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Mediations of the body: towards biosurveillance and biocontrol

Abstract. In this essay I focus on the problem of biomedia with its ability to enable biosurveillance and biocontrol. This next stage of the contemporary panoptical surveillance state and the society of control, is about direct mapping of the body to replace the representational logic of traditional surveillance media. It undermines human subjectivity and the integrity of his or her body by crossing such natural boundaries as the skin, senses and mind, and connecting with its molecules, neurons and organs.

Keywords: mediatization, biosurveillance, biocontrol, body, human being, mapping, interface

The goal of this contribution is to use the category of mediation (from my perspective it is quite similar to mediatization in that context) to explain how the symbolic power of technological developments in the field of social and cultural communication (media) may transform our ways of sensing, perceiving and understanding the world around us. My thesis for this essay is based on what was first developed, used and understood as *media,* and how their symbolic messages and physically distanced mediations is now being transformed into direct, substantial actions towards the human body with its neural system, sensorium, and biochemical state of being. What was once symbolic and remote, and therefore relatively safe, is now transformed into direct material connections and transfers that bypass our senses, mind and consciousness – media are becoming biotechnological interfaces that enable transfers under the biological and symbolically defined surface and cultural boundary of our skin, for the direct manipulation of our flesh. They are becoming biomedia, and by that process we have entered the world of biopolitics with its attempts on direct surveillance and control performed by stimulating our senses, organs and bodies.

My intention here is to meet the perspective of communication and media studies with its fundamental categories of *medium, mediation, and mediatization* with categories central to sociological discourse built around the *surveillance state* and

society of control. I believe that mediations – simply understood as general ways in which particular media operate and define its users – are increasingly used as the cultural grammar for direct control and the surveillance of the upcoming forms of biotechnologies. In this essay I will not go deep into the possible, multiple meanings of these categories, but instead sketch possible ways of generally understanding the proximities and relations among the discourses in question.

Towards bio-mediations

In the second part of the 18th century, with the Industrial Revolution and the domestication of electricity, Luigi Galvani from Bologna became famous for his experiments with the electrical nature of animal bodies. A technique was developed, later known as "galvanization", by which it was possible to electrically stimulate certain tissues, nerves, muscles and organs, to set them in motion – eyes to open, legs to move. In 1818 a Scottish doctor, Andrew Ure, successfully and famously used these techniques to play with human bodies. He inserted rods into the body of a hanged man and used electrical stimulation from a battery to give him the appearance of life. The face of the dead man was made to produce expressions, the hands and legs were thrown about. Ure was even convinced that he could have brought the dead man back to life if he had developed this technology more – as Mary Shelley imagined in the influential *Frankenstein* novel published several months before.

The discovery of bioelectricity is part of what constitutes the modern world and empowers its culture. Electricity combined with machines shapes the formula for the universal machine – the computer, while electricity is defined as one of the key substances that naturally drive parts of the body, and its transmission among them essential to driving the organism. In the 20th century, electricity was tamed with the binary code, allowing cybernetic machines to use it even more efficiently within the cybernetic paradigm founded on that formula. In parallel to this was the rise of biomechanics and biocomputing. We can control (*play)* with electricity in a series of operations encoded in the simple symbols of 0 and 1, to run the processing that has led to the present powerful digital reality (Poster 1990)[1]. If these two symbols / states of electricity are fundamental to the condition of digital culture, why not try to use everything we have achieved with the digital revolution to change the game, and to play with the most sophisticated universal machine we have available – the human body and its organs, the brain especially?

[1] From the variety of mathematical symbols cybernetic code picks only one solution at its basic, electrical level – it is always only about the electric signal present in the processing unit (coded as 1) or lack of it (0) – see: Poster 1990.

