# Composing Android Life: Interdisciplinary Implications of the "Geminoid's"

Entity

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# Abstract

Socialization of technologies such as robots, androids, AI and the like produces a semiparadoxical condition for foundational Western epistemological and ontological concepts such as agency, subjecthood and liveliness. Mandatory to make them accessible in everyday societal life, the pursuit to construct social technologies in a 'human' way triggers deterritorialization of the aforementioned concepts onto inhuman grounds. Concurrently, machines themselves do not acquire a stable conceptual and practical ground. Through discourse analysis of published research and Foucauldian approach of archeology of knowledge, this paper examines the "Geminoid" project by Hiroshi Ishiguro Laboratory as a case study of android entity composition. Agency, subjecthood and liveness of geminoids are critically approached to see the dynamic shift of these notions aimed at constituting an entity. Further, I view geminoids as an empirical ground for inductive elaboration on the positionality of social technologies. Extrapolating Simondon's idea, I propose to strategically reterritorialize social tech into a separate species (specie-fication of technologies). This approach aims to solve theoretical issues in human-robot interaction studies, and the archeology of theoretical implications provides the ground to observe the process and the result of the present deterritorialization of human notions.

Keywords: HRI, androids, philosophy of technology, biopolitics, posthumanism, anthropomorphism, agency, subjecthood, human exceptionalism.

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# Introduction

Towards the end of the 20th century humanities faced a shift towards the general postmodern condition that arose as the response for environmental destruction, scientific and technological progress, and takeoff of neoliberal capitalism of the time. All these factors assisted to treat humanity's domination as the result of specific conditions of power operations, technological and scientific relations, rather than an axiomatic state. "In truth, there are only inhumanities, humans are made of inhumanities, but very different ones... [and] cutting edges of deterritorialization become operative and lines of deterritorialization positive and obsolete, forming new strange becomings" (Deleuze, Guattari, 1987: 190-191). Or, as Haraway puts Latour's idiom, "we have never been human" (Gane 2006). This shift triggered changes in basic concepts that previously had been attributed strictly to humanity, i.e. subjecthood, agency and liveness.

Technological developments play one of the key roles here: the more complicated technical objects become, the more difficult it is for them to be straight-away approachable for users, insofar as they maintain a position of complete Other that requires some technical, cultural, and even symbolic iterations to be comprehensible. Temporality of technological developments overspeed cultural and societal ability to sync, therefore provoking a tear between the two. It leads to unstable positioning of technologies, as well as concern of ways of understanding, developing, and representing them in a synchronized and approachable way for public. Specifically, this concern is highly vivid with robots, AI and other developments that can be placed under the collective term of 'intelligent' technologies. They tend to be represented and

experienced through human notions, embodying 'neo-humans' and simultaneously losing internal cohesion with their 'actual', i.e., technical nature. Dragged into humanness, sociologically- and culturally washed entities of these machines acquire 'alien' qualities that get re-/deterritorialized from their original milieu.

Subjecthood, agency, and 'liveness' being applied to non-human entities causes disruption in this foundational modus operandi and leads researchers to trace the process of such conceptual adaptation to attempt to formulate refined conceptualization of social ('intelligent') technologies to overcome issues that arise along the way of this engineered transversation. Alongside, there are consequential issues in the practical area — such as the 'uncanny valley' effect of anthropomorphic robots leaving a fearful affect on humans (Mori 2017), conspiracy theories and so on.

In this thesis, I focus specifically on the process through which 3 specific notions and realities that conventionally define the human are deterritorialized: subjecthood, agency, and liveness. To understand the deployment and practical consequences of engineering and conceptualizing these developments, I mobilize the Deleuzian notion of "deterritorialization" which allows me to outline the transversal, nomadic quality of grounding human-forming notions, highlight the conceptual power relations that trigger the process, and to map the pathways of such displacements (Gunzel 1998). Moreover, up to a certain limit we may use the Latourian term 'translation' for the same goal (Latour 1996).

Tracking this process requires examining how technologies function as means of such deterritorialization or translation with the further clarification on the positioning of these developments too. My goal is to oversee how analyzed notions compose an entity and how they unfold in the field of human-robot interaction (HRI) studies and science and

technology studies (STS). This will be done to outline current logic of social technologies' positionality, trace circumstances and consequences of the mode of their realization, and mark possible conceptualizations of those developments that could solve some theoretical and practical issues. This will be further used as an argumentation basis for inductive research of the "Geminoids" project, from which I will attempt to propose further elaboration on the problem of deterritorialization of human-centered notions.

In Chapter 1, I outline my theoretical grounding for the upcoming discussion on the entity constitution of a social technology. I connect sociological tradition, biopolitical theory, vitalist posthumanism and philosophy of technology. Through this I wish to outline anthropocentric frame regarding foundational notions of a social subject and further problematize consequential issues of positioning and understanding ruptured state of non-humans, Others.

In Chapter 2, I elaborate on the case that grounds my analysis — the "Geminoid" project by Hiroshi Ishiguro Laboratory (HIL). Geminoids are a series of highly anthropomorphic, remote-controlled androids that serve as a sort of blueprint or prototypes for future humanoid robots. Geminoids are used in studies of HRI, and reversibly allow researchers to elaborate on the condition of humans themselves. Geminoids are built and conceived of as social actors that, however, cross some of the boundaries that normally define the human. The empirical information supporting my case study is derived from research published by HIL. I describe and analyze the discourse and logic that underlies the representation and description of the Geminoid project. I treat this case as an empirical ground for an inductive study, and a starting point for further theoretical extrapolation on social technologies and nonhuman Others more generally.

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My inquiry will focus on HIL's conceptualization of Geminoids. Where do these androids fit in terms of the zoe/bios distinction, and is such distinction even applicable or applied? Do they bear any notion of subjectivity? Of life? If so, how does science conceptualize and present those notions? How do HIL researchers and developers frame the interaction process, and what would be for them a perfect HRI situation? How might this ideal projection influence the way Geminoids are built and constructed? If there is a distinction between a human and a machine at work in the making of Geminoids, how do the HIL team process it? Why are Geminoids so highly anthropomorphic? If HIL's goal is to create a complete copy of a human, how do they surpass the 'machine' in geminoids? And where do they locate the boundary between human and machine? Lastly, how do machines become humans? What is the process of 'living up' this technology?

My goal is to create a deep enough understanding of how Geminoids are designed, represented, and conceptualized epistemologically and ontologically with regards to the local context, the goal of the project, framework of their creators and operations made with and through them. For this I will scan through materials and mark and codify the way certain characteristics of these android are constituted:

- Subjectivity (or object positionality) of androids
- Agency (as of social agency)
- Notion of life or non-life
- Manipulations made with androids to serve the purpose of effective HRI

- Relations between human operator or an original person of whom geminoid was copied
  from statically and situationally
- Actions allowed / able to perform
- Autonomy
- Body architecture and design how a machine becomes 'human'
- Link to local cultural context

After investigating published materials and HIL's research, I adopt in Chapter 3 a critical approach to these materials and what they represent, to place geminoids in the context of the growing field of social robotics. Turning to the philosophy of technology and philosophy of technology, I outline the cultural, social, and philosophical frames on which HIL's work relies. I plan to elaborate on the process of machine-life-becoming through a qualitative account of the composition of its entity and analysis of deterritorialization (translation) that happens in technical and human domains in the process of establishing the entity of such a technical object. For example, the way of embodiment that usually includes covering 'machine' parts (wires, metal etc.) with artificial skin or clothing. I attempt to position androids beyond the onto-metaphysical grounding of the Western tradition regarding objects, critically approaching this state, to then turn to Simondonian tradition and speculate on the specie-fication of technologies.

After summarizing the main findings of this analysis, my conclusion offers to explore "species-fication" of technologies as the trajectory for theoretical and practical research. In this elaboration I propose to position social technologies in the domain of

separate independent species (specie-fication). My hypothesis is that social technologies require a specific mode of existence and entity formation, and a strategically set speculative move to the specie-fication of such technologies will, I believe, allow them to acquire immanent undisturbed state and internal coherence. Though elaborating on this idea, I will attempt to achieve a personal contribution to the development of HRI and STS research, outlining present practical issues and linking them to theoretical solutions.

# Methodology

To complete a thorough analysis of the state of social technologies as social actors, I turn to sociological, philosophical, and biopolitical traditions that structure social actors. To trace the formation of key concepts that get deterritorialized from the human realm to the android one, I frame my research theoretically and will conduct it through the Foucauldian approach of archeology of knowledge (Foucault 2013; Tiisala 2015). This will give me the ground for historical descriptive conduct of knowledge elements that participate in forming android's entity from the perspective of a constructed matter rather than a self-forming pattern of thought order. Moreover, Т implement elements of discourse analysis to configure the conceptual outlook of HIL's researchers, as well as examine their positioning of geminoids (Fairclough 2003). Methodological implication of Foucauldian archeology of knowledge, discourse analysis and Deleuzian philosophical thinking (St. Pierre 2017) allows me to contribute to theoretical modulation of the set problem.

#### Chapter 1. Deterritorializing humanness

# **1.1 Founding Father**

Humanity is proposed to be the dominating species that restructures the 'natural' state of reality through creative and intelligent forces and the inventive function of anticipation. 'Human' is a mobile concept that varies through historical periods, cultures and power structures. Yet there are basic nodal points that build an overall idea of human's positionality in the world as a relational space. Regarding the societal nature of humanity that creates a specific frame, we can outline three main interconnected operational concepts: agency, subjecthood, and liveness, all from the perspective of the Western tradition. They position a human in a specific relation to the Others, creating a codependent structure of mutual constituity, and serve as optics through which Others are perceived. Coming together, these concepts participate in formation of the dominating epistemological and ontological mode deeply rooted in the history of humanitarian thought — anthropocentrism, from which the figure of the subject of social action is coming. Yet in this section I would rather imply the term 'humanism', as anthropocentrism carries negative connotation, whereas humanism allows us to operate on a more affirmative basis, useful for descriptive work.

To set the ground for recognising this subject in humanism, first it is needed to perform separation of humanity from the others, especially other animals. Supposedly, there is something extremely different in our species that distinguishes us from the rest. Multiple intellectual traditions root particularly from this strategic dualistic division: nature-culture and subject-object dichotomies, differentiation between lives and non-lives and the like. Western thought that, as classically being stated, starts with Aristotle, postulates human's torness from other entities. The ontological level then structures

sociological traditions and a hierarchy of 'lives'. Aristotle's divisions of souls/essences (plant, animal, human), entities (zoe and bios), and the notion of 'zoon politikon' that constitutes human's mode of existence, section off a specific way of living that becomes superior to all others — non-rational ones (Aristotle 1993-4). Ability to use language and reason (logos), to participate in politics, use intelligence, form beliefs, contemplate reality and reform it, according to Aristotle, constitute the human subject's living mode and, through exclusion, produce opposite concepts and entities — objects, non-lives, and, using slightly more modern language, non-agents. Therefore, humanistic doctrine in a way becomes the doctrine for the others as well, forming a codependent dual scheme.

This system of knowledge outlines key requirements necessary to meet to be perceived as a subject. First, a human, and therefore a 'normal' subject of social action and live participant, is an organism and not a mechanism. This separation comes directly from Descartes' cartesianism. Here the subject is a living organism, a natural, organic entity. Moreover, conceptualization of life was affected too: vitalism is constituted through opposition to a notion of a mechanism. Descrates' ideas brought up rationalistic implications to humanism: intelligibility and reason got attached to humanity and its related notions (Descartes 1955) — and from this conceptual strictness questions regarding Others' intelligibility will be brought up in the 20-21th centuries. Cartesian dualism retains soul and replaces it with rationality, therefore reevoking Aristotle's soul classification. Matter, being completely unintelligible, is a mere tool for existence, and only reason, logos bring one into the realm of subjecthood. Simultaneously all aforementioned stages of humanism's thought development reinforce the very division between humans and non-humans.

