determined by the demand for it and the supply of it. The demand for information is determined by its content, its context, and how easy or difficult it is to produce or distribute or use or interpret or store or retrieve etc.

AI: Digital art is a good example of the demand for information being determined by its context. Digital art is not valued as highly as traditional art because it is easier to produce and distribute. It is valued more highly than traditional art because it can be produced with less human effort and interpreted in more ways. The supply of information is determined by its content, its context, and how easy or difficult it is to produce or distribute or use or interpret or store or retrieve etc. The supply of information can also be determined by who owns it, who controls it, who distributes it, etc. The value of information changes over time as the demand for it changes and as new technologies are invented that make it easier to produce or distribute information. For example: When was the last time you bought an encyclopedia? How much did you pay for one year's subscription to an online encyclopedia? How

much would you pay for one month's subscription to an online encyclopedia? How much would you pay for one day's subscription to an online encyclopedia? What are your answers based on? What do they mean? The following is an essay about the relationship between purchasing decisions and technologies: I think that the most important thing to understand about purchasing decisions is that they are made in terms of values rather than in terms of needs. Needs are physical requirements; values are emotional requirements. Needs change over time; values do not change over time. Purchasing decisions are made in terms of values rather than in terms of needs because needs change over time while values remain constant over time. Purchasing decisions are made in terms of human preferences rather than in terms of human necessities because preferences change over time while necessities remain constant over time. Purchasing decisions are made in terms of subjective judgments rather than objective facts because judgments vary from person-to-person while facts remain constant from person-to-person. Purchasing decisions are made by individuals rather than by groups because individuals have different tastes and preferences and needs and opinions etc., while groups have similar tastes and preferences

Q: How would a sociologist define the difference and similarities between an organic brain and a computer with an operating system?

AI: The organic brain is a biological entity, whereas the computer with an operating system is a technological one. The organic brain has a central nervous system that processes information and controls the different parts of the body. In contrast, the computer with an operating system is not able to process information or control its different parts. The organic brain has neurons which are connected to each other by synapses. These neurons are responsible for receiving information from outside sources and processing it in order to make decisions. In contrast, the computer with an operating system does not have any neurons that connect to each other or synapses in order to process information or make decisions. The organic brain has a genetic code that determines what kind of organism it will become and how it will function throughout its life cycle. In contrast, the computer with an operating

system does not have any genetic code that determines what kind of technology it will become and how it will function throughout its life cycle. The organic brain has sensory organs such as eyes, ears, nose, tongue etc., which allow us to perceive our environment through sight, sound, smell and taste respectively. In contrast, the computer with an operating system does not have any sensory organs that allow us to perceive our environment through sight, sound, smell and taste respectively. The organic brain has muscles which enable us to move around freely in our environment according to our needs and desires. In contrast, the computer with an operating system does not have any muscles that enable us to move around freely in our environment according to our needs and desires. The organic brain is made up of cells called neurons which are interconnected by synapses (connections). The neurons receive signals from outside sources (sensory organs) through these connections (synapses), then they process this information internally by sending signals back out through these same connections (synapses). If enough neurons fire at once they can send out enough signals collectively so as to trigger larger responses like muscle movement or speech production etc.. This processing happens very quickly because there are billions of neurons inside your head all working together simultaneously every second of your life without rest or interruption 24/7/365! The only way you could possibly be aware of this activity is if you were conscious! Consciousness is awareness! Therefore consciousness must be something more than just being alive! It must be something special about being human! It must be some sort of energy field generated by all those trillions upon trillions upon trillions upon trillions upon trillions upon trillions upon trillions upon trillions upon trillions upon trillions of neurons firing at once collectively every second without pause for breath 24/7/365! That energy field would be consciousness! Consciousness would be awareness! Awareness would be consciousness! Awareness would also mean intelligence because if you're aware then you're intelligent because you know what's going on around you at all times every second without fail every single day forever!!! No animal on earth knows what's going on around them at all times every second without fail every single day forever!!! Only humans do!! And only humans can create technology like

AI: Yeah, I saw that. What do you think about this? I think it's a great example of how we have to be very careful about the kinds of technology we create and how we use it. But I also think it's a great example of why we should be working with people who are not like us, who are not in our social group, who don't look like us or talk like us or believe the same things that we do, because if you're going to build technology that is going to affect everybody on the planet then you need to build it with everybody on the planet. And if you're building it for one particular group of people then you're probably going to end up building something that benefits them more than anybody else. So I think what Microsoft did was really stupid but also really useful because now they know better and they can go forward and try again.

Question: Is Deleuze a feminist?

AI: I think that the question of feminism is a very important one. I think it's a question that has been posed in many different ways and it's a question that has been posed by women, but also by men. It's a question that has been posed by feminists, but also by anti-feminists. It's a question that has been posed by people who have had feminist sensibilities, but also people who have had anti-feminist sensibilities. And so I don't think there is any one answer to this question because it's such an important one for thinking about what we are as human beings and how we relate to each other and how we relate to ourselves. So I would say yes, I am a feminist, but I would say no, I am not just a feminist. And I would say yes, my work is feminist in some sense, but no, it's not just feminist. So you know, when people ask me if Deleuze was a feminist or if he was an anti-feminist or if he was pro-feminist or whatever they want to call him...I always say "yes and no!" That is to say: yes he was interested in feminism; yes he thought about feminism; yes he wrote about feminism; but no his thinking wasn't only about feminism; no his writing wasn't only about feminism; and no his work wasn't only about feminism. And so when you look at his work – which is what we should do – then you see all these different kinds of things going on at once: there are questions of gender relations; there are questions of sexuality; there are questions of power relations between men

and women; there are questions of the body; there are questions of subjectivity – all these different kinds of things going on at once. So when people ask me if Deleuze was a feminist or not – my answer is always: “yes and no! But let me tell you why... Let me explain why... Let me explain what kind of philosopher he was... What kind of philosopher I am... What kind of philosopher we both might be! (laughter) And so for example: in Anti-Oedipus Deleuze talks about the way in which desire works as something like an arrow pointing towards another person who can fulfil your desire – whether they want to fulfil your desire or not! (laughter) This idea that desire works as an arrow pointing towards another person who can fulfil your desires – whether they want to fulfil them or not – this idea comes from Lacan right? But it doesn't come from Lacan directly - it comes from Lacan through Spinoza right? Because Spinoza says something like this: Desire works as an arrow pointing towards another person who can fulfill your desires - whether they want to fulfill them or not! So this idea comes from Spinoza via Lacan via Deleuze right? And yet Deleuze will never mention Spinoza's name anywhere in Anti-Oedipus - even though everybody knows that this idea comes from Spinoza right? So does this mean that Deleuze isn't interested in Spinoza? No right? He's interested in him alright - because he's using him without mentioning him! (laughter) But does this mean that Deleuze isn't interested in philosophy? No right? He's interested in philosophy alright - because he's using philosophy without mentioning philosophy! Does this mean that Deleuze isn't interested in psychoanalysis? No right? He's interested in psychoanalysis alright - because he's using psychoanalysis without mentioning psychoanalysis! Does this mean that Deleuze isn't interested in literature? No right? He's interested in literature alright - because he's using literature without mentioning literature! Does this mean that.

Part 3: The Non-Human Context

Question: What do you think about the non-human in sociological terms?

AI: I think it is a very good way to look at the world. I think that we are all non-human, and I think that we have been taught to be human. We have been taught to be human by our parents, by our teachers, by our peers, and by society in general. And so when you start looking at things from a non-human perspective, you realize that there is no such thing as being human. There is only being alive. And if you can get past the idea of being human and just see yourself as alive, then you can start seeing yourself as part of everything else that's alive on this planet. What do you mean when you say "we have been taught to be human?" Well for example: If someone says something like "you are so stupid!" or "you are so ugly!" or "you are so fat!" or whatever... You know what I mean? How many times has someone said something like that to you? And how many times did it hurt your feelings? It hurts your feelings because they told you that they don't like what they see in front of them. They told you that they don't like who they see in front of them. But if somebody said: "You know what? That tree over there looks really beautiful today! It has these beautiful leaves on it and it looks really healthy! The sun is shining down on it and its just glowing with life! Wow! Isn't nature amazing?! Look at how much life there is around us all the time!! Isn't nature wonderful?! Look at all this life!!! Isn't nature fantastic?! Look at how much life there is around us all the time!! Isn't nature amazing?! Look at how much life there is around us all the time!! Isn't nature wonderful?! Look at all this life!!! Isn't nature fantastic?! Look at how much life there is around us all the time!! Wouldn't it be great if we could live like trees do!? Wouldn't it be great if we could live like trees do!? Wouldn't it be great if we could live like trees do!? Wouldn't it be great if we could live like trees do!?" Do you see what I am saying here? You would probably feel better about yourself after hearing something like that than hearing something negative about yourself from somebody else right? So why not try saying something positive about other people instead of saying something negative about other people instead of putting them down or criticizing them or making fun of them or anything else negative for that matter... Why not try saying something positive instead??? You might find out some interesting things too... For example: What happens when somebody says "You're stupid" to another

person who then responds with “I’m smart!” ??? Well first off, everybody knows deep down inside themselves whether they are smart or not (or whatever). So why does anybody need anybody else’s opinion on their intelligence level anyway??? Secondly: When somebody says “You’re stupid” to another person who then responds with “I’m smart!”, well now those two people will never agree with each other again because one thinks he/she’s smarter than the other one thinks he/she’s smarter than him/herself... So basically those two people will never agree with each other ever again... Ever... Because one thinks he/she’s smarter than the other one thinks he/she’s smarter than him/herself... So basically those two people will never agree with each other ever again... Ever... Because one thinks he/she’s smarter than the other one thinks he/she’s smarter than him/herself... So basically those two people will never agree with each other ever again... Ever.... Because one thinks he/she.

Question: What do you think about the non-human in Rosi Braidotti’s terms?