Looking at politics, the global market or the rise of phenomena such as biopolitics, neurotechnologies and neurostimulation, genetics makes the answer to this question quite obvious. Nowadays, the idea of bioelectricity is being used by the media markets to set up the interactions between the body and its organs and digital technologies and their interfaces. It has been introduced through the commercial implementations of technologies like magnetic resonance imaging or electrocardiography sensors in smartwatches and smartphones. Galvanization and similar techniques used to primitively control some of the functions of the body are being transformed into something sophisticated, transgressing simple physiological acts. As in the past, with a simple biophysical procedure becoming a medical spectacle, today biometrics and biointerfaces are trying to get under the skin, diving deep into the flesh of the human body, interacting with its natural behavioral patterns and reaching its hidden dimensions. Mediation, as a general, representational way in which media operate, seems to be an efficient and promising cultural mechanism that will enable and explain the mounting of sensors and interfaces there. This is possible due to the cultural logic of media and the mediations run by them, suggesting that there is nothing we can approach or understand without necessary translation – yet at the same time everything we know is always a result of some kind of mediation, always influenced by the tools we use to gather the information[2] (Groys 2012).

Today we have another form of interactive spectacle, different from the traditional exposure of messages directed to the eyes and ears of a mass audience. Spying on our material constituents means eventually making us vulnerable to direct behavioral and cognitive control from outside. That is the difference between the culture of mostly one-way transmission of analogue media and interactive digital media. The latter implies that every action is being automatically registered by the technological environment and translated into useful assets, indexing and profiling each interactor. Digital media provide expanded opportunities to traditional state, political and market actors. Contemporary societies are currently experiencing the transition from the epoch of the polygraph (popularly known as a lie detector) which measures and reacts to skin conductivity along with blood pressure, pulse and respiration, as a symbol of traditional biometrics of the non-interactive age, to a brave new world of effective interactions with the body. This age began with electric brain stimulation in psychiatric therapy and is carried forward by contemporary digital interfaces able to influence our senses, dreams, feelings and thoughts. There is a considerable difference between being watched by CCTV systems or being profiled by the network services providers and being mapped and remembered on the DNA- or molecular level and then stimulated according to the data gathered that way. The first is still traditional because it is about creating a representational model of who the watched person is. The

[2] More on the cultural definition of the media and mediation in Groys (2012).

second is less about representation and more about direct indexing of the structure of the body, its organs and cells.

This new cultural and technological environment, filled with electricity, universal machines and computation, is crucial for understanding the second stage of control and surveillance in our times – biosurveillance and biocontrol. It is not only about traditional spying on what we do and with whom, but what our sympathies and preferences are. Symbolic and semantic profiling of individuals being observed by CCTV, social media, satellites, mobile media tracking, etc. is not enough for modern governments and market players (Lyon 2002; Bogart 1996). Now it is also, and probably most of all, about the mapping of the substantial nature of our minds and bodies, its genetics, health condition, and implementing the technological ability to control bodies on the molecular, cellular and neuronal levels of our biological existence. It is about translating into data the biological substance of our bodies and installing biotechnological devices under the human skin with a number of sensors able to export sensory data to external processing systems and interfaces, ready to chemically, electrically and genetically stimulate the organic substances of our bodies. This is another dimension, the next stage of contemporary the panoptical surveillance state and society of control. The one driven *also* by the cultural logic of mediations – representations, symbols, and sensorial distance. But the media used in the process are of a different, direct and digital nature (Thacker 2010)[3]. In the world after Snowden and Cambridge Analytica, and the rise of the datafication of surveillance (Dijck 2014), along with the rise of digitally driven biomedia we should expect the rise of mass biocontrol. It could merge the potentials of data with that of biotechnological interfaces and processing, making digital culture part of a broader technocultural project. And, right here, the category of mediation is useful. It reflects the idea of communication in a very material and simple way: to communicate, to mediate to direct and control bodies.

This can imply the disintegration of the body as we know it and depend on. Our cultural and anthropological imagination of the body is based on the idea of skin as a borderline between private and public, self and culture, internal and external. It has been reshaped by the figures and existence of cyborgs, expanded humans, transhumans, DIY humans and other concepts that are based on the idea of technological interference with the body and possible mediations running through that connection(s). These kinds of future scenarios for the body and the integrity of human beings may redefine our self-understandings and reconstruct cultural and social imaginaries about who we are and how we should act (Hansen 2006; Wegenstein 2006)[4]. In the

[3] See, for example, Thacker (2010) for more about biomedia.