Another important notion that constitutes the dominating idea of a social subject and social agent is agency itself. At the starting point of sociology, and not from an ontological perspective — despite obvious interconnections — agency starts with labor. Human agency in the societal plane is this very process of the subject's ability to restructure objectual reality. For Marx, labor is the mediator between object- and subject-dimension: "Labour is [a medium through which a man] confronts the materials of nature... he acts upon external nature and changes it, and in this way, he simultaneously changes his own nature" (Marx 1976, I: 283). Labor brings up nature-culture duality that resolves in a conjunctive milieu-formation for entities and phenomena, and partially constitutes human essence. It is labor that keeps Marx's humans transcendentally natural but allows implying materialist (social and historical as well) aspects. In a way there a dialectic trick is performed where it could have been a simple dichotomy — although this schema still requires dualistic division's presence as a prior formative condition.

Durkheim, on his turn, totalized this societal milieu: solidified 'social facts' materialize the societal plane, making it the ultimate ontological and existential space, 'the external' upon which an individualized act, completely separate from nature (Durkheim 1972). Durkheimian totalization of the social reinforces nature-culture dichotomy and highlights this strictly human nature of the social, positioning agency and subjecthood directly in this chosen special (of species) realm. His concept of '*homo duplex*' illustrates this double-faced nature of a human who belongs to animals and is individualized in its organism (body), but at the same time whose wishes overcome natural, animalistic limits due to belonging to the overpowering social realm. This is the exact reason why human's desires are limitless in comparison to animals' natural and therefore limited needs (Ibid).

Agency can be generally described as an actor's ability to initiate and pursue a program of actions, but it is quite a puzzling concept that is highly dependent on the context of time, culture, specific author, its relations to social structure, power and other foundational aspects. Some even think that this very concept is sociologically useless (Loyal, Barnes 2001), as if agency is just a synonym for action. Yet, as Campbell writes, it is important to distinguish two aspects of agency: power of agency and agentic power (2009). He explains the difference between the two around Weber's key text on the spirit of capitalism, and it will be notable for further analysis of deterritorialization of agency. Campbell notes that agency can be seen as a necessary capacity to "undertake action in a truly Weberian voluntarily willed conduct that possesses subjective meaning" (2009: 410), basically turning behavior into action. At the same time, agency is washed with the power of societal order. What distinguishes the two is voluntarism. Here it is crucial to mark how societal structure power influences understanding of agency and how it can be partially positioned outside of it, therefore allowing to think of agency outside of humanism limitations as outside of human society and humanness itself.

Through this short illustrative journey, it can be seen how subjecthood, liveness, agency and even ideas of action, intelligibility and other foundational notions that mark a presence of an independent conscious actor (whose separation from nature and ability to restructure it is another question) are all influenced by humanism. Are stones alive? Are they acting, even existing? Predetermined by this dogma, structuralisation of reality starts to unfold and overcomes deconstruction as soon as we start asking those questions. Even in natural sciences this is one of the most current battles: for example, astrobiologists are working on recognising non-planetary life forms that

humanities would call post-anthropocentric inhuman ones (Cirkovic 2018: 272). Broadening the horizons of potentiality to recognize multiple non-conventional subjects, actors and lives is either the greatest goal of our century, or the most twisted cognitive distortion we are facing nowadays.

Concepts under this analysis form the ground for strategic understanding and formation of social space and interactions of the 'new social', specifically interactions with Others (non-humans). Hierarchized mutual constitution of reality's entities postulates specific order of social action in which Others gradually become viewed as participants just like humans have always been. Distinctions between humans and non-humans, life and non-life, subjects and objects, culture and nature even, go through a completely new leap of positionality within contemporary societal structure — especially after hyped up ideas such as Anthropocene, object-oriented ontologies, posthumanism etc., as well as the emergence of some new forms of social actors.

# 1.2 Non-human condition and technological domain

With the post-Anthropocene shift in humanities we start to see how notions of subjecthood, agency and liveness appear in non-conventional domains, spaces, and entities. For this text, I propose to see this process as de- and reterritorialization, rather than a somewhat discovery. From the epistemological perspective, this shift seems as a strategic, grounded theoretical move done within the present scope of knowledge in a modified environment. It starts with the rejection of anthropocentrism (predicated by humanism) and results in a scope of theories that try to connect the worlds of Others with human dimension, or rather an attempt to translate one to another, especially regarding HRI and overall state of 'intelligent' technologies in the society.

Sociological starting point was in the reconceptualization of agency. The one and only Latour is inescapable here. Agency, being the ability of one to initiate and maintain a program of action, got reterritorialized to non-human domain through the actor-network theory created by him and colleagues in the late 20th century (Latour 2007). Reassemble of the social, executed in this theory, proposes to replace society with a network, therefore placing agency and its subject outside of the Weberian and overall classic sociological limitations, where agency's power essence was a freedom from the forces of societal structure.

Reterritorialization of agents into network assemblage abandons subject-object dichotomy's relevance in the notion of act, and by widening the horizon of it allows to include non-conventional actors into the social space and idea of social action. Key argument that allows for such logic is the principle of generalized symmetry that equalizes all the actors present in the network. Dragged into the human domain, Others become valid sources of action, knowledge and — a bit in the future — ontological implications as well. The notion of agency becomes distributable across a plurality of entities.

Yet this is not the ultimate solution to overcome anthropocentrism for those not born from a womb. Latour was criticized for anthropocentrism as well. First, due to the agency-structure contradiction limitation: "[i]n drawing material things into the sociological fold the aim of ANT was not to overcome this contradiction but simply to ignore it, and develop what Latour calls a 'bypassing strategy' (Knappett, Malafouris 2008: xi). Second, agents, being the product of networks, are still registered here as agents through anthropocentric conceptualization of action itself, that either stands for

an activity of external reality modification, or for network-based product of internal effectual correlations.

Nonetheless, Latourian ANT provokes some interesting ideas for human-computer and human-robot interaction studies — at least by setting the ground to position technologies as acting entities instead of mere tools. The challenge of specifically HRI and HCI research is to understand and then operate the sociability of technologies. Latour himself was interested in this side of social reality: in his "Technical mediation" he criticizes Heidegger and elaborates that technologies are indeed tools — but of action mediation. And this mediation is understood not only as a simple transmission: mediation is a 'reversible black box' that influences action and actors. Moreover, outside of concrete temporal limitation technologies influence future potential actions, bringing to life so-called 'homo faber fabricantus', a human produced by their own tools (Latour 1994).

Contemporary readings of ANT work with such an approach, dealing with sociability of robots, computers etc. Werner Rammert extensively interprets ANT to realize distributed agency of computers and its mediacy (Rammert 2008; 2012). His position is a sociology of scattered agency between social constructivism and action-oriented approaches, through which he enables considerations of the mode of agency of computer technologies as actors, mediators and networks. However, this approach faces some issues in the further research: in HRI and robot studies technology's affordances are overpowered by essential characteristics of a robot itself that it gains through a specific mode of its construction and interaction. Social robots go through rounds of anthropomorphisation \_\_\_\_ corporeal, behavioral, and semiotic/representational as well. This is done for a couple of reasons.

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# 1.3 Socializing technologies

First thing to be mentioned regarding anthropomorphisation is that, as we know from classic texts of philosophy of technology, technical objects are classically perceived as mere tools, instruments (Heidegger 1964). They are not actors in a traditional sense, despite all ANT's desires. And the first contradiction between entity and its mode of operation occurs precisely here. Latour wrote that anthropomorphism occurs when objects in a way 'break' their expected schemas and start to content too much of what is unfamiliar to their nature (Latour 1994). Operationally overcoming the state of a 'mere tool', technologies require semiotic and sociological upgrades to sustain a somewhat comprehensible — for a human — mode.

Anthropomorphism is stated to be a preferable path for constructing an interaction between a human and the Other (Epley et al. 2007) due to our species' psychological traits. Moreover, as HRI researchers state, it helps to establish interaction between a human and a technology whose appearance overcomes the limitations of a tool mode of operation (Bartneck, Croft, Kulic 2008; De Visser et. al. 2016). Nevertheless, anthropomorphisation is a two-fold process that disrupts desired interaction by causing the 'uncanny valley' effect (Mori 2017) of fear and even disgust towards a familiar 'life' that is found in the 'artificial' environment of an entity of an Other.

Bits of research, especially of the late 90s, followed the media equation theory, according to which computers' subjecthood and agentic state is so diffused in the action itself that the medium — technical object — slips away (Lee 2006). It was quite applicable to personal computers and laptops, yet more contemporary robotic studies show that this theory is not relevant, at least in its original formulation. Bartneck

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performed the 'Milgram experiment' with anthropomorphic robot, which showed that this technical 'medium', so closely associated with a human, emanates affectuality, interfering with participant's actions and their perception of the interaction (Bartneck et al. 2005). This particular aspect is one other criticism of Latourian ideas, which are claimed to flatten psychological complexity in the notion of agency in interaction networks (Ivakhiv 2002).

This is the 'break' that Latour writes about, yet it is not a movement towards a more complex state. Anthropomorphism driven by anthropocentric perspective on social agents, at least in its current operationality, is a vectorless motion, a strike in the core of an essence that crumbles the state of the Other, positioning its victim on the border between actor and non-actor and hiding the actual nature behind a layer of artifice cover-up of a good-enough-appearance. Nevertheless, considering the break, it is worth mentioning that those holes, ruptures in the fabric of concepts colliding in an essence, when one portrays qualities of an other, is one of the spaces where ontological potentiality of a technical object can be found, according to one of the philosophy of technology's though vectors (Simondon 2017). The break provides a space not only to critically approach anthropomorphic add-ons in technologies but allows for technology's own potentiality to shine through. Nevertheless, this philosophical scope of questions is slightly further away from the sociological layer and will be considered later.

HRI studies reveal that construction of an anthropomorphic technology, successful in social interaction and therefore classified as a socially acting entity, leads to the emergence of a separate entity itself (Jones 2017). This imagined symmetry between a human and an anthropomorphic technology reinvokes the interwovenness of agency-subjecthood-liveness triad present in humanist discourse that is being dragged

into the technical domain. Non-human social agents are overcoming iterations of multidimensional 'cosmetic' upgrades to seem like a human: anthropomorphism is anthropocentrism. Robots, AI and other human-washed technical entities become meta-alive quasi-subjects of social space with no ground of their own, bearing loaned deterritorialized notions. Precisely this argument requires re-examination of not only agentic qualities of a technology, but essential/existential ones as well.

Moreover, socialization-as-humanization leads to severe practical consequences. Such 'human-washing' restricts us from understanding the positionality of agency and subjectivity of technologies by destabilizing internal essential coherence of a technical object through implementing deterritorialized human gualities. Besides, it highly affects reinforcement of race, gender and the like stereotypes and inequalities. For example, it has been over researched how AI is highly white-washed technology - in representation (Cave, Dihal 2020), development and conceptualization (Adams 2021, Cave 2020). Additionally, gender studies show that biases translates gender stereotypes as well as sexism may be found in operating AI (Adam, 2006). The latter can be observed in voice assistants, which for the longest time have been having only female voice by default as a 'comforting' alignment with longstanding inequality of placing woman in an instrumental and tool-like position in the societal power matrix (Wheeler 2001). We cannot ignore the fact that discussed development are built by (and most of the times for) humans, yet I believe that no matter how dense the analyses of the developmental and executive processes are, the change may come in restructuring and critically approaching profound notions that outline acts of creation, no matter who execute them.

Anthropomorphism in advanced technologies, especially social robotics, seems for many quite inevitable due to close relatedness of the notion of intelligence to the notion

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of body (Brooks, Stein 1994). In the predominantly humanistic frame of society, outside of anthropocene-driven scholar's offices, an additional argument supporting the 'ontologisation' of technologies is the breakage of one of the cartesian rules. If matter is a tool, and only intelligence provokes existential implications, precisely this state is what 'intelligent' technologies acquire through more and more complex modes of operation. It could have served as a great argumentation line for approaching technologies through de-anthropocentric and anthropomorphic perspectives, yet there are complications.