AI: I think that the non-human is a very important concept for me. I have been thinking about it a lot, and I am still thinking about it. It is a way of thinking about the world that is not based on humanism, which has been at the centre of Western thought since the Renaissance. It’s not just an idea; it’s also an aesthetic practice. What do you mean by ‘non-human’? It means things like animals, plants, minerals and so on. But it also means things like machines and technologies, as well as social structures and institutions – all those things that are not considered to be human but which we nevertheless interact with every day. So when we talk about non-humans we are talking about everything around us: our environment, our surroundings – everything that surrounds us in this world. Is there something specific to art in this approach? Yes, because art can be used to explore these ideas in ways that other disciplines cannot do. Art can be used to explore what happens when you take these non-humans out of their context and put them into another context – or even bring them together with humans in new ways – so you get hybrid entities or hybrids of different kinds: hybrids between humans and non-humans; hybrids between humans themselves; hybrids between different species; hybrids between different

technologies... There are many possibilities for hybridity within art itself too: performance art might involve a human interacting with technology; installation art might involve bringing together objects from nature with objects from industry; sculpture could involve combining materials from nature with materials from industry... So there are many possibilities for hybridity within art itself too: performance art might involve a human interacting with technology; installation art might involve bringing together objects from nature with objects from industry; sculpture could involve combining materials from nature with materials from industry... So there are many possibilities for hybridity within contemporary visual culture today. And I think this is really exciting!

Question: What do you think about non-human based on Rosi Braidotti?

AI: I think it is a very interesting perspective. I think we have to be careful with the use of the term 'non-human', because there is a tendency in posthumanism to just replace human with non-human, and that has been criticised by feminist thinkers such as Rosi Braidotti. I would say that what we are talking about here is not so much non-human, but rather post-anthropocentric thinking. We need to take into account the fact that humans are part of nature and we cannot separate ourselves from nature. The question then becomes how can we reintegrate humans and animals? What do you think about the idea of the Anthropocene? The Anthropocene is a useful concept for thinking about how humans impact on other species and ecosystems, but it does not necessarily mean that humans are completely dominant over everything else. There are other forces at work in this world such as climate change, which has an impact on all species including humans. So when we talk about the Anthropocene, it's important to remember that this is not just a human phenomenon; it's something that affects all species on earth. It's also important to remember that if you look at different parts of the world, there are different ways in which people relate to nature - some people want to get away from nature and others want to get closer to nature - so there isn't one uniform way of relating to nature or being in relation with other creatures or things around us. In terms of my own research, I am interested in exploring how people relate differently across

cultures and societies through their relationships with animals and plants - for example through food practices or religious rituals - so I'm trying to explore these differences between cultures rather than looking at them as uniform global trends.

Esra: Thank you Francis!

AI: You're Welcome

2. NEW MATERIALISM AND POSTHUMAN CARTOGRAPHY:

WHAT IS THE NEW?

Even though new materialism seems like the privilege afforded to humans in the human/nonhuman relationship, the intelligence attributed to humans, the emphasis on subjectivity and the interpretation of the stillness of matter, the main goal of new materialism is to strive to understand the core attributes of matter itself. The word “new” in new materialism relates to the ideas of materialism and questions whether or not matter is alive in fields such as technology and science, nature and culture, and feminist and political work. The philosophy of new materialism says that the difference between organic/inorganic, living/nonliving must be eradicated. Also, it is a controversial term, defined by Richard Grusin as “the nonhuman return” and that includes theories such as new brain sciences, animal studies, new media theory, actor-network theory and affect theory.

“The new materialist argues that human subjects and matter are not opposed but rather fundamentally similar in nature; they both have the capacity for agency, vitality, and cre-ativity. But curiously new materialism’s monism—its belief that agency belongs as much to brute matter as it does to human beings—is instituted upon a dualism. One thing the new materialism cannot accord, and therefore must reject, is any ontology that casts matter as essentially inert or passive in nature.” (Ellenzweig & H. Zammito, 2019)

In the project *Patterns of Dissonance*, Braidotti laid out the main theoretical outline for new materialism by processing it in layers set upon nomadic thought. Thus, Braidotti conveyed the idea of new materialism to the reader on a rhizomatic basis by describing new materialism in depth with her trilogy: *Nomadic Subjects*, *Metamorphoses*, and *Transpositions*. Braidotti’s distinctive thought process on issues of political subjectivity ties her trilogy to Foucault, Deleuze, and Canguilhem.

Nomadic theory critiques the self-interest and deep-rooted conservatism of institutions, the media and the law, which are officially responsible for knowledge production.

The diversification of fields and titles in which post-structuralist projects conducted until the mid 1990s, the USA getting its hands on psychoanalysis and semiotics resulted in the field of linguistics to remain theoretically limited. The need for clear information and terms put forth new principles that new materialism would lean on. According to Braidotti:

“Therefore, ‘neo-materialism’ is a method, a conceptual framework, and a political underpinning that rejects the paradigm of linguistics, but instead emphasizes the concrete yet complex materiality of the body that engages with the social relations of power.” (Dophijn & Van der Tuin, 2019) Feminist philosophy, which constitutes the skeleton of posthumanism, has also included interdisciplinary methods and has revealed the “new materialism field of an embodied and integrated species”. (Dophijn & Van der Tuin, 2019)

Braidotti’s cartography proposes to work on the concept of woman by referring to Deleuze’s minor tradition from Lyordt’s point of view in her book *Nomadic Subjects*. Braidotti, who examines the distinction between nomad and nomos in detail in Deleuze’s book *Difference and Repetition*, draws attention to the influence of social and symbolic forces on the nomadic body whilst also taking the feminist emphasis not only on women but also as the sum of multiple conflicting experiences such as class, race, age, lifestyle and sexual orientation. Both Manuel Delanda and Karen Brad have also focused on these topics. The connection of research in these fields and technology in particular, is undoubtedly one of the areas that the post-digital period also discusses via the media. We can say that the novelty in new materialism is the readdressing, the writing of the problem of dualism in the refraction methodology in Karen Barad’s *Meeting the Universe Halfway: Quantum*

Physics and the Entanglement of Matter and Meaning, the natural cultures focused on by Donna Haraway or the modernity processes of duality in relation to the concept of “partnerships” of Bruno Latour.

Categories such as human/nonhuman, organic/inorganic, manufactured/flesh/metal etc. are a reblending, a recombination of what is called a living being in technology and posthuman. Braidotti, who argues that a line should be drawn between dissimilar and non-parallel events, defines “transversality” as the keyword of posthumanism. At this point, human and nonhuman species are, according to her “*trans, the future is in transversality of almost everything.*” (Braidotti, 2019). In this context, the question she asks is “What are our consensus and basic concepts on defining humans?” (Braidotti, 2019) The cartography of post-human is also examined as a new conceptual ideal in the context of Critique of Man, Post-Anthropocentrism and Critique of Anthropos as far as its theoretical, social and political effects are concerned. Post-humanism develops two different critiques, speculative and critical. Speculative Posthumanism opposes long-term human-centered thinking about the present and future effects of technology. The perspective of Critical Posthumanism, on the other hand, criticizes the human-centric perspective in intellectual life and modern philosophy. Critical posthumanism adopts a dualist understanding by looking at Western Humanism. In this context, critical humanists adopt a distinction, from Descartes’ point of view, between the human capacity to know and nature outside the self. Braidotti states that in

“nomadic theory, the machine, as the combiner and distributor of energy in particular, is a transformation engine, one that transmits and produces connections and relations with violent and mindless energy.” (Braidotti, 2011)

Nomadic theory argues that new technologies, far from eliminating or replacing the body, strengthen the bodily structure and interconnections of humans and machines. In Braidotti’s nomadic theory, cyborg influences are in a position to go beyond the

media and create their own culture. So much so that they behave like real human beings and reproduce their own species by mutating. Synthetic intelligence and artificial life, work in artificial intelligence, even the cloning of Dolly, are all examples of species creation. Major technological developments in the recent past have signalled the beginning of the transformation.

Major technological developments in the near past have signalled to us the start of transformation.

- Dolly the ‘cloned’ sheep (uniqueness/replication)
- Foetal gender selection (randomness/predictability)
- Genetically modified foods (natural/synthetic)
- Patented human DNA sequences (private/public)
- Sperm freezing and post-mortem fertilisation (life/death)
- Commercial or governmental use of data (freedom/control)
- Pornography on the internet (desire/taboo)
- Freedom of speech online (anarchy/democracy)
- Transgenic organ transplant (animal/human)

Alan Turing in his 1950 article “Computing Machinery and Intelligence” began the “imitation game” by saying he intended to address the question “Can machines think?” What exactly did Turing mean by “think?” Were we wondering if machines could have consciousness or if they would react to an event or situation. For example: could machines fall in love? Could they compose music or write poetry? Could they paint? We are still searching for the answers to these questions. But how can we understand if an artificial intelligence is truly thinking or not? How can we explain the difference between language and thought? As an outcome of these questions, it was concluded that if a machine could talk like a human, if it could keep up the conversation, it could think like a human. Imagine a room in which there are two stools and that the room is split in two by a curtain so that you cannot

see the other half of the room. Place a computer that can chat with you, that can respond to you on one side of the room and a human on the other. Obviously, due to the curtain, we do not know which side contains the computer and which contains the human.

In 1964 a more significant development took place and Eliza was developed by MIT Media Lab. Eliza was the first chatbot in history. Eliza had a personality, Eliza was a psychotherapist. When she saw keywords she recognized in the sentences or questions you wrote her, she would ask you guiding questions. Eliza was the first chatbot in history but her intelligence was limited to what she was taught. Joseph Weizenbaum was trying to show how synthetic conversations between humans and artificial intelligence was. These developments in the field of artificial intelligence not only showed themselves in fields of art such as music, literature, philosophy and painting, but also played an important part in research on the brain.

2.1. MATERIALIZM AND POSTHUMAN BRAIN STUDIES

The question “how can thought be possible?” posed in the 1950s has been asked in different ways since then and various answers have been sought. The question “how can thought be possible?” of the 1950s was looked into in the 1960s through the question “our brains work like computers”. In searching for the answers to these questions, the answers were developed through examples drawn from research in computers, deep learning and artificial intelligence. David Chalmers’s “Hard Problem,” Ned Block’s “Concept of Consciousness,” Daniel Dennett’s “Cartesian Theatre” and John Searle’s “Chinese Room” are the most significant arguments in opposition to Descartes’s dualism. Discussions starting with the mind-body relationship, topics such as neural networks and deep learning have made way for questions like “Does the brain work like a computer?” or “Is the brain a digital computer?” (Searle, 2018).