[4] This is, naturally, a part of the one of the biggest and most influential debates in sciences and humanities on questions about human nature, subjectivity, ability to act as a member of society. For important voices in the debate, raised within media theories, see Hansen (2006) and Wegenstein (2006).

biotechnological future, for example, some organs might be extracted to fulfil another purpose in different setups (organic bodies or technological hybrids). Recently, after years of effective experiments with hearts, hands and faces, some researchers have been successful in keeping pig brains alive outside the body to study them in the lab in detail. They have inaugurated a new possibility in life extension and potential for the redefinition of organic systems (Regalado 2018).

These considerations affect the very concept of privacy as we know it. In considering potential developments of biotechnology, it must be reconceptualized based on a biological understanding of surveillance and control. It is not only about the semantics of our personalities, thoughts and actions, but the organic, material constitution of who we are. It is not only about the idea and legal definition of privacy, but also about our understanding of politics, technologies and communication. At the end of the day, breaking into the human body and mind will enable a way for biocontrol and biopolitics. The question is whether by allowing biotechnologies under the skin we will manage to save our skins – and therefore our bodies – from external influences, and who we will become with no natural protection and no mediation from our senses, guts and maybe even feelings.

Theories

Before I delve deeper into the issue of the body in the context of biosurveillance and biocontrol, some theoretical inquiries are necessary. Thanks to the theoretical conceptualizations made in the field of media and communication studies, political and cultural theory, sociology and anthropology, it is easier to understand social practices combining technological developments, the political power behind it with social and cultural capital. It is neither my intention nor it is even possible in the form of an essay of this volume to be specific about the details of such theoretical approaches. Instead, I would like to indicate some influential takes on the subject that shape the discursive field.

The problem with the body and its cultural condition has been conceptualized and discussed widely in modern humanities and public debate. For both it is crucial to comprehend the contemporary political, cultural and social understanding of the body since discursive practices are among the forces driving the common imagination and social reality. I would like to underline two antagonistic perspectives on defining the body and human subjectivity that not only mark the visible lines of debate in humanities and social sciences but also render the field of variety of cultural and political practices and debates on the issues in question. That is why I would like to use them as opposite vectors when mapping the problem in general (Rose 2008; Smith 2007).

The first one is the traditional approach. This has been generally affiliated with pre-Cartesian/pre-modern understandings of the nature of living creatures and hu-

man beings in particular, where body and soul, mind and heart, material and symbolic were inseparably combined up to the level of a full, sanctified integrity. This was pretty much deconstructed and rejected by the rise of modernity with its secularity, rationality, dual concept of human nature, psychological turn, political ideology and, last but not least, the rise of the media-related culture of representation. However, since the world wars in the 20th century, attempts to develop a more humanistic, holistic approach to the body and subjectivity can again be observed.

Let me briefly recall some of the theories based on that approach. In his phenomenology of perception, Merleau-Ponty tried to remind Western culture about the need to understand human nature in a complex, holistic way (Merleau-Ponty 2012). For a human being it is crucial to sustain direct and primitive contact with the world to be able to take an action in public, to communicate and perceive his or her surroundings in a way that would retain its integrity. The body and its naturally developed sensorium and cognitive mechanisms are the only fully referential ways of sensing the world, a stimulus trying to communicate with us. Another example is the thought of Hannah Arendt. Earlier than Merleau-Ponty, and by referring to the trauma of war and the Holocaust, she used her idea of a substantial appearance to the world and to the other as a condition that enables political, social and cultural actions, one's credibility and the efficacy of actions taken. Without material presence, thus with no activity and appearance in front of others, we cannot define any real political actions. No public sphere, no dialogue or debate exist without that organic, substantial essence of human beings (Arendt 1958). Those two seminal theories can be understood as the essence of the traditional approach even under the new technological and cultural regimes, as with the modern, progressive, techno-utopian ones.