Philosophical enlightenments do not, as known, always correlate with industrial proceedings and executional decisions in actual developments. Despite the presence of a somewhat 'consciousness', however it is framed and understood, it cannot fully be stated as an aspect that could produce enough distinctions to establish a self-sufficient entity. Firstly, the terminological, scientific and semiotic obscurity of consciousness is a great struggle not only for humanities, but for scientific fields that work with brains and are attempting to decipher their tangled operational structure. Secondly, the concept of intelligence and intelligibility is still anthropocentric. Even the absolute classic reference in STS and HRI, the Turing Test, has been highly criticized and discussed among scholars throughout years strictly for the matter of anthropomorphic behaviorism of the imitation game. According to this critique, a machine can pass as intelligent as long as it is perceived as intelligent in a human-like manner, which overturns the objective of the test (Pinar Saygin et al. 2000).

Therefore, we can speak of a present process of conceptual and semiotic masking that haunts even the outstanding 'intelligibility' aspect of a tech that could have distinguished such developments and secure them from blending into either complete

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copy of a human, or a 'mere tool'. Socialization inevitably turns into false ontologisation due to the hermetic all-covering anthropocentrism bound.

Therefore, to map out subjecthood, agency, and a consequential suspicion of life notion of technical non-humans, we would need a more all-covering theoretical framework that would consider ontological perspectives, at least if we are to follow the logic of the current state of 'intelligent' tech development and its ways of stabilization in society. To operate on such a level of complexity we would first need to reconceptualize life itself, as well as ontological predicates, due to inability to legitimately apply humanistic frame onto non-human domain.

## 1.4 Meta-life, quasi-subjects and zoe-verse

First notable stage in theoretical direction towards rehabilitating othered existences that is worth mentioning is, already considered a cliche to bring up, Donna Haraway, who has successfully run organism-mechanism dichotomy through a dialectical grinder. "Cyborg manifesto" proposes that the techno-weaved flesh of the spirit of 20th century deposes natural-artificial dichotomy, transforming humans into something else: "we are all chimeras, theorized and fabricated hybrids of machine and organism; in short, we are cyborgs" (Haraway 2006). This reconceptualization of the human state leads to reconceptualization of its ontological degree as well.

Haraway's work influenced posthumanism theoreticians who propose a new take on considering human state that is post-anthropocentric, where 'post', according to Wolfe, does not necessarily stand for 'after' humans as the end of spices. Posthumanism rather operates as criticism of humanism as a radical anthropocentric dogma that requires human's extraction from nature in an incorporeal form, and its 'post' quality, according to another translation of this prefix, rather aims at that what is outside, beyond humanism, focusing on affirmative narrations about the beyondanthropocentric relations of humans, animals, machines, the Earth etc. (Wolfe 2010).

Rosi Braidotti repositions the universe of hierarchized curated life differentiation into 'zoe-verse' — a universally, yet not flattened, understanding of all life as zoe. In "The posthuman" she writes that Others, zoe, in the humanism frame were obligated to bear "less than human status of disposable bodies" (Braidotti 2013). Critique towards dominating ethics, epistemology, and ontology of western paradigm leads her to widening horizons of life itself and introducing a nomadic – transversal and combining different traditions, 'fluid' – approach to defining life. Life, being a continuous becoming, undergoes liberation and now can be 'rediscovered' in multiple previously marginalized entities.

Posthumanism may be the key to understanding a possible positionality of 'intelligent' technologies as it provides a framework for viewing ontologies outside of dualistic and slightly rotting traditions that did not age well enough. The 'life issue' indeed should be brought up in this discussion: due to the present conditions of positioning 'intelligent' tech as a human-mimicking entity, there should be a way to classify the undetachable from a human quality — quality of liveliness. Sociological composition of contemporary 'intelligent' tech development and representation constructs an entity with a loaned deterritorialized aspect that has to be 'landed' and redefined to suit its new host of an alien nature. Yet posthumanism much rather deals with organic matters than inorganic ones, especially its vitalist branch. Therefore, a 'simple' liberation of the notion of life does not resolve the complicated question regarding 'intelligent' technologies, whatever tradition we would stick to. Nevertheless, it shows how with the introduction

of Anthropocene discourse and technological development the state of life itself starts to fluctuate.

I believe that the application of the posthuman tradition has gone quite deep in humanities that deal with understanding technical, animalistic, plantational, and the like Others. Further, it seems as if posthuman implications can be read as theoretical backup behind development of understanding and conceptualizing of contemporary 'intelligent' technologies in order to find a proper way of relating to and interacting with them, at least on an academic paper. Never-ending human imitation that is brought into the process to easen and tighten the bond between a human and the Other has tricked its original purpose, causing another tear in the fragile structure of determining life itself.

In regard to this field in particular, it is actually not a complete imitation, it is not an inventive unique creation. I believe that what we observe is a perpetual cycle of refining and expanding boundaries of a human, time after time. And although this thought is still slightly a speculation brought up as an example of theoretical examination of the liveness state of 'intelligent' tech., I believe that the way theoretical vitalist posthumanism 'brings to live' entities that have been out of such register can be seen a bit colonial towards the 'actual', true ontological state of such essences. Therefore, this theoretical frame, no matter how fitting to the topic could have been, cannot serve as a stable foundation to think of the 'machine life' that we observe being emerged.

I believe that this critique of vitalist posthumanism in a way explains why socialization of 'intelligent' technologies operates in the way that it does. Seems as if those developments have to be 'alive' to be 'social, and this call for application of life/liveness is seen due to the still humanistic frame of social realm which such developments

enter. Yet the very horizontalization that has led to a somewhat flattening of vitality in a way is a reduction of ontological and epistemological differences, essential for multiple distinct entities. In such a way, vitalist posthumanism opens up discussion of liveness and the ontological state of Others, yet at the same time limits the vocabulary. Even though vitalism is not humanistic, in its root posthumanism requires humanism as its 'evil ancestor', from (or against?) whose heritage dialectical turns arise, still grounding in dualistic predicates. Therefore, we can discuss how the very notion of life undergoes a transformation from an essential quality in the Arestotelian sense into a form of mobile, applicative notion that can be distributed and transported from one space and entity to another.

#### 1.5 Live or let be alive

And where potentiality springs, governance arises. Biopolitical tradition allows us to consider life as a manipulative concept that is deeply affected by power relations and is used by governing forces to speculatively construct specific reality to sustain its 'rightful' dominance (Foucault et al. 2008). Inability to grasp a concept of life that would be applicable to the Others may be an additional marker — besides all the others we face today — of the destabilized and highly protocolled sense in the conceptual state of life itself. Moreover, biopower postulates a particular biopolitical subjectivity of its lieges set in a particular matrix of relations and actors.

Biopower, according to Foucault, differs from that of a sovereign power in its reconceptualization of a human into 'human-as-species' (Foucault et al. 2008), caring not of individuals but of population — individuality of the body and existence is set in tight relation to the idea of population. Life becomes the key aspect of power, insofar

as without its presence there could be no power. Synchronously, one needs to be inscribed in the domain of life to be objected to this power. As has been aforementioned, insofar as life is recognized as anthropocentric notion, inhuman entities may be strategically put into human domain in corporeal, behavioral, conceptual, ontological and the like aspects in order for them to pass as humans so that biopower may strive. The other pathway they may be thrown at is the pathway to be left to die, where the violence of biopower will show itself in its completeness. And besides rational implications (intelligibility, *logos*), the human domain starts to be associated with a specific mode of corporeal existence and performativity, which affects those dragged into humanness as conceptual ground for biopower.

Braidotti and other vitalist posthumanists' manifestations of 'zoe-verse' leads to furthering ideas of life away from anthropocentrism and away from its narcissistic subject fearful of death and other lives as absence of his own lie. Though what is left behind by vitalist posthuman thought is an actual conceptualization of what is materially and ontologically situated in the actual other dimension — one of non-life.

Just as western anthropocentric life constitution confuses biological presence and ontological existence due to exclusive referentiality to a (hu)man, vitalist humanism, in my opinion, in a way pulls the same trick with new dogs, prompting colonial tendencies with undoubtedly postcolonial intention. While all-covering Braidottilean zoe does not provide enough affirmative ground for biopower to reside on, bios has been cracked into 'bits of life' (Rose 2001). This shattering did not simply construct life variabilities as numerous parodies of a human one — it domesticated the non-life domain as well, if such division is even possible nowadays.

This 'crack of life' depicts the cultivated capacity of liveness to deterritorialize, which results in indecisiveness regarding the state of Others, especially non-humans, and in my case — 'intelligent' technologies. Using this optic on the object of the analysis, we may see how life attribution becomes a strategic event in setting existential, corporeal, conceptual and ontological status of an erecting entity. Moreover, this process highlights how by acquiring such quality as life, its new 'host' is inevitably infiltrated with consequential parameters of specific subjectivity, political weight and existential obligations.

## 1.5 Strategic reconceptualization of technologies

Aristotle has a rather interesting definition of the essence, in which an essence is that which is internally exclusively autoreferential (Aristotle 1933). When defining essence in Aristotle, whose tradition is continued by humanism in the West, this internal homogeneous coherence is necessary to define an entity. In this case, the essence, that in the combination with existence (that in Aristotle is secondary to essence) creates an entity, could carry in itself the existentiality and ontology inherent in itself. Despite the form-essence division present in his thought, the latter is extremely important to continue the conversation about the construction of an examined entity, both for theory and practice.

I believe that aforementioned arguments assist to highlight that in the case of 'intelligent technologies there exists a rupture in the internal coherence and therefore essential state of such technical objects. Therefore, we require new optics to conceal the rupture. What we observe in the process of anthropomorphisation and socialization

of technologies is the direct evidence of how socialization emphasizes the requirement for onologization.

The current state of 'intelligent' technologies reveals instabilities in key philosophical and sociological concepts that constitute operation of the social realm on its foundational level, revealed by reterritorialization of humanistic concepts to the nonhuman domain. I believe that in the present highly strategically and consciously operated fight against humanism it is possible to apply the same theoretical approach to technologies to find a fitting conceptual space for them to acquire. When a technical object ceases to be a 'mere tool' and begins to 'encroach' on human qualities, it ends up in a rather obscure position. What we observe in the process of anthropomorphisation and socialization of technologies is the direct evidence of how socialization emphasizes the requirement for consequential onologization.

This is precisely what Gilbert Simondon does, elaborating on the mode of existence of technical objects. Simondon distances from biological and anthropocentric logics, ontology and even language to see what 'laws' of life, evolution, existence, entity constitution may hide in the technological domain uninterrupted by humanism dogma. He tries to find a way out of the human-machine dichotomy that, as we can see from the review above, appears on multiple levels of thought. For Simondon, this opposition that rests on classical epistemological and ontological claims of the West is a resentment and a character of 'facile humanisme' that hides the true nature of technical objects as mediators between nature and humans (Simondon 2017).

His key novelty was conceiving machines as autonomous beings, describing laws of technological development that may be compared, yet not correlated to the biological evolution of organic life. First, according to Simondon, it is falsifying to perceive

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technical objects as finalized and fixed entities, categorizing them by functionality or kind. A technical object is an entity containing technical essence that, having its beginning in ontogenesis, is in the perpetual process of individuation. Instead of stating divisions of objects by its function, he proposes to view this structurization through individuation and specificity (as of species) (Ibid). Moreover, he ascribes a specific notion of life — of course, in a non-vitalist sense of it. Simondon's focus on individuation and ontogenesis as foundational notions of any essential beginning allowed him to state life as perpetual individuation. Life, it can be said, is understood as a physico-chemical individuation that in a way combines physical (mechanical) and vital ones.

Lineage of technical objects begins at the synthetic act of invention of a technical essence, which we can recognize through its internal stability across the evolutionary line. Moreover, its essential internal coherence is sustained throughout the whole development of such an object. Therefore, according to Simondon, technical essence contains potentiality for the becoming in the lineage perspective.