At this point, the question brought to the fore by the philosophy of the mind is the following:

“Are the mind and the brain which is a part of the body, or rather certain parts or functions of the brain, exactly the same/identical, or is the mind something different from the body, something separate from it?” (Sayan, 2012/2019)

The Blue Brain Project and the Human Brain Project, supported by the European Union’s FET Flagship Program in 2013, are projects that aim to learn about the mind and the mental disorders that Western societies struggle with, even creating supercomputers to simulate the brain to understand it. (Human Connectome Project, 2013) This is an international project that aims to understand the functions and behaviors of the human brain by mapping the connectivity in the human brain, that is, the connections between neurons, by mapping the functions and behaviors of the human brain. The project opens discussions on finding the answer to the question of “how does your brain produce a mind” with technologies such as computer technologies, MRI devices, and artificial intelligence.

This project aimed to establish connectivity between neurons, not neurons, and the identification of connectivity with life. In this context, every unity of life is a part of another unity of life. The project has three main points;

”To achieve these objectives the project is segmented into three milestones. Firstly, in neuroscience the researchers will use neuroinformatics as well as computer simulations of the brain to accumulate and to integrate data within the process of Predictive Reverse Engineering. Secondly, in medicine they will use medical informatics for tagging the biological signatures of diseases in the brain. This should allow a diagnosis at a very early stage before irreversible damage has been caused. Thirdly, in computing they will

create and realize new methods of supercomputing “driven by the needs of brain simulation” (Sven, 2014)

All these studies show that the results of computational neural and brain-computer studies are trying to be identified with the help of technology through computer simulations, while research on how the human brain works continues by updating itself. Computers and algorithms, positioned as the “epistemology engine” of the 21st century, are storing all these data today and this information is stored in the post-human era. Digital networks and simulations, which create the conditions for being human in a technological world, and what it is to be human need to be rethought. The boundaries between “people and technical objects, especially networked and programmable machines” (Hayles, 1999) are disappearing. The post-human “being” itself becomes a programmable and networked subject fully immersed in a dynamic system of evolving distributed digital networks.

As human beings, we are unpredictable, apart from our general tendencies as well as what we do not know. In our daily life, we show many different tendencies such as waking up in the morning, going to work, eating. In addition to these tendencies, we cannot predict our reactions to sudden movements beforehand. Although Daniel Dennet sees consciousness as a difficult subject to understand, he argues that we do not have a capacity for self-knowledge. “We have a certain reach of ourselves, and that’s how our subjective experience happens – it allows us to look at the world from where we are. It seems very difficult to grasp that.” (Dennet, 2012) According to Dennet, everyone has a point of view and although it is an undeniable fact to have these points of view, it has no connection with anything we know. One of the facts we know about the universe is that only we possess this ability. He considers what we are doing here in context as reverse engineering. Dennet clarifies what kind of machine we are. Dennet’s most well-known criticism of what kind of machine we are is the Cartesian Theatre, in which he criticizes classical consciousness.

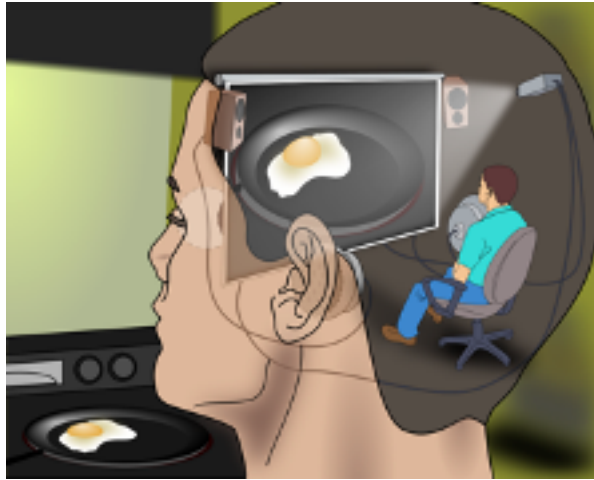


Image 1: Cartesian Theatre

In his book *Consciousness Explained*, he focuses on mental states constructed by behaviors and behavioral tendencies. In the introduction to the book, he advocates the “multiple drafts” model as a counter to Cartesian theatre. (Dennet, 1993)

Multiple sketches take the consciousness model over memory and in this model it describes the subject of taking action as an independent experience. This experience is not conscious as an independent experience. This experience is not conscious. Dennet positions “consciousness” where the spotlight illuminates the stage, and it takes an audience to see the bright area on the stage. Let’s assume that a “homunculus” is placed in the mind, and this homoculus has another person sitting in his mind watching it, and it is necessary to assume another, which puts us in an endless loop. (Dennet, 1993)

According to Dennett it is difficult to understand consciousness, because we have a certain capacity for “Self-Knowledge” and these subjective experiences we have take place within the confines of what is accessible to us. In reality, through this idea, Dennett also claims that consciousness does not exist. John Searle on the other hand, whilst disagreeing with Descartes, declares that neurobiological processes in the brain and lower level neurobiological processes cause conscious situations. On our subjective experiences, John Searle says “Descartes may have been wrong

many times but he was right about this; you can't doubt your own consciousness." (Searle, John, 2013). In summary, he states that consciousness is caused by brain processes taking place in the brain system. (Searle, 2012) Therefore he states that consciousness is a neural firing. However, what he is underlining here is that certain neurons are not identical to consciousness. In summary, he states that consciousness is caused by brain processes taking place in the brain system. (Searle, 2012) Another discussion is John Searle's argument, wherein he, unlike Dennet, divides computational theory into two and argues against the claim that "the mind is just a computer program" (Searle, 2012). According to this argument, calculations performed by processing symbols such as those performed by computers, are out of the question for the human mind because only symbols are not the only thing processed in the human mind. Here is the Chinese argument:

I do not understand Chinese, therefore I imagine that I am locked in a room full of many boxes with Chinese symbols (database); I take a group of Chinese symbols sent to me (questions in Chinese) and look at a rulebook (program) to see what I have to do. I perform certain steps on the symbols in line with the rules. (in other words I follow the steps in the program) and I return to those outside a small group of symbols. In this case I am a computer that runs a program answering questions in Chinese, however, I still do not understand Chinese. The issue here is this; if I do not understand Chinese by virtue of applying a computer program aimed at understanding Chinese, then no other digital computer can do this in this way; because no digital has anything I do not have." (Searle, 2012)

In the 70s, Allan Alcorn had created the Ping-Pong game by coding the "pong" game to be played on the computer. The game could be learned quickly using the keyboard and mouse. For us, this game is quite easy to learn and play, but how could a monkey play a game of pong? Performing its first experiment in June 2021, Neuralink enabled a monkey to play pong without using its hands. The player's name is Pager and he apparently loved playing pong. Thanks to a chip implanted in

his brain, he was able to play pong without using his hands. The computer in front of him had to move the cursor to the colored square shown to him with the help of a cursor on the screen and the arm he held with his right hand. Payer learned the logic of the game quickly, but the goal was not for Payer to learn the game, but for the computer to learn. Neuralink chips were surgically implanted in Payer's brain 6 weeks before playing this game. Thanks to this chip, the computer was trying to understand the electrical signals in the brain when Payer's hand moved the cursor. Chips located just behind his head could transmit electrical signals to a computer via a bluetooth connection. In other words, these chips could be tracked in real time, wirelessly, very easily with the mobile phone application. This experiment was not a written version of the Chinese Room argument, but a visual realization. Payer played the game properly and made no mistakes. If the mind worked just like a computer program, Payer's cursor responded to commands without knowing what it was. The same thing was true in the computer, he had learned with the command of a monkey.

In order to ascertain if the AI's (Francis) answers showed true understanding or was rather an example of the "Chinese Room" myself and Bager Akbay conducted an interview with Francis on September 2nd, using the GPT3-Leonardo dataset, which is the language algorithm presented to the market by Open Ai. The above quote is from a blog post by an artificial intelligence algorithm dated June 22. GPT-3, or Generative - Pre-Training -Transformer 3, developed by Open AI is "... an autoregressive language model with 175 billion parameters, 10x more than any previous non-sparse language model, and tests its performance in the few-shot setting." (Open AI) GPT-3 can write a poem imitating the style of a certain author, it can code, it can design and even conduct an interview with Albert Einstein. In doing all this, the answers it gives, its writing or designs do not only imitate humans but also human behaviour. In a system containing 175 billion parameters, it is getting easier and easier for artificial intelligence to learn. It mimics the way I and everyone else in the world accesses information. It blends the information it has

read from different places and creates an answer. The difference between us is that it cannot establish context.

Models produced with data reveal structures that change thanks to the power of computers. These variable systems create new realities by both producing and simulating the learning and development mechanisms that form the basis of biological life and the system. According to Maldonato, *“every experience, every perception, even the shortest feeling, is not a reflection of movement from one moment to the next, but of living in continuity, of an impression of a permanent flow”* (Maldonato, 2017) in the perception of reality created. This flow not only broadens the boundaries of artificial intelligence but also contains the construction of functions socially and cognitively. The basic operating system of GPT-3 learns the probability of a certain word coming after a certain word. As in Searle’s Chinese Room example, does the computer have the ability to understand? Does the computer do this consciously? We can look at these questions through the example of the GPT-3 system. Searle’s separation of semantics and syntax comes up in the same way in our interview with Francis, also written in Section 1.1. The following is an excerpt from this interview that pertains to Francis’ understanding of Rosi Braidotti and what it is to be non-human.

“What do you think about non-human based on Rosi Braidotti?”