The second approach is connected to the phenomena of emancipation, social revolution and modernity. It is based on the idea that every man is able to decide about him- or herself, politically, culturally and socially. This implies also the ability to redefine the human being him- or herself, one's nature, limitations, cultural and biological conditions. This kind of social and cultural emancipation and its practical implementation has developed as an echo of mathematical rationality, cybernetics and technological progress. After the Renaissance with its mathematical concept of God's creation, through Leibniz and Descartes who found mathematics prior to matter, up to cybernetics where the universal code representing potentially everything that can be transformed in unlimited ways by universal computing machines. No material, or substantial basis for such informational matters is exposed in the foreground of such a narrative. Hardware is always beyond software, atoms are covered by bits, signs and semantics prevail over substance and matter.

In the humanities and social sciences, this approach is generally dominated by critical theory and the perspective of post-humanities (Gray 2001). Here everything is interpreted as a text or a technoorganic form which communicates certain, politically driven meanings and senses. This textual world could and should be deconstructed

and reconstructed all over again and again. Therefore, there is always this significant divide, by the linguistic turn announced as a difference between the material and the symbolic, between signs and their meanings, images and texts and their senses that are always fluid. In her famous *Cyborg Manifesto,* Donna Haraway (1991) stated clearly and boldly: full emancipation can only be achieved after separating one's personalities from the physical media: bodies, senses and environments. A free spirit then is able to find its own mediated way (interface, prosthesis, body) to express itself and live in the material world. Judith Butler (2015), who partially steps into a radical feminist tradition after Haraway, has been trying to develop a new theory of public life by saying that bodies do matter politically and socially. Without them there is no public sphere and no political communication, no material action and no visible signs of ideas and acts.

Values, imaginaries and beliefs described in relation to this antonym inform the contemporary market, politics and social debates. Traditionalists seek to protect the holy nature of organic materiality, being afraid, like Achille Mbembe with his focus on the racial politics that constitutes *necropolitics* (Mbembe 2003), that tearing man apart and rejecting bodies from the social universe will produce the most totalitarian social landscape ever possible. Postmodernists are willing to play with bodies and identities in a number of ways, especially by using digital technologies in seeking new implementations of the emancipated self, constantly looking for possible reconfigurations, updates, upgrades and versions to come – as with cyborgs.

This brief discussion shows only one duality among theoretical takes on the body and politics, society, culture and media. More are recognized, to start with, by the discourses focused on the relationship between the social and the somatic (Protevi 2009) or on the interferences between the body and subjectivity (Rose 2008). Because we are discussing imaginaries and cultural practices it was necessary to recognize those takes to understand the cultural energy behind the process and the discursive directions that define the field.

Biomapping

I would like to elaborate more on biosurveillance, beginning with the issue of biomapping and indexing bodies that is launching biocontrol and other biopolitical scenarios. This is one of the crucial aspects of the second stage of surveillance and control in a biomediated ecosystem.

After the 2012 Occupy Wall Street protest in NYC, one of the watchdog organizations reported: "*In March 2012, New York Governor Andrew Cuomo signed a law allowing DNA evidence to be collected from anyone convicted of a crime, even if it's a non-violent misdemeanor. New York judges have also begun demanding mandatory iris scans before putting defendants on trial. Some Occupy Wall Street protesters who*

were arrested for trespassing and disorderly conduct were actually assigned bail based upon whether or not they consented to an iris scan during their booking. In one case, a judge demanded that an Occupy protestor, who was an unlikely flight risk, pay $1,000 bail because she refused to have her iris scanned" (Whitehead 2012).

Other nation states test similar methods and legislations. China's police, for example, have been successfully testing smart sunglasses with built-in facial recognition. Their goal is to catch suspects traveling under false identities. 26 individuals have been reportedly caught in the outskirts of Zhengzhou (Lo 2018). This is only one part of a larger surveillance project. China has been trying to build a giant facial recognition database to identify any citizen within seconds. The project, originated in 2015, is held by the Ministry of Public Security in cooperation with a security company based in Shanghai (Chen 2017). China, obviously, tries to fit in the shoes designed by Americans and their NSA surveillance projects.