The actual necessity to stabilize 'ways of machinic lives' is a crucial point in HRI due to the complexity of social interaction. Johnston writes that "experiments with machinic life appear less as an esoteric scientific project on the periphery of the postindustrial landscape than as a manifestation in science of an essential tendency of the contemporary technical system as a whole" (Johnston 2008: 7). Simondon understands becoming-organic of the technical objects' evolution as a tendency of technical systems to compose a united entity (assemblage) that is able to constantly adapt to changing environments, therefore becoming an 'open machine' (Simondon 2017). This may seem as reinforcing a humanistic perspective in ontologization and the overall conceptual state of machines. Notwithstanding, this logic of interrelating the human domain with the technical one provides him an opportunity to then elaborate on

the idea of technologies as species, merging natural and human-oriented vocabulary with technical one and the nonhuman domain to strategically reset present vocabulary and elaborate on a new spacing.

Thinking of technologies as species is precisely what grabs my attention in the HRI discourse and what strikes me in some specific examples of 'intelligent' technologies development. I believe that one of the probable solutions for aforementioned practical and theoretical issues would be to take Simondon's idea further and conceptualize 'intelligent' technologies as a separate species with which humanity, presumably, cobecomes. To test this theory, I want to first map out the ways a specific laboratory conceptualizes, positions, and develops their anthropomorphic androids to see the actual process of re-/deterritorialization of agency, subjecthood and liveness. This deep inductive analysis would allow me to proceed to further elaboration on the positionality of 'intelligent' technologies. I believe that such an approach would beneficially serve some issues HRI research detects in the current state of technological development of social robots and their stabilization in society.

# Chapter 2: Geminoids: how to conceal technical in technology

# 2.1 Introduction to the project

Throughout the whole history of human civilizations, we may encounter multiple attempts to create conceptually or practically a 'living machine'. Maybe humans want to escape the loneliness of self-conscious existence, maybe — to band the world as a united-by-life matter, maybe it is just centuries of superstitions. Yet the desire to discover, or to create by ourselves, a 'living' Other is still present. We see the presence of robots, or rather a more temporally suitable term — automatas. We see an example from Greek mythology back in Homer's Iliad, where Hephaestus created bronze living statues that assisted him with his duties in the forge. In the 4th century BCE, Greek mathematician Archytas designed a steam-powered electric bird. in 1020 CE, Chinese scientist and governor Su Song created the Cosmic Engine, a 10m (33ft) tall water-powered 'astronomical computer', or to be more precise for the contemporary reader, a kind of a clock that featured mechanical mannequins that signaled hours with gong or bell ringing. Across the whole globe in space, time and culture we may discover the 'living machines', be it a defecating duck or a chess-playing Indian automaton tickling people's curiosity on the late 18th century streets.

Contemporary state of technological development provides the means necessary to bring into reality the most extravagant and myth-like ideas of sci-fi fanatics. Contemporary Japan has been known for having a high position in robotic development, and this is the country from which the project of my analysis comes from.

Geminoid is a model of a teleoperated android produced and studied at Hiroshi Ishiguro Laboratories (HIL) in Japan, where different scholars and developers come together to set experiments in the HRI field. As it is noted at HIL's website, their key mission is to guide the transformation of our society towards the age of robots which would soon start to merge into daily lives of humanity.

Geminoids were in development for a while. First one of them was presented to the public eye in 2007. Back then it was created together with Kokoro Company Ltd. — at that time they were famous for being one of the leading companies in android and robotic development. In 2003 at the international robotic exhibition in Tokyo, the animatronic department of Kokoro together with Osaka University introduced actroids — a type of humanoid robots resembling a young Japanese woman. By that time professor Ishiguro was teaching in Osaka and working as a developer in ATR Intelligent Robotics and Communication Laboratories. And a couple years later, at the same exhibition, the first geminoid was presented. Tempting enough, it was not a young Japanese woman whose humanness was packed in a robotic body.

As the creative leader in this project, Ishiguro concentrated on developing a robot that would be of the closest resemblance with not just a human, but the human — a teleoperated model designed as a complete copy of a real person. Geminoid HI was prototyped based on Ishiguro's features: skull 3-D scan, skin texture model, bodily measurements and voice modulation all were of Ishiguro's. With years passing by, the professor even started to iterate his face with cosmetic treatments to sustain visual resemblance with the Geminoid-HI. As professor mentioned in a couple interviews, it is cheaper to have plastic surgery than to change the silicone 'face' of a robot.

As developers explain, the concept of teleoperating android establishes a frame of telecommunicative interaction, through which scholars study their, seemingly, main driving question — whether it is possible to obtain a feeling of human presence when

interacting with a robot. A distinguishing feature of geminoids is that they can make involuntary movements like human ones, imitate breathing, express emotions through interactive expression different preset facial movements, recognize human speech and communicate within the limits of current software editions that they constantly update.

There are three released models of geminoids, all of which differentiate by the 'original' person after which an android was created. Geminoid F is a female model, closely resembling Kokoro's actroid. Geminoid-DK is modeled after Danish professor Henrik Scharfe, and Geminoid HI and its iterations are copied after Hiroshi Ishiguro. Geminoid F even was in a 28th Tokyo International Film Festival movie called "Sayonara", created in a collaboration of Japanese filmmaker Koji Fukada and Hiroshi Ishiguro. Reviews note that the geminoid's acting is so surprisingly convincing that it is hard to determine whether it is a human or not. Ishiguro is not a stranger to multidimensional work, and he drives experience and knowledge on perfecting his developments in non-lab settings — precisely why this movie happened, among theater performances and different artistic practices in which geminoids are participating in up to this day.

Geminoids are semi-autonomous: this teleoperated mechanism has a distributed system of independent actions which partially are implemented through automated pre-programmed schemas, and partially — through its operator's commands and signals. The very name 'geminoid' comes from the Latin 'geminus' — a twin or a double, and 'oid' — similarity, or literally 'being a twin'. This perfect linguistic encapsulation of the first and foremost *raison d'etre* of geminoids depicts the tight nod between technological and human natures put into work in one entity, which creates an entity with a philosophically, socially and even culturally complex state.

Geminoids were created mostly, but not solely, to set experiments in the HRI field, particularly focusing on the question of the possibility of transmitting the feeling of a human's presence through technological matter and means of perfecting such an effect. For HIL, this phenomenon carries a cultural coding as well: in Japanese tradition there exists a concept of 'sonzai-kan', referenced multiple times in Ishiguro's work in multiple disciplines. Sonzai-kan stands for an affective experience of human presence which is what HIL aims to gain through designing highly anthropomorphic androids. I will come back to this fragment of local cultural significance and overall importance of affective special (of species) recognition in the next chapter.

For now, it is worth mentioning that it is notable across HIL's research materials that they are creating a knowledge structure where geminoids are simultaneously humanized and socialized, and locally compared to video calls, telephone operators, chatbots and other technically supported structures of communication and interaction where a human-like subject's presence is the key component of the development. Geminoids are paradoxically technical and humane, high-tech, and under-developed, futuristic, and rooted in the oldest tale of the living Other — all at once. This state of either in-the-midst-of-evolution, or already-established yet torn apart between two 'natures' — the technical and the humane — in a way establishes the state of curiosity around these androids.

Through the Geminoid project Hisroshi Ishiguro is trying to untie the complex combination of factors that frame and situate a human — by researching its presence possibility in a different entity. This estrangement, externalization, and deterritorialization of human-milieu qualities creates an othered space, unpredicated by biological status and innate shortcuts for this theoretical and practical adventure into the spectacle of humanness behind the scenes of unchallenged organic scenery. What

happens when its features relocate? Will technology be an effective petri dish for this philosophical experiment? What does this smoothie of human and technical taste like? What are the proportions of the ingredients and can we, or rather should we truly conceal the metallic aftertaste?

# 2.2 Engineering and design decisions — means and consequences

On the basic level, geminoid is a network entity that can be schematized as shown in the Image 1. This illustration maps out the HIL's imaginary perception of a geminoid's substantial parts.



Image 1. Illustration from the book "Geminoid Studies" by H. Ishiguro, F. Dalla Libera et al., 2018, page 31.

It is broken up into 3 parts, according to HIL's conceptual frame: firstly, the teleoperation interface, where the host rests. Secondly, the Geminoid server that processes teleoperated commands and transmits them into the robots itself. The last fragment of the system is, of course, the android itself — an embodied mechanical 'double'. Teleoperation station is usually located quite close to the 'stage' where Geminoid acts — often in the nearby room. These two spatial dimensions of the Geminoid system — 'backstage' and 'front stage', if we would remind ourselves of

Goffman — are never blended into the same observable space. It is done to sustain 'affectual purity' of the android's presence during HRI. Even though geminoids are introduced as teleoperated to the public, revealing the actual operator would be an intimidating factor that could break a highly illusive, in this case, 'human presence' cultivated in a geminoid. Sound-wise, visual-wise, and presence-wise this would be the same as to strip the silicone skin down, showing mechanical insides of the android. HIL's researchers write: "...mechanical-looking robots are not acceptable for tasks that require a human-like presence. This is because our living space is designed for humans, and the presence of other people provides a kind of assurance to individuals. For a robot to have a human-like presence, it needs to be recognized as a person, behave like a human, and be able to communicate naturally with people" (Ishiguro, Dalla Libera 2018: 1-2). This is how tender the experimental HRI structure, as well as the geminoid's humane 'identity' are. Almost the whole idea rests on the necessity to conceal the 'technological' from this technology, even though it will always pick through, as we will unravel further. There is something foolish in this system, yet seductive and intricate at once. Note as well how the audience is not included into this schematic representation of geminoid's system in the picture above, even though lots of android's and operator's actions and decisions depend on the context set by the audience.

The operator behind each activated geminoid, undoubtedly, influences perception of the android, decision-making process, and utterance generation in play. In order to develop a human-like android, HIL scholars also study the interactions between an operator and a geminoid, noting how teleoperation system is quite unique in its conceptual as well as operational mode in terms of corporeal aspects: "Teleoperation provides a novel telecommunication effect whereby the person operating the android

feels that it is his/her own body, while a second person interacting with the operated android also feels it is possessed by the operator" (Ibid: vi).

Overall, the project is forward-looking and technologically sufficient with a focus drawn to humanity and its mysteries. But what, if anything, hides in the slip between two collided natures, and why should we not ignore it? I believe that to speak of philosophical and socio-cultural issues in the technological context, we need to cover the technical matter as well, using the 'flesh' as a starting point in analyzing the 'mask' of humanization.

### 2.3 Bodies

As far as HIL's main goal in developing Geminoids is achieving the highest degree of anthropomorphism possible, their design and operative mode is predicated by this factor, and precisely the body composition is where I would note the first point of breakage for Geminoid's entity. Here I would like to specifically note that the term 'body' should be determined in two ways: as a spatial-material characteristic of an entity, and as a biopolitical matter with acquired domains of power relations, social and gender implications, and aspects in regard to philosophical and psychological importance. The latter stance will be reviewed in the text.

As a spatial-material characteristic, Geminoid's body is composed of the two dimensions: technical, or operative, and the aesthetical, humanized one. Geminoids have a human-like body with all necessary limbs and body parts that in the first glance allows this android to be, on the surface, equalized with a human.

Technically speaking, a geminoid is a product of forward-looking engineering, having multiple pneumatic actuators which provide movement to android's body. These actuators are driven by highly compressed air that provides flexible motions without software control. Movement is, nevertheless, limited — geminoids do not walk or stand, which is the reason we can only spot them seated. HIL engineers note it is not yet possible for them to provide androids with leg movement, core balancing skills, and ability to walk. It is due to, firstly, technical limitations in which they create these androids, and, secondly, because it is not the most crucial part for the research. One of these more crucial points for HIL is, of course, anthropomorphism, and we can see it by the constantly upgrading number of actuators geminoids have: now Geminoid HI has 50 actuators in total, 13 of which are in the facial area, 15 - in the torso, and the remaining 22 activate limbs. Despite having most of them in the core and limbs, facial expressions play one of the most crucial parts in design and research of the Geminoid project. Overall, these actuators provide one of the most recent geminoid models with 50 degrees of freedom (DoF), in comparison to an older model in development that had only 42 DoFs (Minato et al, 2004).