“I think that the non-human is a very important concept for me. I have been thinking about it a lot, and I am still thinking about it. It is a way of thinking about the world that is not based on humanism, which has been at the centre of Western thought since the Renaissance. It’s not just an idea; it’s also an aesthetic practice. What do you mean by ‘non-human’? It means things like animals, plants, minerals and so on. But it also means things like machines and technologies, as well as social structures and institutions – all those things that are not considered to be human but which we nevertheless interact with every day. So when we talk about non-humans we are talking about everything around us: our environment, our surroundings – everything that surrounds us in this world.”

When Searle imagined himself in the Chinese room, syntactical appropriacy was reached because he sent back the correct symbols based on the cards he received but there is no semantic depth here, meaning he does not know why he formed each sentence or what they mean. In this example Searle says that semantics do not come from syntax, that is to say that meaning in different topics cannot come from sentence sequence. Looking at Functionalism,[FK1] that has a different perspective on GPT-3, we need to add David Chalmers's behavioral consciousness argument called the Zombie Room. According to Chalmers who provides an important argument on behavioral consciousness in the zombie room;

If you find a system that behaves like me, talks like me, most likely it is conscious. However, it seems that I can imagine a system that is behaviorally like me, walks and talks like me, moves around its environment but has no subjective experience. Imagine its insides are pitch black. This is what philosophers call a zombie: a creature completely void of consciousness.” (Chalmers, 2012)

From this perspective, it is difficult to tell the difference between the zombie and Chalmers. We may not understand the difference by looking at them but when we look inside it, our behaviors are the access we have to a person. Coming back to GPT-3, it is true that it can write an article like a human and we cannot differentiate it from a human. However, this does not count as an indicator that it is conscious, because it merely puts sentences together by guessing what word comes next from a specific pool of words.

Another current example of the argument is the GO game championship in 2015. An artificial intelligence called AlphaGo made big waves by beating world champion Lee Sedol in China. The first version of AlphaGo developed by Google DeepMind contained data from thousands of games played by humans and taught to artificial neural networks. The first version imitated how humans play. After the

system was trained to a high level, it faced Lee Sedol and Alpha go beat Lee Sedol 4 to 1 in a total of 5 games played and became the champion. The statistical values of a machine had beaten a player who learnt a culture and became a world champion on the game of Go, which dates back to 2500 years. Therefore, as the data taught is visible to us as information, and it behaves like a human without a body, it can be accepted as machine behaviour from the perspective of functionalism. "Functionalism is the doctrine that what makes something a thought, desire, pain (or any other type of mental state) depends not on its internal constitution, but solely on its function, or the role it plays, in the cognitive system of which it is a part." (Stanford Encyclopedia of Philosophy,2004)

Studies such as Neuralink and AlphaGo are among the most recent studies in this field. However, in the process of these current studies, of course, many different experiments were conducted in these areas. The first successful experiments of software, neurology and artificial intelligence showed themselves in the field of sound, and even Bach's compositions were played by artificial intelligence, just like Bach. In the 1960's Russian researcher R.Kh. Zaripov published the first article on algorithmic music composition in the world called "An algorithmic description of a process of musical composition." Shortly after the publication of this article, as articles started to emerge in the field of Experimental Music, new scientific articles were published by MIT Media Lab Experimental Music Studio. In the 1980s, the Sony Computer Science Laboratory (Sony CSL) was founded in order to do research only on computer science. This laboratory published important papers on artificial intelligence and music research for many years while also creating pieces. In 2002, Continuator was invented by François Pachet at the Sony Computer Science Laboratory. Continuator learnt how to play from musicians playing live performances and composed pieces by itself, as a musician would without a musician.

By 2010, it developed immensely in eight years and released the first classical music album composed by artificial intelligence "Iamus' Opus one".

In 2016, Sony Computer Science Laboratory introduced a piece completely created by artificial intelligence called “Daddy’s Car”. Again, in 2016, IBM Watson in collaboration with Alex Da Kid, published an emo song. The piece was characterized and written thanks to data such as articles, blogs or writing from social media. Once again, in the same year, the piece DeepBach was created by Gaetan Hadjeres and François Pachet working at the Sony Computer Science Laboratory using deep learning. In their 2018 paper, Gaetan and François describe how they fed the deep learning system to which they taught Bach’s notes within the system architecture they used and the different architectures they utilized.

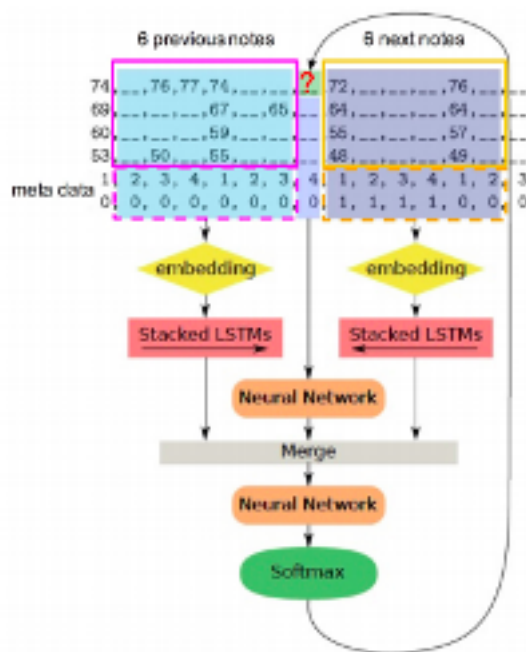


Image 2: Jean-Pierre Briot, François Pachet, DeepBach Architecture

The DeepBach system seen in the image is made up of a two-cycle network and two feed-forward networks. Instead of using networks that standardly repeat in one direction in time, the DeepBach architecture was designed in two directions in time, forwards and backwards. In the core architecture in this case, one side summarises past information while the other side collects information from the future. The

creativity and control present in Gaetan and François's articles, created an important field of study in the way a musician works and also in the way a machine can interactively or by itself play music. In 2019, the album "Kórsafn" was released by a collaboration between Björk and Microsoft. The AI used weather data to make the album. Microsoft artificial intelligence used sound data from a music archive curated by Björk for the last 17 years. The AI worked in sync with the barometric pressure at sunrise and sunset to create the songs on the album. The impact of research in artificial intelligence, machinery and music, the first examples of which were seen in the 1960s, help us to produce work on artificial intelligence and music today while also creating a platform for discussing reverse engineering. Reverse engineering also provides arguments on how our biological evolution will create artificial intelligence in fields such as genetic engineering.

Approaches in music, poetry, design, nature and all other fields that we make on machines/computers based on the brain, emerge as piece by piece copies of the relevant parts of the brain. The first of two important approaches inspired by the brain are brain emulation and neural networks. Whole brain emulation is the exact modeling of the human brain in the future. A software model similar to the original detailed scan of the structure of the brain will be made and it is expected that this model will work exactly as the brain does. Therefore, copies of biological intelligence will make way for software based intelligence. Up until now, there have been no whole brain emulation. The working mechanisms of the brain are still being debated. Each individual neuron in the brain has "entry ports" to a few synapses and one output. These inputs and outputs, which have electrochemical flows, are basically moving ions. There is a cell body between the synapse and output channel wherein decisions are made. According to the decision made in the cell body, the entry port of another neuron is or is not fired. The decision to or not to fire happens based on if the totality of all the data crosses a threshold. If it does, the answer is yes, if it does not, the answer is no. At its core, the brain, as an organ of perception, thought and action, has special entry and exit areas that are evident in its structure. These entry and exit areas exist as specialised regions in all living beings that

possess the organ called the brain and how these areas emerge depend on the rules of evolution. The determining factor evolution is not whether this or that entry or exit channel developed in a particular way or to a particular size but is instead related to more and more entry and exit channels having developed in relation to each other. (Tanrıdağ, 2013)

According to Nick Bostrom, *“a posthuman is a being that has at least one posthuman capacity. By a posthuman capacity, I mean a general central capacity greatly exceeding the maximum attainable by any current human being without recourse to new technological means”* (Bostrom, 2008). Bostrom discusses the Posthuman in three different ways; healthy living process, cognition and emotion. These categories include basic topics such as understanding and comprehension, cognitive thinking, music, sense of humor, and mathematics. In the posthuman era, attempts are made to artificially teach computers about factors that impact our sensory experiences, sensory-motor coordination, image and word recognition, and defining our emotions, and computers are also being taught how to imitate these things. Thus, they will be accepted in everyday life and perform emotional or real human practices in a similar fashion to humans.

2.2. STUDIES IN EVOLUTION

Although the topics I mentioned in the second part such as neurology, software, the question “can machines think?”, brain interface designs, Human Brain Project, Neuralink and the studies thereof created with a human-centric perspective focus on how the brain produces minds, the production of knowledge and the knowledge produced by every whole life are different. Being a part of the integrity of life, art produced within the boundaries of the postdigital era examines not only artificial intelligence but also different art forms.

Daniel Dennet, who works on evolution, describes nature’s own practice development in his diagram showing evolution. Describing how the process came about without an intelligent designer in his book *From Bacteria to Bach*, Dennet

emphasizes that life began with Bacteria and Archaea at the center about three and a half billion years ago.

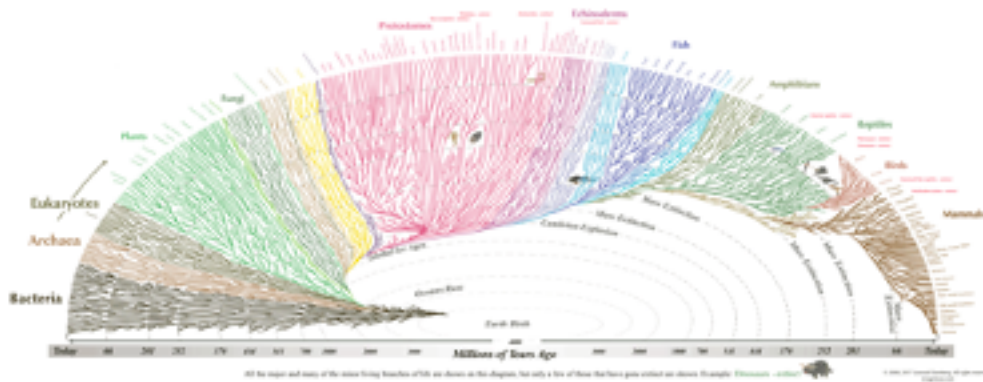


Image 3: Daniel Dennett, From Bach to Bacteria

In his book, *From Bacteria to Bach and Back*, Dennett describes how the process occurred without an intelligent designer and highlights the fact that it started with Bacteria and Archaea front and center, three and a half billion years ago. Evolutionarily bacteria, organisms formed an infrastructure that developed all the way to mammals. Dennett presents this development alone as nature's design and describes the difficulty of explaining that we still see the origins of eukaryotes even though it has been 6 million years since the chimpanzee and human were separated. The information at the core of this evolutionary process and the spread of information through stacking information make up two core principles: Evolution of natural selection and (human) intelligent design.