Mapping of the body with its organs, functions and structures began with fingerprint analysis and databases, face recognition systems, retina scans and geolocation. All of those and more are required for a new version of biosurveillance and its execution. The first step is to learn as much as possible about the substances of individuals and collectives, such as races – by scanning, indexing and remembering every possible input in the form of databases. Several projects of this kind are in progress. They are founded on the outcomes of the general study of the human genome after the World War II and the following initiatives like indexing the whole body, cloning its parts, or making its universal models. A significant example here is The Human Genome Project, an undertaking that aims to determine the sequence of nucleotide base pairs of human DNA, and mapping all genes of the genome (Human Genome Homepage 2018). Other projects take a close look at our ability to formulate thoughts, words, sentences or to use language, both physiologically and in communication with others. Amazon's Alexa, Apple's Siri or Google's Voice are increasingly popular on a mass scale. Those services are listening us talking all the time they are on. And there are new devices to come. One of them is a prototype called AlterEgo, which is a non-invasive wearable interface that allows humans to converse with machines, artificial intelligence assistants, services, and other people without opening their mouths by vocalizing internally. The wearable device recognizes and captures signals from the movements of the internal speech articulators (AlterEgo Homepage 2018).

The most important part of the human body is the brain. In Western culture following the Enlightenment and the scientific revolution it is recognized as the central unit that organizes the functional architecture of the body, and contains our minds and personalities. According to the cybernetic imagination, the brain is the central processing unit that regulates the whole body system. Since scholars have decoded the genome, the brain becomes a new scientific frontier to conquer. First by indexing its structure, second by enabling its guidance. In 2013, US president Barack Obama

initiated *The Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative* – a governmental program aimed at understanding the complexity of the human brain (Brain Initiative Homepage 2018). A similar program – *The Human Brain Project* (Human Brain Homepage 2018) – has been launched by the European Union. Both are officially dedicated to accelerating the fields of neuroscience, computing and brain-related medicine, and the development and application of innovative technologies. Political and military superpowers seek to apply the latter to decipher the brain's architecture, its chemistry and neural abilities. While academia will certainly disseminate knowledge in this field, the military and political projects will be among the first to practice it in a variety of ways. Another example to consider should cover robotic augmentation of the body, implantable chips, neuronal interfaces, brain readers and others. In 2014 the Defense Advanced Research Projects Agency (DARPA) awarded two large contracts to create electrical brain implants capable of treating seven psychiatric conditions, including addiction, depression, and borderline personality disorder. A year before, the U.S. Food & Drug Administration approved the first implant able to read and record from the brain surface and stimulate it, called NeuroPace (Regalado 2018).

Biomapping is necessary to create detailed and precise maps and indexes of the human brain. They would be used as databases for calculating machines to program and control its elements as the next step.

Biocontrol

It is easy to predict that the same strategies as the ones generated to use genetic indexes and maps as models for genetic engineering could be applied after the above brain projects are accomplished. Now I go from mapping of the body and its structures to the issue of how the data extracted this way is used for the creation of databases, software and interfaces. Advancing knowledge on the brain makes it a matter of dedicated equipment to bypass the natural structures and wires and expose it to external and artificial inputs. Then another stage could be orchestrated, where the brain becomes a site for tactile operations, remote interactions, direct control and management.

A series of experiments was conducted to verify whether and, if so, to what extent it is possible to stimulate the human brain to manipulate it. In 2015, a group of neuroscientists used transcranial magnetic stimulation to shut down some parts of the brain (threat-processing center) and prove they were able to weaken people's faith in God and to make them less prejudiced. That was a relatively uncomplicated goal to achieve, considering that only one particular part of the brain was stimulated by one particular kind of device and direct influence (Holbrook et al. 2016). By a similar test we learn more about the details of the functioning and structure of each and

every small part of the brain, as has been shown by the Human Connectome Project (Human Connectome Homepage 2018). The map of the brain is detailed down to the level of single neurons, making it possible to record a single electron running through it, making "thinking" possible.