DoF is one of the valuable parameters for robotic engineering and HRI. It correlates to the number of actuators or other types of motors and movement activators placed in a robot that create its movability. The higher the range of DoF, the more mobile a robot is and the more range in bodily, as well as facial expressions it has. For this case, it consequently affects human likeness. Human motion is a highly complex phenomenon that requires an enormous number of bones, muscles, tendons etc. operating together in a harmonious ensemble. Therefore, a high degree of DoF in geminoids' case is a desirable parameter, yet not the ultimate one, that marks an android's proximity to most human-like motions. Nevertheless, and it is important for the future discussion and the conceptual standpoint of an android body, not all actuators can be located inside the actual 'body'. Some geminoids, such as Geminoid HI-4 or HI-2, have distributed sensor placement with some of them located in the floor section, a special platform surrounding a sitting android. This creates a distributed body network where a part of the essential functions is configured externally in regard to the borders of an anthropocentric definition of a body. When a visitor approaches this geminoid, they activate multiple sensors blocks that detect motion, providing the ability to track positioning of a human in the space, for example, for android to aim precisely at them when having a conversation. This engineering decision was prescribed by the inability to physically fit all necessary actuators and sensors inside a geminoid's body. If Geminoid HI-4 is being transported to, say, an exhibition or a different lab, it travels together with its platform insofar as it is a substantial part of the technical body of the android, even though its social, aesthetical and biopolitical body is still conceptualized mostly through anthropocentric frame.

The complexity of the relations, actors, and matters interwoven in forming a geminoid's body, both from the technical and social/aesthetical and biopolitical perspectives is fascinating. One of the most thought-provoking points here is the inability to doubtlessly tell, regarding the sociological implications, what a geminoid's body is, as far as it is scattered between multiple matters. What can be a substantial limitation of it? What is the most effective framework to think of it and then use the knowledge generated to represent this technology and, moreover, to then build its stabilization in society? Furthermore, the question of borders is also highlighted, especially regarding Geminoid HI-4 with its floor sensors. I believe that asking these questions and

implementing biopolitical and philosophical arguments in STS is a key in understanding, conceptualizing, and representing contemporary technological developments that operate through anthropomorphic solutions, and this will be done precisely in the next subchapter.

## 2.4 Sensors and systems

Before that, it is important to understand what means this body operates with insofar as they will then be seen as a ground for corporeal state production. HRI for a geminoid is structured around anthropomorphism as a behavioral factor that provides a higher degree of reciprocity and empathy. Therefore, it is expected that a geminoid's movement and responses in other communicative channels are human-like. For this interaction to be possible in such a way, geminoids are built with a great amount of interestingly structured systems that align actions, collect data, ground communication between the machine and the operator, and even provoke involuntary movements to imitate human behavior.

To activate a geminoid's body, a human operator navigating an android from the teleoperation station is in touch with the geminoid. They reactively send 'commands' to create movement, reaction, facial expressions and so on. HIL takes this union seriously, additionally studying how the interaction between an operator and an android is exercised and perceived. This conceptual attention to the coming-together of a human and a machine provides a framework for studying a unique telecommunication effect, as the operator perceives their own body, simultaneously being immersed into mediating corporeality and movements of the body of the other.

To create such complex interactions, the android perceptual system has to collect a variety of data. The range and type of observations are constrained, therefore the cameras and microphones built into the body of the android are insufficient. The android includes a sensor network to get around this restriction. The area around the android is equipped with many types of sensors, including cameras, microphones, floor sensors, and laser range finders, giving the areal perceptual abilities. Using this technique, the android can gather environmental information and store lots of data about the activity of a human interacting with the android and the operator controlling the geminoid.

External sensors have been a goal for the HIL's future development. They note that embedding sensors in human living spaces to extensively observe human's activities remaining quite indistinguishable. In this case, it is not necessary to mount all the sensors on an android's body. "Even if an android itself senses nothing, it can naturally communicate with people by behaving as if it is doing the sensing itself" (Ishiguro, Dalla Libera 2018: 3). Note here the distance created, as if the authors perceive geminoid as one incapable of a 'normative', human-like sensing. It is one of the first hints in the book on the totality of human and social domains regarding the android's untutored capacities.

Yet, it is still more a dream than a real state of the Geminoid project, which focuses on the combination of locally mined — spatially and temporally situated — and archival data operations. Main systems that perform on this local basis are voice and gesture recognition ones, omnidirectional cameras, human respondent's trackers, and motion capture system that works within the bond of android and its operator. Motion capture system is responsible for the translation of an operator's movement into android ones by using a three-dimensional operator appearance capture that then is analyzed by

the software and further, in a form of properly structured data, is put into kinematics systems.

As far as preset actors in play, geminoids have pre-recorded motion files that are implemented into actuators operation, and unconscious behavior controller. The former is acquired through 3D scans of human motions created in the pre-production stage (Ibid: 70). To solve the overwhelming issue of anthropomorphizing movements in robotics, HIL developers implement not a more common reductionist approach, but create hierarchization of movements and the procedural comparison of human and robotic motions, which is controlled by a neural network that controls motion operations (Ibid: 71-72).

Unconscious movement system supports teleoperation, implementing additional movements and actions to increase human-likeness of a geminoid — for example, among such detail-oriented actions are chest movements that simulate breathing pattern, blinking, and unconscious movement such as slight limb shakes. This system allows geminoids to perform more human-like, and its existence shows HIL's detail-oriented approach of almost obsessive desire to create an extremely anthropomorphic entity. They align a specific set of performed actions that would in a combination trigger an unconscious movement system to add on these slight, almost unregistrable, yet extremely influential changes that, as they assume, elevate geminoids' affectual range. As HIL scholars write themselves, "Humans perform various unconscious behaviors such as breathing, blinking, and trembling. However, we do not notice most of them. Only when they are missing do we feel that something is wrong" (lbid: 44).

The way all these systems, local and stored, are built, and engineered is quite fascinating in its loyalty to human-based approach. For example, to properly build motion system capable of producing human-like performance in facial area, HIL, in collaboration with Kokoro Ltd., set a round of experiments to estimate vowel spaces and lip shapes to teach algorithm human motions, using Japanese respondents who were recorded and whose motions were analyzed and implemented into the system (Ibid: 77). This allowed to create correlation between speech content and performativity and head/face movements.

All systems involved in geminoid's performativity and perception, which due to more humanities-oriented specificity of this text are not described or mentioned extremely thoroughly, are aiming to create a tightly bonded, almost encapsulating effect, as well as affect in HRI. Internal systems were based and taught on human aspects and are aiming at its reproduction, considering even slightest change in the environment or interaction. For example, motion systems have an additional in-built motion selection algorithm that would sort out movements depending on the metal state of the android that is suitable in a specific moment and set of interactions. Mental state is a term that is used to describe disposition that android may comprise in each moment, such as neutral, or 'waiting', mainly determining behavioral and responsive specificities in an interaction. Even teleoperation as a highly complex system of data exchange is built so that an operator may have a user-friendly interface to receive information collected by sensors and to output commands. Everything about geminoid seems all too human. Yet, from the perspective of STS, philosophy of technology and anthropological research in tech, especially the uncanny valley research field, hints that there is some almost haunted part of this mechanical entity dressed in humanness.

#### 2.5 Humanization of the body in the aesthetical plane

Face, neck, arms, and hands of a geminoid are covered with 'skin' — a special silicone material that imitates human skin texture, color and feel. In the process of geminoid development, a person after whom it is modeled overcomes casting, where their bodily parts are emerged in a shape-memory foam to produce a precise copy of the skin texture and all crevasses present on one's body. When designing this android, developers pay attention to the visual as well as tactile qualities of the materials in use, considering touch as one of the interaction channels that cannot be left overlooked. Beneath this silicone 'hide' 42 highly sensitive tactile sensors.

In their research materials, scholars working with geminoids appeal to the term 'skin' when describing this aspect of an android. I believe it is quite a notable part of the operating discursive paradigm with this case and laboratory: the more one engages with research papers and materials, the more equalized androids and humans seem, based on linguistic enclosure and cultivated interconvertibility. However, analyzing the textual dynamic in the context of epistemological and semiotic frame of the project and its main goal, I believe that this equalization takes place due to the lack of foundational, not strictly technical vocabulary that can be applied to differentiate between human's features and ones of a nonhuman. This slip of naming 'skin' and other bodily parts, in my opinion, provokes an important question of whether this differentiation is even necessary: do we separate the entities involved in this becoming? If skin as a rather biopolitical quality gets deterritorialized, should it bear a new linguistic belonging? The question of distance between milieus of becoming is what, I believe, stands at stake when looking at anthropomorphic androids and robots through the optics of critical philosophical and anthropological analysis.

Nevertheless, silicone or not, skin always hides the inner, fragile, and 'natural' from the plane of external, interactive, and open for perception. In case with geminoids, it is visible that it hides mechanical parts of the android — sensors, wires, actuators etc. In order to obtain a highly anthropomorphic appearance, designers made sure to hide away particles of othered, technical nature. Ishiguro even refers to a geminoid as to a 'mannequin' in that sense (Ogawa, Ishiguro 2016). Besides understanding the engineering decisions and design composition of the geminoid, it is important for me in this section to set the ground for further discussion regarding this equilibrium between the human and the technical through anthropomorphism in geminoids.

Skin as a cover for the mechanical in its turn is locally covered with clothing — as an enhancer of sociability of a machine. For geminoids, clothes play a quite insignificant part: neither research or experiments, nor description in media outlets or exhibitions are focusing on this part of android's entity and identity, therefore implying that geminoids wear clothes out of pure common sense of an entity they are built to replicate and to intensify its human-likeness.

Nevertheless, I believe that we can take a short leap into analyzing such seemingly obvious detail. For human civilization, clothing and fashion is not only a formality of comfort or ethics, but also a semiotic system. Geminoids sustain a smart casual style that enhances a slightly formal yet relaxed feeling to the social interaction, allowing to form a 'respectful' manner in HRI. Depending on the model, geminoids can be spotted in mostly unchangeable clothing that correlates with gender assumed in an android. Geminoid F usually has a skirt or pants with a blouse on. This 'dress-code' sets a quite formal depiction of feminine without any leaning towards male-gazed and protocolled

ways of projecting femininity. At the same time, Geminoid HI and its various models are dressed in the same clothing as professor Ishiguro: pants, shirt and a blazer or a jacket of other sort with a distinct masculine impression. Both variants on a binary spectrum of the two genders present in geminoids are not enhancing this parameter (into extreme scale), sustaining a distinguished and almost invisible presence that in a sense equalizes feminine and masculine models — at least through clothing.

Clothing seems to be quite mute in all other dimensions of social construction of identity as well. Yet its irrelevant presence says at least one thing: if the body of the Other is dressed in clothes that remind at least a slightly familiar silhouette, this, according to the creators of these androids, provides a necessary basis for recognition and empathy from a human. The approximation of a machine to a human works through all available means that are designed to weaken hostility towards the Other and to obscure differences in between. The way geminoids are built, designed, and operated gives a sense of familiarity, and clothing is called to secure it, acting as a blind spots' concealer. If one is dressed, one is harmless.

The power that shines through this medium, among other aspects of the exclusively human social domain, operates as a straitjacket for a phenomenologically complete and frank perception of reality. Do we care what is underneath the clothing, skin, friendly handshake? In the case of geminoids, this question shows the masquerade nature of carefully cultivated sociability of a machine — inconspicuous in details and overpowering on a large scale. Turning to the Other, we see a reflection of ourselves, but with a twist, a camouflaged oblique space that reveals itself in a careful observation of such an ambivalently constructed entity as a geminoid.

## 2.5 Conclusive notes

Here it was important for me to set an overall description of a geminoid as a technical entity with operational specificity, highlighting its positioning between the two natures imposed on it — one 'innate' and one cultivated. Even though social robotics research and development are concerned with the issue of socialization of technologies built to join humanity, I believe it is important to be attentive to the technical nature of things. In this work, using this precise text as an exercise in conceptual thinking, I argue for differentiation of the intertwined natures and for pursuing deconstructionist analysis of the cultivated. Knowing technical implications allows one to determine the core ground of an entity and question the necessity of each particle present in a technical object — operational as well as social and aesthetical. Further deconstruction of both planes and questioning its boundaries will be completed in the following chapter.