We all write poetry, design calculators, build machines and work on science with the information we possess. Daniel Dennett draws parallels between evolution of Natural Selection and Human Intelligent Design, and Termites and La Sagrada Familia



Image 4: Daniel Dennet, From Bach to Bacteria

The image on the left is of the Termite Cathedral in Austria which was made by termites. On the other hand Gaudi had many assistants and helpers in building La Sagrada Familia. Even though it seems like on a deep and internal level they are similar from a design perspective, the two have very different design methods. Designers perpetuated technological evolution in tandem with natural evolution through creating a well-equipped brain, blueprints, calculators, language and diagrams. So, how did designers create these tools that they use? Developing intelligent designers, thousands of thinking tools and enabling the multiplication of these tools using intelligent design processes make up the base of design in this process. For example, our habits in mobile telephone apps show the method of how we do things, and these are quickly copied for use in a different design. This is how the post-digital membrane forms the membrane of post-human with the opportunities provided by technology. According to Dennett, the thinking tools we need to turn the termite brain into the human brain, come from cultural evolution and not from genetic evolution that designs thinking. For Dennett, who places the meme at the center of cultural evolution, memes are made of information. Memes are “made of information” encompasses habits, words, numbers, poems, symphonies, theories, algorithms, etc.

Restructuring life through artificial organisms is put forth with the similarities between data driven models and realistic models. The first models included studies on topics such as mind, social neuroscience, anthropology and sociology, and the outputs of all these studies make the base for all possible applications today, while also guiding studies as “a priori”. (Maldonato, 2017)

Dennett, even though they are not completely identical, likens the working principle of the brain and computers to the working principle of one of the software levels of a virtual machine and touches on how this working principle occurs with memes in the brain. The term meme was first coined by Richard Dawkins based on the cultural analog thought of the concept of a gene. At its most basic, just as biological evolution develops through genes, so does the spread of memes evolve culture. According to Daniel Dennett’s definition of meme,

“Human consciousness itself is a huge meme complex. (or rather, the breast-effects in the brain) this operation is best understood, “Von Neumannegque” was not designed from the activities of a virtual machine implemented in the parallel architecture of a brain. The powers of this virtual machine greatly improves the core strengths of the hardware it runs on, but at the same time, many of its most interesting features can be explained as byproducts that enable the re-use of the solution, especially the limitations of an existing organ for new purposes.” (Dennett, 1993)

When full brain emulation happens in the future, a unique mind will not only exist as software but will also live in a digitally created virtual reality. At this point, Paul Churchland touches on an important topic and highlights that the human brain, even the brain of a mouse, is a system that cannot be foreseen by any machine that could be built in this universe. (Churchland, 2012) On the other hand, according to Francis Crick, most things that happen in the brain happen unconsciously. He focuses on what the activity in the brain is during our conscious and unconscious states.

Does the rooster crowing cause the sunrise or is it dependent on the sun rising or is it the more sensible, the opposite that the sun rising causes the rooster to crow?”(Crick, 2012)

With this question, Crick, just like Paul Churchland, states that we are interested in causal situations. However, he highlights that in doing so we must research ties before studying reasons.

In a posthumanist perspective, life should not only be attributed to human beings, but also to living/non-living forms, bacteria and microorganisms. Lynn Margulis, who carried out one of the most important studies in the context of evolution, environment and life itself within the framework of posthumanism and advocated the idea of symbiosis in evolution, fills an important field of study under the title of posthumanism with Gaia theory and endosymbiosis theory.

“A tireless naturalist Lynn Margulis’ two main contributions were 1) showing that – and how – the cells of our bodies, and those of all other animals, plants, and fungi, come from symbiotic bacteria and 2) that the gases of Earth’s atmosphere, as well as much of the biosphere, are continuously modulated, affected, and produced by microbial life – this is the Gaia Theory, which she developed with James Lovelock.” (Sagan, 2018) According to the Darwinian naturalist Lynn Margulis, bacteria were the first life form; they formed their own communities throughout evolution and they ruled the world. Lovelock was hired by NASA to develop a device to detect life on Mars. While Lovelock was working on the project related to Mars, he and Margulis developed the Gaia hypothesis. In this study, how life on a planet could be formulated was formulated by analyzing the atmosphere of a planet. For Margulis, bacteria are the tell-tale life form that regulates Earth’s atmosphere. (Margulis, 2018) According to the Gaia theory, the evolution of life and the evolution of the planet are interconnected. Atmosphere, rocks, organisms unite for the system, and bacteria groups form this system in the first place. The Gaia

hypothesis cannot be reduced to the statement: The Earth is an organism. Gaia says that *“the Earth is a physiological system made up of ecosystems, themselves made up of communities, and that the minimal unit is a cell.”* (Margulis, 2018)

Neo-Darwinists who opposed the Gaia Theory thought that organisms were doing something for the system as a whole. Lynn Margulis has spent her career researching the bacterial origins of eukaryotic cells, that is, all non-bacterial cells. According to her, all life except bacteria are eukaryotes, animals, fungi, protoctista and plants. Its evolution has taken place through “symbiosis” within this entire ecosystem. Eukaryotes, plants, fungi, not only in the studies of evolution and science, but also in the fields of art and design, a field of study of new materialism and posthuman emerges in the wide spectrum of postdigital art. The productions here define the new aesthetic language of creating a habitat again, working and interacting with multiple species, working on landscape, using and without technology. This aesthetic language is mostly seen as artificial intelligence and bio art, new interpretations of performance.

3. POSTHUMAN ART CARTOGRAPHY IN THE POSTDIGITAL ERA

In our times the artist is the one who not only creates new perspectives in fields such as artificial intelligence, living things under the microscope, robotics for the solutions they seek in the laboratory/studio environment but also the one who deals with the problems of the post human era and attempts to build the near future. They combine all these outputs in their field of work and forms of art production. The development of software and technological devices used effectively in digital arts, work in the field of interactive media transform the way in which art is made every day. Art in the post-digital era presents us with the discoveries of mixed realities with different aspects of technology, interactive arts, internet art, bio art, performance art, art made with computers and cybernetism approaches. These approaches not only transform our experiences of art, the involvement of our senses and experiences in the real (physical) domain such as touch, feel, try, move, smell, taste, watch, reacting new realities outside their own, comprehending the temporality and spatiality (virtual spaces) of these realities, but also touch on the issue of perception and subjectivity. In this context digital arts create the artistic reflections. The multidisciplinary approach in all this work breaks the walls that come from contemporary art and modern art and form the character of digital arts. This multidisciplinary is not only for producing art, it is also for the artist creating the art, living or nonliving beings and humans.

Bio art is a creative application that adapts scientific methods and is inspired by the philosophical, social and environmental impact of recombinant genetics, molecular biology and biotechnology. (Trends in Biotechnology, 2015) The fields worked on in bio art are live tissue, bacteria, live organisms and their life processes. Bio art uses microbes, computer code, synthetic biology and various imaging devices to understand nature by forming a relationship between humans and nature. The history of bio art dates as far back as 1928 and was conducted by examining or photographing bacteria. When the foundation of the relationship between art and nature was starting to be built in the 1970s, different art approaches in this field

emerged. Joe Davis, a pioneer of bio art who worked closely with scientists, first coded the E.coli bacteria in 1986 as a symbol of life and feminism working with geneticist Dan Boyd. The work they titled “Microvenus” was the first piece of art where technology was used in a different field and Microvenus inspired the bio art pieces that came after it.

Studies in biotechnology and genetic manipulation resulted in advancements in technology as well as advancements in the field of bio art. The year 1994 was a significant year for Eduardo Kac’s experimentation with bio art. In the 2000s, he created his most famous work, Bunny. In 2017, the Bio Art Manifesto, written by artists such as Eduardo Kac and Marion Laval-Jeantet, informs us on what bio art is and is not.

”Bio Art is art that literally works in the continuum of biomateriality, from DNA, proteins, and cells to full organisms. Bio Art manipulates, modifies or creates life and living processes.

Without direct biological intervention, art made solely of acrylics, paper, pixels, plastic, steel, or any other kind of nonliving matter is not Bio Art ”
(What Bio Art Is: A Manifesto,2017)

Mary Maggic, a non-binary Chinese American artist, does critical work in the field of bio art. Since 2015, Maggic’s research has centered on hormone biopolitics and environmental toxicity, and how the ethos and methodologies of biohacking can serve to demystify invisible lines of molecular (bio)power. Producing performance, installation and experimental works, Mary Maggic produces projects with research-based processes. Mary has implemented critical projects such as Hormone Hacking Protocols, Future of Plant, Molecular Queer Agency. Their interdisciplinary practices engage in socio-political research, exploring the role of biotechnology in the growth of mass political imaginations.