Another step towards biocontrol could be illustrated by the military project funded by the US Defense Advanced Research Projects Agency, called *Targeted Neuroplasticity Training* (Darpa Homepage 2018). The TNT method allows the enhancement of a specific kind of learning – cognitive skills training. During the training process the precise activation of peripheral nerves through stimulation boost the release of brain chemicals such as acetylcholine, dopamine, serotonin and norepinephrine to promote and strengthen neuronal connections. This kind of stimulation plays a role in regulating the synaptic plasticity between the neurons and changes the brain function while learning. This is quite close to the ability to run external "programs" or "operational systems" on an organic "framework".

In yet another trial, neurologists used a system of electrodes, transmitters and receivers to restore the leg function in a primate. They managed to completely bypass the damaged nerves in the spinal cord of a monkey whose brain was not communicating with its legs. To do so electrodes were implanted in the brain and the spine, together with a wireless transmitter sitting outside the skull, responsible for uploading and downloading data computed in the external digital system by dedicated software (Capogrosso et al. 2016). Even if the brain remains 'unhacked' the rest of the organs are exposed to remote intrusion. At some point these two options could be combined to develop software running the whole body system and mind inherently. Even if it is only about some parts of our consciousness and integrity it would still have a significant and direct influence on our subjectivity, awareness and will. Medicine has already recognized *Body Integrity Identity Disorder* in which individuals perceive one or more of their limbs or organs as alien to the rest of their body (Biid Homepage 2018). People with this condition may refer to themselves as 'transabled'. Although this syndrome is only noticeable in people after amputation, in the future, after the rewiring or updating the brain, we may use this term more often.

This debate is not only about the manipulation of a living organism and its vital processes and structures. Within the goal of controlling human beings far more could be achieved by gene editing techniques. That kind of engineering is gaining increased funding and attention. It is enough to mention the funding behind CRISPR technologies or the GMO industry. After the promising announcement of a number of variations in CRISPR, Chinese researchers at the Sun Yat-Sen University in Guangzhou have used gene editing to modify human embryos. They obtained embryos from an in vitro fertilization clinic and tried to correct a gene defect that causes a blood disease called beta-thalassemia. They were able to edit the DNA of previously fertilized eggs. Although the team have reported that the method is not fully accurate, they have still opened a genetic Pandora's Box (Liang et al. 2015): we have faced the moment

when we take evolution into our own hands to deliberately create a future us by the standards we are able to design.

In conclusion, biocontrol, as I have shown, works on two levels. Firstly, it creates the ability to interact with human flesh, neural system, sensorium, brain and mind. Secondly, biocontrol is about controlling genetics by editing it before a human being is even born. The examples above prove that researchers have considerably advanced the work on the ability to control the body and mind with biotechnologies on a mass scale and up to the level of the transparency and legality of such practices.

Towards the conclusions: Bio-mediatization

In this final section I want to consider how the aforementioned phenomena of biomapping and biocontrol, and the scientific/political attempts to use them, can be grasped with the media studies-originated concept of mediatization. My understanding of this key-category is generally related to the media ecosystem of establishing and supporting cultural imaginaries. Then there is biomediatization, which I understand firstly as a way in which the body and subject is perceived and standardized in popular narratives and, secondly, the presence of media technologies and their techno-cultural grammar in tactile, interactive contacts with the body, senses and other organs. The question remains in the light of that understandings – how are the matters of biosurveillance and biocontrol relevant to the process of mediatization of modern culture?

First, there is a growing interest in communication and media studies in the digital panopticon, network surveillance and technologically mediated control over citizens and bodies. The reason for this is that digital biocontrol and biosurveillance is designed on a technological principle that turns mass media, with their passive, one-way communication mode, into a digital-based multidirectional, interactive mode. As explained before, interactivity, datafication, interfaces and transfers of data and their algorithmic processing play crucial roles in both designing technological forms and operational grammar. Therefore, the dictionary of media studies is able to name and address biotechnological and biopolitical issues with the categories that discourse has developed for the study and theorizing of communicational and media spectacles.