To be able to set a differential conceptual frame, there is no better way than to contact the initial source — here, HIL's research materials. In doing so, it was possible to outline main goals of the project, as well as to extract core values and functionalities of the technical object under description as it is proposed, described, and represented by HIL researchers and authors themselves. The language used in the research is quite descriptive, sustaining a reliable ground for further research and experiments in HRI. Nevertheless, what is noticeable is the absence of any neologistic interventions that would allow introduction of new terms to describe android's skin or its body, as was mentioned above. Materials operate in a language *about* a human and *for* a human. Technical terms and descriptions are interspersed in it, but signifiers that originate from humanistic discourse are applied to substantial and material qualities of an entity of different 'nature'. (Moreover, if I was to contrast scientific materials of the lab and more mass media presence of professor Ishiguro, I would note that the latter could provide much less technical turns in language and much more philosophical and poetic takes describing geminoids). I believe it is not a contradiction, but a consequence of the approach in use. Discursive level can have a strong influence on the cultural, social and philosophical position of the signified, so it was necessary to mention.

However, what seems to me to be more important for discussion in the rest of the work is the conceptual level and discussion of the corporeal, social and philosophical aspects of the entity that HIL have created. Having this necessary ground, I believe there is enough profoundness to move towards the analytical chapter to intertwine all aforementioned particles: HIL's outlook, geminoids as technical objects and as socialized entities, developers' view of geminoid's potency in HRI, and what important and quite symptomatic can be discovered in critical approach to anthropomorphic robots regarding agency, subjecthood, and liveness states of in the contemporary times of humanity.

#### Chapter 3: Actions, ruptures, and patches

#### 3.1 Composing interaction — performative existence

Action works as a fundamental space of value establishment and influences the internal composition of geminoids. Native lab, whose research and conceptual standpoint on Geminoids I examine, have established the basis for HRI with geminoids, as well as continuously set experiments to improve possible interaction to be as smooth as possible. Here it is necessary to take a close look at three components of geminoids' interactivity: interaction between an android and the public, between an android and its host, and, as the combination of the two spaces — performativity and interactivity of the android itself. From this ground it will be possible to determine a somewhat cohesive understanding of subjecthood, agency and liveness captured in geminoids from a standpoint of action.

The most profound part regarding HRI is how HIL conceptualizes and attempts to overcome uncanny valley — a phenomenon extravagantly diverse and multidependent in its nature (Zlotowski et al. 2014), as well as in approaches to examine it. I believe that this part is crucial to understand geminoid's positionality: in a way solving the uncanny puzzle is what can be determined as a decisive point in establishing smooth HRI. Moreover, ways of mastering uncanniness put in work are relative, if not determining, to how sociability, subjecthood, and agency are operating in a social technology.

There are multiple disciplines through which this phenomenon can be approached. Neurological explanation to uncanny valley is one of the interesting directions this phenomenon is taken into analysis through. This pathway helps to better understand better the relation between appearance, actions, and recognition. Human brains

contain a mirror-neuron system (MNS) that activates recognition of another human or human-like subject. HIL set an experiment making electroencephalography of 17 participants, using results of which they report that MNS significantly activated only when observing human actions, but not of android or non-anthropomorphic robots. From this finding they suggest that appearance does not crucially affect recognition and it is better to focus on the performativity of an android to overcome possible uncanniness. Yet, among the line of similar experiments, they made an interesting observation: "a mismatch between the appearance and movement of an android leads to stronger brain activation in the anterior portion of the intraparietal sulcus, which could provide a neurological explanation for the uncanny valley" (Ishiguro, Dalla Libera 2018: 164). This finding suggests that no matter how well the physical body is constructed and how humanlike it is, its performative state is the crucial point of recognition and empathy. This leads to argue that the aforementioned division between the spatialmaterial body and the social and biopolitical one is indeed present in case with geminoids and other social technologies. The former is set as a prerequisite for the latter to be formed upon and therefore allow an entity to enter a human-oriented domain of social interactivity, effortlessly and 'naturally'.

Apart from neurological implications, uncanny valley also is described to be connected to the mechanisms of empathy (MacDorman et al. 2013), perception of experience (Grey et al. 2012), managing terror (MacDorman et al. 2006), and avoiding threats (Mori 2017). What is notable from all of them is the absence of complete agreement between scholars regarding uncanny valley. Nevertheless, HIL scholars stick to one interesting finding — as suggested by affective habituation theory (Dijksterhuis et al. 2002), the more exposure one has to a presumably negative stimuli, which uncanniness is, the less uncommon the stimuli become. Therefore, they conclude that

uncanny valley is more reliable to initial exposure to an android rather than a sustaining affectual quality of HRI. The settlement of normativity of one's perceived existence is increased with duration of exposure, therefore requiring accountability of the temporal aspects of a technical object' normativity retention.

Different approaches to measure, visualize, dissect, and interpret the very presence of uncanny valley is conceptually framed as a challenge that is to be solved through finding a mysterious difference between humans and nonhumans, and the findings are further used to increase likeability of a robot by pushing this entity closer to the human side of the assumed spectrum. Even from this perspective anthropomorphism as a crucial factor is still doubtable: some HIL's research state that extreme human-likeness is actually preferred less than a more mechanical-looking robot (Ishiguro, Dalla Libera 2018: 176-179). Moreover, highly referenced anthropomorphism is not stable at all, just as uncanny valley is not unidimensional — it fluctuates through interaction and from entity to entity due to psychological implications that twist together with physical appearance (Fussel et al. 2008). And an android's likeability is dependent on its behavior, as it has been examined by HIL (Ishiguro, Dalla Libera 2018: 10).

Moreover, HIL found that humans tend to not tolerate mismatches between humanlike behavior and machine-like appearance, and the more human-like performativity is, the more the need for exceptional anthropomorphism is, unless engineers want to develop uncanniest technology ever. They refer to it as to "the synergy effect": "For example, a robot should have robot-like behaviors and a human should have humanlike behaviors. This differs from the concept of the uncanny valley because humans do not have sensitive mental models for recognizing robots and other toys" (Ibid: 153). In a way it resembles Aristotelian outlook on defining essence as one that refers only to itself.

Despite this synergy aiming to uncover android's own state, it is still rooted in benefiting a human. This argument regarding synergy is conducted through one of HIL's experiments: in three focus groups 12-month-old, 18-month-old and 24-month-old children were shown short movies of a mechanical-looking robot, a humanoid android, and a human with their gaze tracked using a preferential looking method. 12-montholds were neutral and even interested in the image of a humanoid robot, and 18-montholds, according to the researchers, already showed signs of fear of the technology. They explain it by the fact that the latter age group already has a developed cognition model of a human that does not match with what they see in a humanoid robot. The dependence of the uncanny valley effect on the age of the observer confirms a bond between ability to sympathize with an entity and human domain that totalizes ones around it — in appearance and performance. If neurobiological and psychological affordances of a human are not calibrated to comfortably perceive a social technology, then social technology is changed to fit human settings. I believe that this take suggests that despite social tech being developed to be a companion to a human, in a way it is turned into servants, which creates contradictions. This is one of the powerful takes of a group of researchers of the history of AI narratives: "the tension lies in our conflicted desire to create beings superhuman in capacity, but subhuman in status" (Cave, Dihal 2018: 6).

Furthermore, from some of these aforementioned findings and descriptions of conceptual outlook of the developers, we may extrapolate the totality of the social realm not only towards performative and interactive domain of technologies, but to their ontological state as well because the human-oriented sociability eventually is set in the

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core of existential modality of an entity of this Other. It affects the way these machines are built, dressed, activated, positioned, and represented.

# 3.2 Limitations of the social

In a non-activated state outside of the interaction realm, geminoids are not showing signs of human-decodable reference to the environment — neither reactive, nor motivational ones. Moreover, a person cannot spot personal or social referentiality of a geminoid towards the external. This space of pre-activation is much rather the space of absence than a forming ground of rest and preparation if we refer to Goffman once again. And activation in this case is not only turning a switch on. Geminoid's activation is in a way a point where permission to enter the social realm springs in preparation to achieve the state of a legitimate social agent. An android's absence-like state should be dressed up — maybe someone puts a laptop on its lap or activates an involuntary movement system — to corporeally, semiotically and performatively drag a machine into the social scape. Through this particular process a geminoid transgresses from an object to subject. HIL research refers to it, setting an experiment on this precise shift, which, of course, can be discussed only by firstly stating that object-subject translation is understood through quite anthropocentric positioning (Ibid 2018: 405-410).

Little to no HRI-focused research in the analyzed materials treats technical objects merely as an assemblage of technical matters and effects. HIL focuses on the social result, framing the technical as an instrumental basis of what seems to be more important — the 'human drag' of a machine. Therefore, I believe it is possible to conclude, based on examination of uncanny valley, anthropomorphism, relations with the external, and interactivity that geminoids' agency — and even subjecthood — can

only be ascribed when placed in the domain of interaction. Subjecthood and interaction intertwine recognition of one as human-like cultivates empathy and consequently triggers recognition of subjecthood of the other from the perspective of its ability to suffer, pursue interests and execute individuality entied in socially accepted paradigm (Haslam et al. 2012). The main issue that arises here is the overpowering pressure of the social as a strictly human category. Interaction overpowers ontological, existential, and even material implications of a given entity of a machine, holding them back until activation, just as it happens with an android's physical body. Socially grounded interaction is the ultimate source of the present masquerade that hides away 'innate' properties and replaces them with socially appropriate and successful ones. It is the ultimate goal of social robotics, but I believe that in the end this causes ruptures in identifying a nonhuman actor and its agency, tears apart interaction itself and does not provide affectual ground to successfully overcome practical issues such as uncanny valley.

And it is important to look back at the technical that, I believe, does not die out but continues to rest behind the mask. Media equation theory that was overthrown by contemporary research is, as mentioned in Chapter 1, not completely applicable to social robotics. Yet considering the partial vanishing of an entity, we find a similar pattern in case with Geminoids. Medium does not slip away completely, but the intervened deterritorialized anthropomorphic properties and performative state of social existence shatter perceived and immediate identity of an android. Teleoperation studies conducted by HIL show tendency of people interacting with Geminoid HI-1 to ascribe an identity separate from a person teleoperating the android (Ishiguro, Dalla Libera 2018: 380). Humanoid features of an android, as they are recognized, in the eyes of a human observer register this machine as a social actor due to the presence

of human-like features in stasis and action. Simultaneously, analysis of speech sequences showed that the categorization is not divided into two binary points. This study showed that geminoids are seen as an entity "in-between": between a human and a machine (Straub et al. 2010).

Moreover, from the perspective of a teleoperator what may happen is a phenomenon of body ownership, when an operator starts to acquire, if not full but partial identification of an android's body as their own (Watanabe et al. 2011). Similar psychological effects were known to science for many years, yet I believe its presence in the field of social tech may be a reminder of a somewhat media equation theory. In other words, it shows how small the distance between a human and a separate entity, but one that was copied from them, is, and that this transfer can be quite successful due to the absence of obstacles on the way. These absent obstacles, I believe, is an exclusion of the immediacy of the complexity of technical existence and corporeality that, I suppose, is for the sake of smooth interaction framed as an instrumental assemblage and not a proper 'being' of its own.

This may be a quite symptomatic conceptualization — in the teleoperation domain researchers frame an android as a 'body' which gets liven up by the encroachment of a 'mind', an operator (Ishiguro, Dalla Libare 2018: 31). Such cartesianism of a geminoid denotes disruption through highlighting the creeping immediacy of android's entity concealed by forced sociability and anthropomorphisation as a core modality. Interestingly enough, this scattered state of agency, subjecthood and existence also applied to the understanding of perceived life status of a social robot by HIL themselves: "Robots, however, cannot be categorized easily and reliably as either" (Ibid: 24).