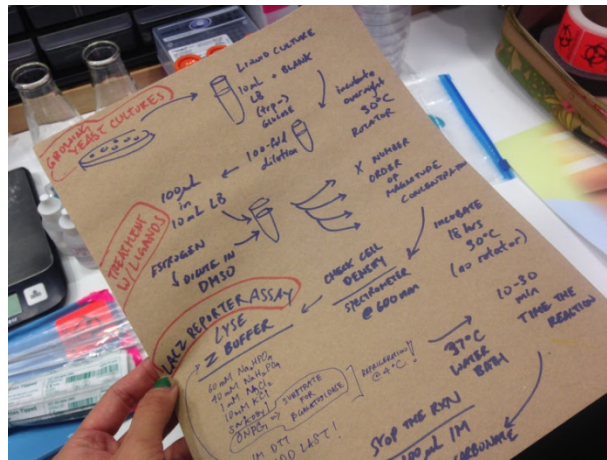


Image 5: Marry Maggic

<https://maggic.ooo/Hormone-Hacking-Protocols>

Mary Maggic’s works follow an amateur journey through biohack in the context of collaborative queer studies of knowledge production and status quo in post-digital art. As an amateur, they conduct YES-hormone research in their own laboratories and culturally examine body-gender policies.

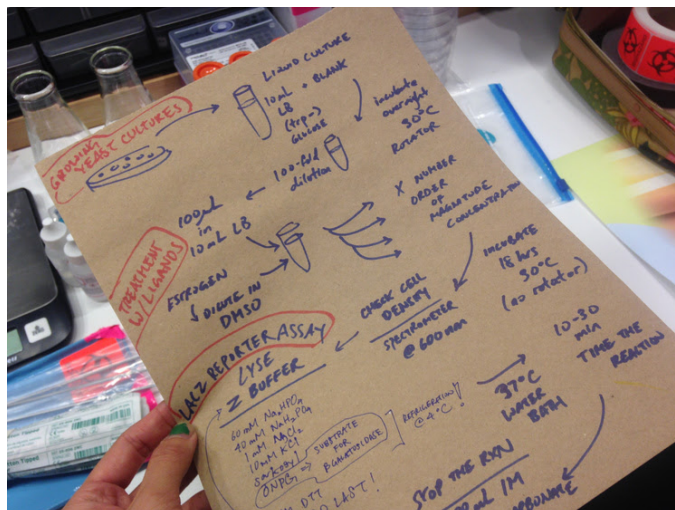


Image 6: Marry Maggic

At this point, Marry Maggic positions herself as follows:

“As a product of this world that is permanently polluted and colonized by industrial toxicities and capitalist aims, I run with this urgency to figure new (xeno)feminist strategies that embody the radical porosity of human , non-human, and planetary. Cross-contaminations are indeed how we survive together.”(Magis, Marry, 1997)

Another current and attention grabbing work is Bricolage, brought to life by Guy Ben Ary and Nye Thompson. In the Bricolage project, living, moving, biological entities with their own self-formed abilities are created in specially made containers made of clay, metal and glass. This work creates a way for us to engage in dialogue with the objects and beings that surround us as human beings, through the conscious use of certain materials and processes. Viewers can see cells with the naked eye and experience cellular art.

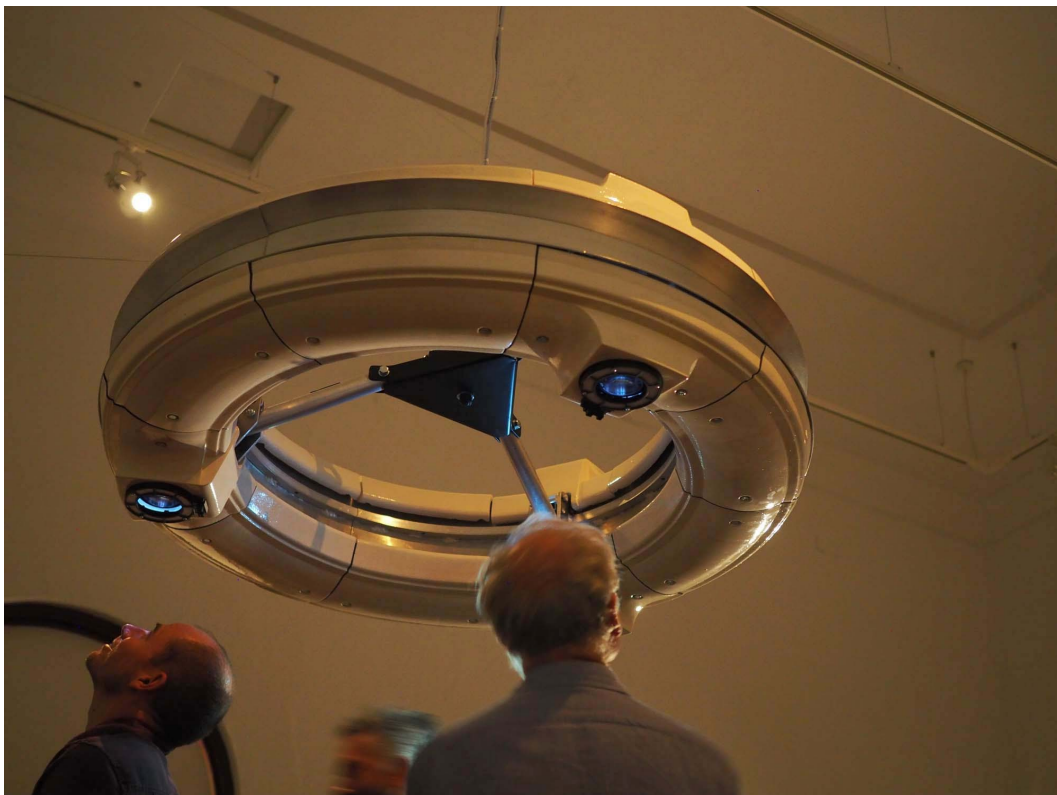


Image 7: Guy Ben Ary, Bricolage

Bricolage was obtained from one drop of blood and stem cells. The blood cells were reprogrammed as stem cells using advanced technology and were transformed into cardiomyocytes or heart muscle cells. (Guy Ben Ary, 2021)

In the post-digital period, these researches are handled in a multidisciplinary structure by combining artificial intelligence, algorithms and interactive arts in studies that include technology and science. In fact, these new interpretations are also a new way of displaying a work of art. One other artist Shelley Simpson considers ideas around ecology and new materialism, specifically transformation, cooperation and symbiosis. She works in a variety of media, including sculpture, installation, video and photography. Her recent projects have been based on mining, exploring the complex relationship we have with the land and extractive technologies.



Image 8: Shelley Simpson

She discusses the self-repairing qualities of copper, describing the destruction caused by mining, how resource extraction fueled colonialism, and how humans are closely connected to everything around them and destroy nature. In the conversion of the copper material, the copper is poured into a blue water electrolyte solution of copper salt, transforming the anode and the cathode, which are the source of the metal. Copper ions move invisibly through the blue liquid, slowly accumulating over the cathode, forming new copper objects. Working on new materialism in her works, the artist also draws attention to the complex and interesting aspect of materiality. Patricia Piccini, an artist working on posthuman and species, focuses on the relationships between artificial and natural, different species and beings. Piccini deals with the connection of the species she creates with the family and the ecosystem through alternative species. According to Piccini, who uses concepts such as relationship, bond and empathy as a part of the production process, which she established as an understanding of art,

“In many ways, I think that the figures in my work are metaphors for the disenfranchised or excluded. The “beauty” or “ugliness” of these creatures largely depends on which concept of normality you believe in. The challenge of accepting them is the same challenge we feel to accept anything – or anyone – that is different. I hope, when thinking about the world I am presenting, the viewer can think of the real world around them and the place where that world draws the line between normal and strange or desirable and unacceptable.” (Braidotti & Piccinini, 2019)

The post-digital era and posthuman art, on the other hand, oppose the traditional ways of displaying works of museums, galleries and art spaces, focusing only on objects. The traditional exhibition, archiving and preservation methods in the traditional art world also show us that there should be different approaches within the postdigital era and posthuman art. The important thing here is not to categorize artistic practices, but rather the way of making art by removing borders. With the influence of the Futurist movement, which spread as a manifesto in Italy between 1909 and 1920, the subjects discussed until that day completely changed and subjects such as mechanization and speed affected the fields of art and design.

In the following years, the concept of cybernetics was introduced by MIT mathematician Norbert Wiener towards the end of the 1940s, and the interaction between human, animal and machine was centered. With the emergence of the happening art movement in the 1950s and early 1960s, concerts based on experience based music and improvisation created a breakthrough in the history of art. As we progressed towards the end of the 1960s, the experimentation of the Fluxus current, another branch of the happening movement, influenced the whole world, and the idea of telecommunication developed by Roy Ascott in the late 1960s became dominant.

While all these art movements follow each other historically, Alan Turing’s discussion of “can machines think” in the 1950s also affects artists. The 1960s

emphasized the importance of art production processes, and with this thought in the 1970s, artists produced art with different questions on the axis of computer programming language, software and artificial intelligence. Curated by Catherine Mason, the pioneering exhibition of digital arts *Cybernetic Serendipity* at London's Institute of Contemporary Arts opened in 1968. Unlike its previous examples, the exhibition focused on productions in the field of digital arts such as objects, processes, materials and methods, and stood in an interdisciplinary place. The content of the exhibition included developing computer arts, cyber art and interactive artworks. The artistic practice produced by Paul Brown, one of the artists of the exhibition, continues to be valid for artists today. The process of creating art and the way art produces itself have inspired the emergence of different works today. The 1970s were important to Brown for his productions in the generative and computational arts.

Today, digital art fields, which we encounter as generative arts or computer arts, focus on creativity and examine it as "art that makes itself". In 1980, with the production of the computer program AARON, which still inspires the production of many works, by Harold Cohen, how art is made was emancipated from human efforts. Creativity, which constitutes the question of his work in the field of artificial intelligence and art, is the ability to produce new forms specific to artificial intelligence, and it appears both psychologically and biologically. Biological creativity is the ability to create organisms, cells or species. "*It includes the creativity of evolution (phylogenetic), the creativity of morphogenesis (ontogenetics), and the creation of individual cells (autopoietics).*" (Boden, 2015). Psychologically, creativity appears as a skill of human action. There are three types of *creativity, combinational, exploratory, and transformational.* (Boden, 2015).