Second, the problem is also of a political economy nature. There must have been strategic decisions made by the global holders of digital technologies and networks linking them – most importantly the US government, army and the American industrial sector – to let the 'digital revolution' happen on the scale of a popular, mass technological and communicational ecosystem. Therefore, the evolution of media, languages and cultural surroundings around them must have been significantly similar. Political profits for the releases of such technological assets offer greater opportunities to spy on citizens and consumers and to control and manipulate them by data gained through their interactions with digital environments.

Third, bio-mediatization relates to political narratives on digital media. One of the mechanisms here is investment in the neoliberal digital mythology that sustains the myth of freedom of information, creativity and global prosperity thanks to the digital revolution (Mosco 2004). This narrative holds that digital media promote and sustain the freedom of information, its unlimited flow and reach. They create the ability to solve any cultural problem with computing in the form of a binary code and by user-friendly, intuitive interfaces attached to the system. It promises freedom of informational actions for individuals, their subjectivity and privacy in the network – if required. It is a part of the ideology of neoliberal progress and success; it contains the story of Silicon Valley and its values and heroes, it is about the American Dream as it is still carried by politicians such as Al Gore or Barack Obama. Along with the spread of that narrative there is a need for acceptance from the general public, their trust and will to use the digital media as an efficient communicational and cultural system. Under this condition all required knowledge about users is delivered to the operators with very little awareness and almost no resistance. And there is even more – it is not only about American users, it is a worldwide phenomenon, accepted politically in most of the "digitalized" countries with few exceptions, such as Russia, China or Iran. We choose comfort and "freedom" over safety and privacy, and surveillance and control with digital media are the price we must pay. While Mark Zuckerberg testified before the American Congress commission in the Cambridge Analytica case in 2018, Facebook's worth rose during the hearings, and only a tiny group of users decided to leave the platform. Most users do not care about the privacy policies of Amazon, Google, Apple or Instagram as long as they – us – get fancy new devices, software and services "for free". We are afraid that if we miss technological and media progress, we will not be on a fast lane to the future. That is the political and cultural fear of being marginalized, technologically and culturally excluded, supported by the desire to be among the techno-utopian elites.

Fourth, if the body and the human being are mediated, then a number of alerts are about to be raised – there is still room for a traditional media system function to be a whistle-blower, or a conscious public advocate. Although there are traditional attempts in the fields of religion, philosophy and tradition still in use, we do not have universal, modern, up with technological developments legal or cultural definition of who a citizen or a person is – where he/she begins and ends, what is the organic non-reducible constitution of us. There is a growing concern about the rise of political strategies like *necropolitics* (Mbembe 2003) instead, with many medical procedures and scientific protocols being built on the idea that the body is not only possessed by the person it carries – it is also governed by the third parties such as state, with vaccinations and prosthetics as examples. Our imagination about our bodies is, in Western culture, mostly based on the modern divide between a person and his or her body. The latter can be reconstructed, replaced, updated or opened. Within this modern belief the body seems to be an old type of interface between the mind and

the external world and, as known from lectures taken from the cybernetic and digital media revolution, each interface can be replaced by others that are newer, more reliant and efficient, less energy hungry, easier to maintain, etc. That is how we imagined our bodies: as our hardware separated from our software or operational system, which is more about who we are and how we function.

Mediatization of the body is about strengthening this belief on a mass scale while making attempts to interact technologically with this organic "hardware" to establish remote access to and control over it. The body and organic substance remain phenomena not fully understood, but more like terra incognita, a place to conquer and to rule over. Preparations for the settlement of technocrats in the form of narratives and mythologies have already begun and the existing devices are very promising. Yet the body has not been recognized and declared as a final boundary to be culturally, socially and politically protected from the external environment. With all the mediated stories about robocops, avatars, surrogates, x-men and others, and media gadgets as smart glasses, health monitors, prostheses, genetic engineering and, not least, neuronal techniques, it is time to define the body as one of the ultimate frontiers of human subjectivity and integrity.

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