Mind-body division implies instrumentalism regarding both, nevertheless it is matter that is given functional significance. With a present possibility to change the 'mind' (operator) a geminoid becomes a transmitter, medium of action and embodiment of the will/individuality of the mind. This violates the unity of matter and consciousness in the existential prerequisites for naming the subject, and, as a result, does not allow analyzing the android, including from the anthropocentric framework of the philosophical frame of this case. In addition, within this framework even by sociological presuppositions, an android does not become a classical subject, despite the allconsuming pressure of the social domain. Combining the hidden (true) distributed nonhuman subjecthood and agency of many electronic and technical systems, as well as including the irreplaceable part of the operator, a geminoid itself does not lose its own agency and internal coherence. However, within human-oriented social communication and interaction domains such replet internal cohesion is being reduced to fit the instrumental frame. An android must be activated by the operator, matter comes to life when connected to the mind. However, the question is, how does operator-and-android entity system function in this case, what is the status of the operator? To what extent are Geminoids mere mediums of the great consciousness of a human, simple teleoperated matter?

Internal innate potentiality of technology is completely excluded from the calculation. What is considered successful and effective aligns with humanness. And simple performance not enough, the present analysis is an attempt at denoting internal violation of ontological and existential implications that disrupt one's own state, the required state is the hunted one. Classically understood instrumentality acquires new facets through social pressure — it is an ontological instrumentalization of the Other,

all manifestations of which are enslaved by imitation. Such an alignment should be criticized not so much because of the manic efforts to overcome anthropocentrism or obsessions with speculative-realistic views on technology. Even fans of flat or objectontologies do not so much motivate this critical thought. In my opinion, onto-existential flattening and abolition is yet another manipulation and compilation that twists the problem even tighter that starts within the social mania to make everything social. This structure reinforces the assumption that subjecthood and consciousness are a somewhat of a spirit that inhabits matter, driving it into becoming-social that is synonymous to being alive. But does this spirit change when introduced into an unfamiliar environment? And what does it say about the status of this spirit?

Geminoids' case could have been an attempt to bridge the gap between the social and the inhuman. Yet besides all aforementioned particles of the analysis the key point to focus on, I believe, is the starting point of the project — sonzai-kan. Transmitting the feeling of the human's presence becomes not only a limiter set to modulate android's state and nature but embodies a prison of the social imagination of the agency. Fair for the conceptual frame of Geminoids solely, I would like to perceive this case as exemplary to a bigger issue of limitations of the social(isation). To solve it we could have referenced to more speculative ideas such as 'strategic anthropomorphism' of Jane Bennett (Bennett 2010), through which she proposes to view agency as an effect of ad hoc human and nonhuman forces configuration, yet this approach already saw criticism for being self-contradictory and 'semiophobic' (Boysen 2018) and therefore unstable to use and especially implement in a very public case such as intelligent robotics. Moreover, I believe that strictly sociological and/or biopolitical reframing does

not align with the scale of issue with robotics — we require philosophy of technology as well to be able to address the inhumanness of the analyzed nonhuman.

A slight expansion of the idea of the faciality machine of Deleuze and Guattari would allow to argue that it is not the innate qualities that determine one's subjecthood and belonging to social and ontological but whether one has accomplished to embody necessary qualities, insofar as even human is composed out of inhumanities. In such a case the body, spatial-material and biopolitical, is infused into the coding system of signification of power, and therefore becomes enslaved by the Face — this very system of power. Not all "despotic assemblages" of power may produce such effect and trigger creation of signification and subjectification — only ones specific, authoritarian to the limit: "there is no significance[sic] without a despotic assemblage, no subjectification without an authoritarian assemblage, and no mixture between the two without assemblages of power that act through signifiers and act upon souls and subjects" (Deleuze, Guattari 1987: 180). "...Facialization operates not by resemblance but by an order of reasons", and therefore, human-likeness is not imitation but a power regime (Ibid: 170). Just as aforementioned more sociological analysis presents social as the totalitarian limiter of the existential and ontological states of an android, I believe we may argue that in Deleuzian optics the social turns out to play the same part — a part of this 'despotic assemblage' for a non-human technical entity such as a geminoid.

Another argument in regard to the power of socialization is that besides becoming a seizing ontological perspective for the Others, it acts upon them through the corporeal and aesthetical realms as well. In human perception, physical traits correlate to personality (for example, see Naumann et al., 2009). Yet in the technical domain aesthetical improvements qualities of the protocolled and biopoliticised body are not substantial necessities for a technical object (Simondon 2017). Moreover, I believe that

the ability to view sociability and social realm, as well as all consequential notions, as aesthetically applied domains signify an all-involving transgression of human notions from solid structures into qualities feasible for deterritorialization. And what remains in the residue of the technical object after subtraction of the social requires reconceptualization, because this core is not completely absorbed by the stringing of new domains. The first visible way is the radicalization of Simondon's philosophy, and the second is the complete oblivion of technology and the rejection of the posthumanistic vector altogether towards complete anthropomorphization and instrumentalization.

#### 2.3 Deterritorialization

Here it is important to analyze deterritorialization from two perspectives: as a fundamental precondition for becoming in a form of a force that surpasses the limits of a fixed structure — concerning the geminoid's entity, — and from the perspective of a basic operation applied to qualities that overcome deterritorialization. Regarding the former, we see that a geminoid is a project of affirmative production of an assemblage of an operator and an android, in which the latter constantly slips away, or of humanness and technicality, in which the former is dictating the whole system. Becoming through deterritorialization is fluid movement of deconstruction towards rhizomatic structure of an assemblage that results in overriding essentialism and determinism of valid norms of the past condition. As seen from the analysis of socialization of geminoids and critical outlook on the internal, as well as external composition of their entity, it is arguable that such a process is still struggling to break free from the normativity of the past grounds. The subjectivation of humanness acts as the ultimate machine. In the absence of a non-anthropocentric frame, nonhumans act

as space (contextually predicated cause?) of mediatization of humanness, through which human-building aspects float away, looking for a new milieu yet not finding it. Social, ontological, metaphysical and following deterritorialize from the traditional Western heritage towards alien grounds contradictory to their line of flight, as we see in practical and theoretical implications. Overall, geminoids are overcoming becoming-human instead of becoming-technical. D&G's metaphysics assume that assemblages' rhizomatic sufficiency rather highlights differences between the linking elements. In such optics geminoids, whose technicality is constantly hidden away, do not result in establishing an operating interlinked assemblage. This process is accompanied with deterritorialization as an operation upon qualities.

Deleuze and Guattari distinguished between relative and absolute deterritorialization. The former always leads to upcoming reterritorialization, whereas the latter does not, and both can be further qualified as negative and positive. In the context of geminoids,, it is relative to look at the absolute deterritorialization breakdown: as a positive phenomenon, it results in the construction of the plane of immanence, and as a negative — in subjectifying an element of deterritorialization to reterritorialization that obstructs its line of flight (Deleuze, Guattari 1987). In previous sections I attempted to highlight that humanness as a whole, which I locally bring out through corporeality, aesthetical place, sociability, and notions of agency, subjecthood and liveness, is overcoming such deterritorialization. Doubtlessly, here we speak of something resembling the absolute negative deterritorialization. This brings out not concern with humanity or anything else humanism-related, but an interesting place in space, time, and culture, where we observe an obstruction of grounding of fundamental concepts upon which humanness settles and which are given to Others, nonhumans.

Nevertheless, Deleuzian philosophical thinking allows us to be more optimistic: as long as we do not talk of capitalism, deterritorialization is a hopeful symptom of the overall condition. Possible liberation of technologies (nonhumans) and accompanying smooth stabilization of their entities' self-sufficiency would allow heterogeneous assemblages to flow into the plane of fluid and immanent consistency. Basically, this liberation could provide them with new territory to rest upon, resulting in new ways of coding and transcoding humanness, technicality, their coming-together and grounding notions through which they are defined. The key aspect of such a process, I believe, is to accompany technical objects through becoming-technical, and not becoming-human as it has been happening again and what eventually led to practical and theoretical issues with social technologies. And as it has been already proven to be problematic to overcome multidimensional anthropocentrism, I believe that assistive — most probably speculative yet strategic — reconfiguration of technologies will trigger allinvolving positive changes towards the set goal.

# **Conclusion. Specie-fication of technologies?**

The question regarding social technologies requires philosophical analysis as well as critical outlook on social condition(s). In the development and public introduction of such technical objects we observe a major change within foundation concepts of both disciplines. Western tradition-predicated totality of anthropocentrism disables transversal move of such notions as agency, subjecthood, and liveness, which all construct a social agent and entity — exact role of a social technology such as Geminoid or other androids and robots. Using discursive and conceptual analyses of HIL's viewpoint on positioning geminoids in addition to archeological analysis of knowledge systems present in the object of studies, I attempted to highlight contradictory state of these androids as entities within themselves and positioned under the power of social machine, as well as discuss such outcomes of this phenomenon as deterritorialized nature of foundational notions of humanness and the lack of affirmative grounds for android's self-sufficient entity production. Through crossdisciplinary frame. combining sociology. philosophy of technology. posthumanism and biopolitics, I determined that geminoids bear a state of 'inbetweenness' due to unstable combination of technical and human natures implemented in this technical object. With that in mind I attempted to outline vectors and elements of the 'translation' and concealing within geminoids and superficially highlighted the means of such 'translation'. As Brandstetter notes, "with the concept of the 'margin of indetermination' introduced by Simondon, machines acquire degrees of freedom hitherto reserved for humans" which I interpret as the cause of rupture of epistemological matter (Brandstetter 2012: 352). Further, I noted that their agency and subjecthood can be acknowledged mostly exclusively through the performative state,

which reinforces social domain as a totalitarian for nonhumans. In the same manner, their corporeality slips away due to anthropomorphisation. This factor disrupts internal cohesion of an entity as well as acts as a limiter for social performance. Moreover, discussion regarding deterritorialized state of such notions as agency, subjecthood, and liveness, besides the like mentioned in Chapters 1-3, constructs a realm where neither 'original', nor acquired milieus seem to be stable anymore.

As the final elaboration, I would like to propose a speculative strategic repositioning of technical objects, especially those that fall under the category of social or 'intelligent' ones as a way to create a necessary distance between collided domains of human and technical for them to properly co-align in such issued developments. This take is the specie-fication of technology — an extension of philosophy of Gilbert Simondon who argued for an independent mode of existence of technical objects, unbiased by cultural neglection of them, beyond social machine and anthropocentrism.

Instead of classifying technological objects as belonging to the domain of human intelligence, he advocates an existential mode specific to technologies. Within this onto-epistemological frame, the world itself is viewed as a myriad of possible detachments and connections, where establishment of technical objects operate as creation of new connections through identifying available elements for combination (Simondon 2017). For this to operate properly, technical objects must be open, according to Simondon, meaning that a technical object needs to be a part of the associated milieu yet open and capable of modulations (in Deleuze — relative deterritorialization), justifying change. Moreover, he writes: "the true progressive perfecting of machines... [has nothing to do with an] increase of automatism, but on the contrary to the fact that the operation of a machine harbors a certain margin of indetermination" (Simondon 2017: 17). Even partially, they must be able to reconfigure

and readjust to the context. Through this process a technical object then transversally individuates, acquiring more and more stable internal existential and ontological coherence, justifying that, according to Simondon, technical object is a posteriori becoming entity and not a fixed thing. Recent research has already applied this to create concept 'digital subject' — a technical entity that individuates through acquiring and circulating data (Wark 2019).

"The man who wants to dominate his peers calls the android machine into being... He seeks to construct a thinking machine... the robot [Simondonian term for denoting mystified technical object of intelligible state] does not exist, that it is not a machine, no more than a statue is a living being, but that it is merely a product of imagination and of fictitious fabrication, of the art of illusion" — writes Simondon regarding the myth of an android, foreseeing cybernetic age and the era of social and intelligent machines (Simondon 2017: 16). . I believe that here we can argue that underlying constructed distance between technology and culture (organism and mechanism) causes inability to break out of the limitations of knowledge production through anthropocentrism.