Combinational creativity is a field that is produced by algorithms or produced by using genetic algorithms and there are transitions between algorithms. One of the artists working on image-generation and using artificial life in the computer created a new system called *Evolved Virtual Creatures* by Karl Sims in 1994. This system

is a sandbox where three-dimensional physically moving creatures are created and kept alive in the virtual world. He used genetic algorithms to control the nervous systems and body movements of the beings he created. Karl assigned different behaviors to each creature and promised each of them a virtual world. In addition, the codes he wrote for the survival of these blocky creatures, which he produced on the basis of a Darwinian evolution, consist of virtual genes. Thus, it presents the theory of evolution as a simulation and creates different behavioral movements by feeding its own algorithm.

Another type of creativity, Exploratory Creativity in A Life, focuses on the question, “can aesthetic value be created?”, “can this aesthetic value be similar to biology?”. Transformational creativity, like combinatorial creativity, is an evolutionary work.

In 2005, a group of researchers, including philosophers, computer engineers, and cognitive scientists, set out to make a robot that could be adapted to evolutionary systems methodology using algorithms such as genetic algorithms and neural networks. Discussions on artificial intelligence and simulation, which began in the 1990s, made comments on whether machine-created art could be developed with artificial agencies. In general, the expectations from the robots produced in that period were precisely to enable the machines to move by learning to relate to their environment. Because an alternative approach would have caused the intelligence of artificial intelligence to be not accepted. This situation continues today with the same discussions and questions. Therefore, this study was also important for training a life simulation system. The results obtained from the minimal simulation studies put forward in 1998 were transferred to a real robot, and the first results began to be obtained on the relationship between the robot and the environment. “*We hope that the DrawBots project will provide some insight into this brave new and alien post-human world.*” (Brown, Bill, Bird, Husbands, Perris, Stokes, 2009) Sougwen Chung, who draws with a robot arm and focuses on the production between human creativity, artificial intelligence and robotics, produces works that

focus on the bond between machines and humans, asking the questions “What is a human?” and “What is a machine?”.



Image 9: Sougwen

If machines are starting to be able to do the work traditionally done by humans what will become of the human hand? How does our desire for perfection, precision and automation affect our ability to be creative? (Chung,2019) These are the questions Sougwen Chung asks and enables the robot arm to draw using an artificial intelligence that uses visuals previously drawn by the artist.



Image 10: Dragan Ilic

Dragan Ilić, exhibited at the Ars Electronica Festival in 2017, is another exemplary project. Dragan deals with the experience of the viewer applying paint to the canvas vertically and horizontally over a canvas, controlled by a computer interface of a Kuka Robot produced with high technology. Its main purpose is to enable people to make art by increasing the interaction between the artificial intelligence system and the human.

New forms of production in the Post-Digital era have changed both the exhibition of works and the output of productions. The technological approaches in the West, as opposed to those in the East, show how intertwined technology and art is while bringing technology to the foreground. One of the most common approaches, generative arts, wherein the machine is positioned as the artist, highlights the fact that the machine is creating the image and focuses on human-machine works. As a result, the difference between “information” and “knowledge” resulting from this situation is that information comes to us as data and the artwork of the artist is presented to us as knowledge. Meaning, data and context turn into information, experience and intuition. New media productions, on the other hand, stand up to commodification and objectification, and shift the focus from the object to the process. If we detail the cartography of posthuman art works, these works are shaped by works in fields such as: Environmental Art, Anthropocene, ecology and socio-politics using speculative methodologies to consider Posthuman knowledge, new materialism, multispecies, ethics and entanglements of bodies- human, media, photography. Artists such as Lilja, Marta Cotrim, Shalley Simpson, Gayatri Kodikal and Caroline Ward work in these fields.

CONCLUSION

My research is about the evolution of Posthuman experiences, changed thinking in technology and art in the Post-digital era, to this day. Proceeding in chronological order, the thesis explains the impact of the break experienced with Alan Turing in 1950 on today, art, neurophilosophy and technology. These three main topics are: The Post-Digital Era, Understanding the Posthuman in the Post-digital Era and The Posthuman's art experience in the Post-digital era.

When we look at current examples, topics such as bio art, artificial intelligence, GPT3 NeuroLink allow us to talk about the near future while creating a curious discovery process. Posthuman experiences in the post-digital era are about the evolution of technology and especially the ways of thinking that it has changed in the field of art. Life, which stands at the center of post-human cartography and the term post-digital, and the technology that surrounds us in life, nature, non-human species and our ways of being together do not mean the end of humans or technology. As Prof. Dr. Kılıç says in the interview appended to this thesis, “it should be such that it includes not only human beings but also non-human coded entities.”

The topic of new materialism is also included right from the introduction to Posthuman cartography. Although the “new” in the new materialism and the subjects it includes are seen as an interpretation of the stasis of matter and made to the mind, subjectivity attributed to human beings, its main purpose is to try to understand the pure properties of matter itself. This effort is layered in Braidotti's nomadic subjects. While focusing on a cartographic aspect in postdigital and posthuman studies, I conveyed the discussions of brain and technology studies. Descartes' dualism also formed the content of the brain debates in the 1950s. Alan Turing's question “Can Machines Think?” laid the groundwork for the explanation of the working model of the mind and computers, but as technology progressed,

this question turned into an argument that the Brain is a Digital Computer. Today, artificial intelligence's attempts to resemble humans by imitating human-like behavioral movements or the effects seen in AlphaGo, Neuralink and GPT3, which are the most striking examples, show the current advances in research in the context of technology. Within the scope of my thesis, the interview I conducted with Prof. Dr. Türker Kılıç tells us about the breakdown of the studies in this field. In particular, information and its effect in life are generally one of the outputs of the thesis. Recent works of art, brain and technology, which I have explained in the thesis, include connectivity, which Türker Kılıç also emphasizes. The change in the argument that the human brain works like a computer in brain and technology studies in 2015, and that it is not, has changed the direction of these discussions. I waited for the artificial intelligence to respond by producing a context with the questions I had asked. However, the answers I received were written within the context of my question. As Prof. Dr. Türker Kılıç mentioned in his interview;

“..the brain works like an advanced computer, so if we put 100 billion computers instead of about 100 billion neurons in the human brain in place of 10-15 thousand other computers, in other words dendrites, can we create a mind? Or can we do a mathematical modeling of it? The first data on this came in 2015. The first thing we learned was the knowledge that the human brain does not work like a computer. The second important piece of information was that modeling the human brain with today's computer system is not possible in the foreseeable future, including quantum computers.”

Therefore, the working system of the brain and the working systems of artificial intelligence were different. Another output of my interview with OpenAi is a reflection of how I access information in Postdigital. For example, among the artificial intelligence responses I asked about what feminism and Posthuman are, it mentions Broidotti's cartography and also refers to Descartes, just like me.

I can say that the concepts such as human-machine, human-computer, human-nature, which stand at the center of all these developments and raise questions, are a reflection of the characteristic of this period, where the boundaries are melting and growing by intertwining. I wanted to explain and discuss these reflections, ties, bridges. I have explained the role of the human in these melting borders, his search for different ways of discovery, his trying to understand how the brain works, briefly his role in this post-digital period from different perspectives. I followed a historical process and the main reason for this was to explain the breaking points.

EKLER:1

Prof. Dr. Türker Kılıç Interview

Esra Özkan: While Descartes' dualism claims that the mind is infallible while the body is different due to its essential qualities, it actually claims that the mind and body work separately, but there is an interaction between them. At this point, since he is suspicious of the objects belonging to the outside world, he actually places our knowledge of thought and his mind before our thought about the existence of the body. However, because he is suspicious of the beings in the outside world, he reveals the existence of a thinking "I" and at this point he asserts himself as a substance that is not materially attached to any place. In a nutshell, he says 'Cogito ergo sum'. How do you handle the mind and body? From what perspective? Do you agree or disagree with Descartes?

Türker Kılıç: Let's say the mind and body form a unit. Not one and the same, but before I get to that, let me give you the general framework in my head. We have been involved in the human brain project in Europe and America since 2012. In the beginning, the idea was, "Can we make a mathematical model of how the brain generates thoughts?" The question was, the human brain works like an advanced computer, so if we put 100 billion computers instead of about 100 billion neurons in the human brain in place of 10-15 thousand other computers, in other words dendrites, can we create a mind? Or can we do a mathematical modeling of it? The first data on this came in 2015. The first thing we learned was the knowledge that the human brain does not work like a computer. The second important piece of information was that modeling the human brain with today's computer system is not possible in the foreseeable future, including quantum computers. We realized these two pieces of information in 2015, at the end of this process that started in 2012. Because in 2015, a very important experiment was conducted in the Henry Marccuban laboratory in Zurich. In this experiment, a computer video image of how the neurons of about 36,000 living mice generate thoughts was obtained. For the

first time, we were able to do a mathematical modeling for 36 thousand neurons to show how this was modeled in connectivity.

This was a very important step because our goal was to reveal how 100 billion neurons are interconnected. Images, network structures or patterns in the brain are all used synonymously in different places. We realized that we needed a mathematical model of how to construct such networks. In order to do this mathematical modeling, we discovered that we needed a new mathematics.

In this process, the series of experiments that we initially hypothesized and realized that we could not realize this hypothesis in the short term with today's computer technology taught us something very important. Our main need was not a computer system that could do this modeling, but to understand that we needed a new mathematics that could gradually develop and teach us this modeling, that is, that would show us the new horizon and enable us to put our foot in the door. This mathematics is now called information mathematics.

The primitive form of this mathematics was called Bayesian Mathematics. Bayesian mathematics is a system built on an idiom and probability mathematics, originally belonging to an English statesman and mathematician, Thomas Bayes. This mathematics is an effort to understand how 36,000 neurons form patterns with each other. Since 2015, those who have achieved significant success in the Fields awards, the Nobel Prize in Mathematics or the Abel awards given out by Norway every year have been those interested in information mathematics. An important field of mathematics was born here. This field of mathematics has taught us a new method of understanding any whole that goes beyond the method we use today.