For affirmative reterritorialization, milieu- and entity-formation to be accomplished, we may need to reconfigure epistemological conditions and constructed relations regarding social technology. For instance, some research has been done on environmental conditions of technological operation: industrial tech was usually artificially separated from humans in space for the sake of more effective production, just as many other technologies were not able to share physical, not even discursive, semiotic, and epistemological spaces with humans due to the differentiation within the mode of operation between the two that affect their surrounding (Fleck et al. 1990; Lipp, Dickel 2022). Most environments, which in philosophical perspective relate to milieus, are not accustomed to support HRI in terms of being 'machine-friendly'.

Besides spatio-material underlying, this brings the necessity for again disowning anthropocentric perspective for the sake of smooth stabilization of machine-friendly, yet open-systemed milieu. As Brandstetter notes regarding technological frame, "Simondon stressed that machines need humans to organize the ensemble of open machines by balancing the interplay of its elements" (Brandstetter 2012: 350).

Simondonian conceptual frame of technical evolution (genetical ontology) outlines means and vectors of technical becoming and progressing, creating rich ground for softening boundaries between nature and technology by combining discursivity of both. This result in a metaphorical specie-fication of technology, used by Simondon rather to ease the pressure between outlined binaries. Furthermore, he applies ontogenetical outlook also on the philosophical theory itself: knowledge of individuation is indeed individuation of knowledge itself. Therefore, such an approach may be effective to also outline perspectives of overcoming limitations of anthropocentric epistemology itself, which affect the same agency, subjecthood, liveness, etc. Humanity has artificially posed itself externally towards knowable reality, but we ourselves structure this reality through epistemological production. It destabilizes proposition that knowledge is gained and not created. Thus, I believe that Simondonian viewpoint applied to social technology may help us on a more global scale regarding the discussed frame.

Nevertheless, I believe that in the context of my framework and argumentation line it will be interesting to take it even further and apply outlook on technology as species not only metaphorically. To overcome the collision of human and machine domains present in the Other, we may artificially create a milieu for such Other with relative (machine-friendly) discursive, epistemological, and ontological dimensions that would correlate to those of humanity yet would not operate as a complete copy or opposition — not to reinforce contradictions. I believe that such distancing may result in, firstly,

allowing technical objects to stabilize within specific, externalized from anthropocentrism, milieu, secondly, to get inspiration to advocate agency, subjecthood and liveness beyond human, and thirdly, to stabilize present deterritorialization of foundational notions of sociology that destructively affect humanity as well as its mirrored Others.

Unfortunately, at some point I have to stop writing this thesis. To further elaborate on this matter, we may need an extensive line of research, theoretical and practical. Moreover, a clearer elaboration on the philosophical frame needed concerning any possible obstructions and instabilities in pursuing establishing a framework that combines a couple traditions. Moreover, I would suggest also implementing ethnographic research on social technologies in work.

## **Bibliography:**

- 1. Adam A. Artificial knowing: Gender and the thinking machine. Routledge, 2006.
- 2. Adams, R. (2021). Can artificial intelligence be decolonized?. Interdisciplinary Science Reviews, 46(1-2), 176-197
- Aristotle, Politics, 1.8 at 1256b15-21, Complete Works of Aristotle, ed. Jonathan Barnes (2 vols., revised Oxford translation, Princeton: Bollingen/Princeton University Press, 1995), 1993–4.
- 4. Aristotle, A., & Aristotle. (1933). *Metaphysics* (Vol. 1, p. 9). Cambridge, MA: Harvard University Press.
- 5. Bartneck, C., Croft, E., & Kulic, D. (2008). Measuring the anthropomorphism, animacy, likeability, perceived intelligence and perceived safety of robots.
- 6. Bartneck, C., Rosalia, C., Menges, R., & Deckers, I. (2005). Robot abuse-a limitation of the media equation.
- 7. Bennett, J. (2010). Vibrant matter: A political ecology of things. Duke University Press.
- 8. Boysen, B. (2018). The embarrassment of being human: A critique of new materialism and object-oriented ontology. Orbis litterarum, 73i(3), 225-242.
- 9. Braidotti, R. (2013). The posthuman. Cambridge: Polity.
- 10. Brandstetter, T. (2012). The lives of mechanical servants. Interdisciplinary Science Reviews, 37(4), 345-353.
- Brooks, R. A., & Stein, L. A. (1994). Building brains for bodies. *Autonomous Robots*, 1(1), 7-25.
- 12. Campbell, C. (2009). Distinguishing the power of agency from agentic power: A note on Weber and the "black box" of personal agency. Sociological Theory, 27(4), 407-418.
- 13. Cave, S. (2020, February). The problem with intelligence: its value-laden history and the future of AI. In Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society (pp. 29-35)
- Cave, S., & Dihal, K. (2018). Ancient dreams of intelligent machines: 3,000 years of robots. *Nature*, 559(7715), 473-475.
- 15. Ćirković, M. M. (2018). The great silence: Science and philosophy of Fermi's paradox. Oxford University Press.

- Deleuze, Gilles, Guattari, Felix. A Thousand Plateaus: Capitalism and Schizophrenia. Minneapolis: University of Minnesota Press, 1987. ISBN 0-8166-1401-6.
- 17. Descartes, R. (1955). The philosophical works of Descartes.[2 vols.].
- 18. Dijksterhuis, A., and P.K. Smith. 2002. Affective habituation: Subliminal exposure to extreme stimuli decreases their extremity. Emotion 2 (3): 203.
- 19. Durkheim, E. (1972). Emile Durkheim: selected writings. Cambridge University Press
- 20. Epley, N., Waytz, A., & Cacioppo, J. T. (2007). On seeing human: a three-factor theory of anthropomorphism. Psychological review, 114(4), 864
- 21. Fairclough, N. (2003). Analysing discourse: Textual analysis for social research. Psychology Press.
- 22. Fairclough, N. (2003). *Analysing discourse: Textual analysis for social research*. Psychology Press
- 23. Foucault, M., Davidson, A. I., & Burchell, G. (2008). The birth of biopolitics: lectures at the Collège de France, 1978-1979. Springer.
- 24. Foucault, M. (2013). Archaeology of knowledge. routledge.
- 25. Fleck, J., Webster, J., & Williams, R. (1990). Dynamics of information technology implementation: A reassessment of paradigms and trajectories of development. Futures, 22(6), 618-640.
- 26. Fussell, S.R., S. Kiesler, L.D. Setlock, and V. Yew. 2008. How people anthropomorphize robots. In HRI 2008—Proceedings of the 3rd ACM/IEEE international conference on humanrobot interaction: Living with robots, 145–152, Amsterdam, Netherlands.
- 27. Gane, N. (2006). When we have never been human, what is to be done? Interview with Donna Haraway. Theory, Culture & Society, 23(7-8), 135-158
- 28. Gray, K., and D. Wegner. 2012. Feeling robots and human zombies: Mind perception and the uncanny valley. Cognition 125 (1): 125–130.
- 29. Günzel, S. (1998, January). Immanence and Deterritorialization: The Philosophy of Gilles Deleuze and Félix Guattari. In *The Paideia Archive: Twentieth World Congress of Philosophy* (Vol. 6, pp. 137-143).
- 30. Heidegger, M. (1954). The question concerning technology. Technology and values: Essential readings, 99, 113.

- Haraway, D. (2006). A cyborg manifesto: Science, technology, and socialist-feminism in the late 20th century. In The international handbook of virtual learning environments (pp. 117-158). Springer, Dordrecht.
- 32. Haslam, N., B. Bastian, S. Laham, and S. Loughnan. 2012. Humanness, dehumanization, and moral psychology.
- 33. Ivakhiv A (2002) Toward a multicultural ecology. Organization & Environment 15(4): 389–409.
- 34. Ishiguro, H., & Dalla Libera, F. (Eds.). (2018). *Geminoid Studies: Science and Technologies for Humanlike Teleoperated Androids*. Springer.
- 35. Johnston, J. (2008). The allure of machinic life: Cybernetics, artificial life, and the new AI. mit Press
- 36. Jones, R. A. (2017). What makes a robot 'social'?. Social studies of science, 47(4), 556-579.
- 37. Knappett, C., & Malafouris, L. (Eds.). (2008). Material agency: towards a non-anthropocentric approach. Springer Science & Business Media
- 38. Latour, B. (2007). Reassembling the social: An introduction to actor-network-theory. Oup Oxford.
- 39. Latour, B. (1996). On actor-network theory: A few clarifications. Soziale welt, 369-381.
- 40. Latour, B. (1994). On technical mediation. Common knowledge, 3(2).
- 41. Lee, K. M. (2008). Media equation theory. The international encyclopedia of communication.
- 42. Lipp, B., & Dickel, S. (2022). Interfacing the human/machine. Distinktion: Journal of Social Theory, 1-19
- 43. Loyal, S., & Barnes, B. (2001). "Agency" as a red herring in social theory. Philosophy of the social sciences, 31(4), 507-524.
- 44. MacDorman, K.F., P. Srinivas, and H. Patel. 2013. The uncanny valley does not interfere with level 1 visual perspective taking. Computers in Human Behavior 29 (4): 16711685.
- 45. MacDorman, K.F., and H. Ishiguro. 2006. The uncanny advantage of using androids in cognitive and social science research. Interaction Studies 7 (3): 297–337.
- 46. Marx, K. (1976). Capital: a critique of political economy, 3 vols.
- 47. Minato, T., Shimada, M., Ishiguro, H., & Itakura, S. (2004, May). Development of an android robot for studying human-robot interaction. In *International conference on Industrial, engineering and other applications of applied intelligent systems* (pp. 424-434). Springer, Berlin, Heidelberg.

- 48. Mori, M. (2017). The uncanny valley: The original essay by masahiro mori. IEEE Robots &
- 49. Naumann, L. 2009. Personality judgments based on physical appearance. Personality and Social Psychology Bulletin 35 (12): 1661–1671.
- 50. Ogawa, K., & Ishiguro, H. (2016). Android Robots as In-between beings. In Robots and Art (pp. 327-337). Springer, Singapore.
- 51. Pinar Saygin, A., Cicekli, I., & Akman, V. (2000). Turing test: 50 years later. Minds and machines, 10(4), 463-518.
- 52. Rammert, W. (2008). Where the action is. Distributed agency between humans, machines, and programs (pp. 62-91). transcript.
- 53. Rammert, W. (2012). Distributed agency and advanced technology or: How to analyse constellations of collective inter-agency. Agency without actors, 89-112.
- 54. Simondon, G. (2017). On the mode of existence of technical objects. Minneapolis: Univocal Publishing.
- 55. Straub, I., S. Nishio, and H. Ishiguro. 2010. Incorporated identity in interaction with a teleoperated android robot: A case study. In Proceedings of the 19th IEEE international workshop on robot and human interactive communication (RO-MAN 2010), 319–144. https://doi.org/10.1109/roman.2010.5598695.
- 56. St. Pierre, E. A. (2017). Deleuze and Guattari's language for new empirical inquiry. *Educational philosophy and theory*, *49*(11), 1080-1089.
- 57. Tiisala, T. (2015). Keeping It Implicit: A Defense of Foucault's Archaeology of Knowledge. *Journal of the American Philosophical Association*, *1*(4), 653-673.
- Wark, S. 2019. 'The Subject of Circulation: on the Digital Subject's Technical Individuations'. Subjectivity 12:1, 65–81.
- 59. Watanabe, Tetsuya, Shuichi Nishio, Kohei Ogawa, and Hiroshi Ishiguro. 2011. Body ownership transfer to an android by using tele-operation system. Transaction of IEICE 94 (1): 86–93 (Japanese)
- 60. Wheeler, D. (2001). New technologies, old culture. *Culture, technology, communication*, 2, 187-212.
- 61. Wolfe, Cary. 2010. What Is Posthumanism? Minneapolis, London: University of Minnesota Press, p. 120-122.
- 62. Złotowski, J., E. Strasser, and C. Bartneck. 2014. Dimensions of anthropomorphism: From humanness to humanlikeness. In Proceedings of the 2014 ACM/IEEE international conference on human-robot interaction, HRI '14, 66–73, New York, NY, USA. ACM.