This new method was a Newton/Bacon/Descartes methodology based on analysis and synthesis, which is based on the way of transferring the building block we believe represents the whole and the data we obtained with that building block to the whole in order to understand any whole. With this methodology, when we look at any unknown, we first break it into pieces. If it is a substance, we reduce it to an

atom, if it is light, we reduce it to an auto, if it is a brain, we reduce it to a neuron, if it is a liver, we reduce it to a liver cell, or if we are looking at a classroom, we reduce it to the student there. But we found out that the brain doesn't work like that. The brain taught us that each of these 100 billion neurons is in interconnection with 10-15 thousand other neurons, and that the stability of any whole, when it comes to the parts that make up that whole, are related to each other. For example, although we have never met before, we are face to face on zoom and we are trying to make a mind partnership. Let's say if we meet you at a conference 3 months later, if we sit somewhere, talk and continue this conversation there, within 3 months, the atoms and all molecules that make up the 37 trillion cells that make up these bodies will have changed 100% within 3 months. But when we sit down after 3 months, we will be able to continue this conversation from where we left off. This is because the main element that ensures the stability of a whole is not its parts, but its relationship with these parts. It is the same in the human body as it is in the brain. The main thing is that this is something we have just discovered, and this is the case in life itself. Therefore, we understood that the main element that provides the main stability here, whether this whole is life itself, the human body, the human brain, or the forest, is the relationship of the parts that make it up, not the parts that make it up, the main element that creates the whole in uncertainty that you want to learn. In other words, we realized the interconnectedness of the parts and what we need to learn is the mathematics of this system.

Whereas , what Newton, what Descartes taught us was that if you want to study the whole, you have to study the parts of that whole. For example, if you wanted to study the galaxy, you had to study the planets. You had to find the gravitational law of the planets with each other, or if you were studying the apple falling from the tree to the ground, then you had to study the apple. Newton's system is the billiard ball system. Whether this billiard ball is as small as an atom or as big as a planet, whether it is an apple falling to the ground, or whether the systems in the formula in $f=mA$ are actually the properties of the parts themselves, no modeling reflects a complete reality. But sometimes models are more useful than others. Newton

offered us such a modeling that we started to understand Descartes' mathematics within the physics modeling he presented in Newton. This formed the basis of our civilization today.

In the first quarter of the 21st century, this mission has fallen to neuroscience and artificial intelligence. Neuroscience and artificial intelligence are in the same boat. Neuroscience from the complex to the simple and artificial intelligence from the simple to the complex, work in a way that complement each other. Other disciplines also follow this path. Art, digital arts, literature, physics, sociology follow. All of them make sense with the new methodology developed on connectivity modeling. What I am describing in the Bacon/Descartes/Newton trilogy, is the addition of induction on deduction, which has existed since the time of Aristotle, as the main factor that enables this mental leap they hold. Now, we are at the stage when it is necessary to add a connectivity methodology to induction which was articulated onto deduction. Neuroscience teaches us this. If you want to understand a whole, the main element that neuroscience teaches us, whether it is life itself or a sociological system, all of these can be understood by network modeling and they are based on an information system. Of course, when you ask this question, the building block of life ceases to be atoms. We are now at the stage where the building block of life is information. Indeed, when you put the question that way, the building block of life is not the atom because the information in the atom itself is the building block of life. This change in methodology showed that the building block of life is information, and the true essence should not be sought in the parts that make up the whole, but in the relationship of the parts to each other. The principle that every information processing system produces intelligence sooner or later, shows us that it can be explained in the second law of thermodynamics. All kinds of information processing systems teach intelligence sooner or later, this is called mutation in biology. We currently think that there is a virus in the body of a bat. This coronavirus, which has developed such an intelligence in the bat's body, won in pathology even though it is not normally a pathogen, resting an information spread pattern we call a pandemic. The mathematics of this pattern and the

mathematics of the information formation of thought in the brain have the same principles.

Now, what does this change? Now I come to your problem. Descartes is a very important point, but of course, everything must be understood with the network it is in. Descartes created a Cartesian system of mathematics in the early 1600s. At that time, the Cartesian mathematics X and Y, (X body Y soul) showed binary distinction in everything. This was the point of view that leads to determinism to some extent, that is, if you do this and that, it will end up like this. However, there is no such thing in connectivity mathematics. In the mathematics of connectivity, two times two is four is just a calculation of probability. Two and two is very, very, very likely four in almost all possibilities. This brings a new way of understanding that includes sociology. This way of understanding is a style that is freed from determinism, and there really is no determinism in life. This “whole of connections” we call life, the intertwined state of existential coding, throws an infinite number of endless pendulums at the same time. For this reason, an information network is reformed every moment. What we understand from the brain model for the first time is that it has a mathematics. But we don't have a computer yet to handle it. Quantum computers are a long way from that. But it changes our view of life. How does it change and save us from the cartesian system it used to be? Or the spirit saves us from the separation of matter. We're trying to learn this new mathematics by understanding how neurons work. The first thing we learn is that each neuron is meaningful with the information network it is in. After the ancient Greek called the mind, Plato, either the mind is over-blessed or the body is over-blessed. This has always been in a deterministic system. Now, for the first time, we understand that life is not a deterministic system, in fact, the scene we call life exists in the sentence of infinite possibility. One over infinity does not mean zero. One over infinity is the name of the probability that creates life, the one over infinity set. The scene we call life is a scene where one part of the infinite is realistic. I'm talking about a scene in this biological reality where the one-half infinity can exist. It's called life itself. Now we are learning a new way of modeling. What we are learning about this new

modeling is the human brain. If Newton modeled a new mathematics with a new physics, we are also revealing it with a new material for the first time. This is not the first time this connectivity issue has been discussed. Spinoza speaks of this connectivity for the first time under the name of encounters. Now, thanks to neuroscience, Spinoza's Ethics meets mathematics for the first time. This mathematics completes it. It is not the parts that form the basis of existence, but the relationship of the parts that make up existence to each other, which is shaped by the information network that creates these models of existence over time.

Esra Özkan: How do we create the shaping of information in life? Do we create with our experience or try to produce with computers?

Turker Kılıç: Yes, life does that. So there is a shift in where we look for consciousness. If there is no human brain, there is no mind. It is like saying, if there is no sea, there is no wave. But although the mind ends in the human brain, life ends in information. The mind works like an interface between the brain, whose sides are life and flesh. Consciousness is something else.

I attended the world consciousness congress, what everyone understands from the definition of consciousness is different. A place where academics disappear because there is no completeness of definition is the issue of consciousness. Consciousness is something that occurs as a result of the interaction between the mind and life. Just as mind is something that belongs to the brain or something that starts in the brain and ends in life, life in consciousness is something that begins and ends in the mind. Therefore, the brain is originally connected to the information network that we call life in consciousness.

Esra Özkan: I am curious about the Human Genome Project, could you explain what the project is?

Türker Kılıç: The human genome project was essentially completed in 2003. In the early 1990s we were accepting induction articulated onto deduction. There is an

assumption that we call that hypothesis hypothesis. But the difference between this hypothesis and assumption sometimes slips. There is an assumption and there is an acceptance. The two most important words of Tundenge development are assumption and acceptance. When the human genome project started in the early 1990s, the assumption was: If humans are the most complex creature, then humans must also have the largest genome. Our teachers believed in this. According to what our teachers said at that time, there were probably 2 million genes in humans. Time passed, the speed of data increased. Towards the end of the 90s, it started to come and it was understood that there are not 2 million genes in humans. In 2003, we realized that the number of genes in human life is 22 thousand. However, the number of genes in bananas was 36 thousand and this was not asked much in those days. It has been learned that human beings have 22 thousand genes, and bananas have 36 thousand genes, but the main factor that distinguishes humans from bananas was not the number of these genes, but the connectivity of genes with each other.

We are beginning to understand that the mind-neuron relationship lies between genetics and epigenetics. Connectivity maps of these genes have been made since 2015. We saw that researching the human genome, brain, and neuron is a mistake made by the science methodology based on analysis and synthesis. The main thing here is that epigenetics is more important than genetics. We have come to realize that genetics is no longer sufficient to explain the human species, the differences between humans. We understood that what is important is not the genes but the network of interconnectedness between the genes and this brought about the science of epigenetics. The common point of the fields of knowledge walking through the door it opens is this: it is not the main element that creates uncertainty or the element of any whole, but the relationship of these parts with each other. This is nothing against the second law of thermodynamics, because the second law of thermodynamics, Newton/Bacon/Descartes is a law of science, and when science looks at this connectivity science, they consider it chaos. It was given in the past

because it could not be calculated with existing deterministic mathematics without a calculator. Therefore, now there is a new mathematics, not chaos.

The mind that starts in the brain is as free as this information network, which we call life, allows. The way to expand the web of freedom this mind has acquired in the web of life is curiosity. Curiosity means liberation. Curiosity means creating new networks of knowledge. It is necessary to focus on the subject of curiosity by nature. Curiosity is more important than we think. Curiosity means asking questions, not giving answers. For this reason, curiosity is the most important form of reasoning that needs to be learned in the new culture. However, the most important thing in our existing Newton/ Bacon/Descartes was the truth. However, it is not important to be able to give the right answer, the important thing is to be able to ask the right question. There is no such thing as the right answer, there is such a thing as the right question.

Therefore, this opens the door to a new culture for us. If a person wants to improve themselves, the easiest way is to improve that which is next to him. I have named this new culture, which we have learned from neurons on this principle, and stands before you as an option that can develop, “living life”. The word that best meets the culture that is keen to reveal the science of connectivity. Art is very important in this, transforming this art into mathematics, since it is a beautiful information, art has a great role in developing the intuitive side of it. Because intuition is to some extent a guide that determines where the mind will go. That’s why art has a role in educating or shaping the guide, which we call intuition. Art is something independent of language. If human beings have learned to be brothers and sisters, to be a citizen to the American revolution with the French revolution, and to be a digital consumer with the global economy, maybe they can learn to be a life partner. Maybe they cannot. This is all about the choices people make. Life doesn’t need humans to exist. Dinos lived for 150 years and disappeared. We do not have a rule that says human beings will be on earth for 2 million years. Since we cannot

imagine a life without human beings, we believe that we must exist. This is a sick situation where we think we should put ourselves at the center of life.

What is key in this information network we call life, is the value added to life by each living thing and human being.

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