

SMILE TO PAY WITH YOUR FACE: HACKING INTO *PROGRAMMED FACIALITY* IN THE AGE OF *BIG DATA* AND *AI*

Alexander Matthias Gerner

1 HACKING INTO PROGRAMMED SOCIALITY OF FACE-TO-FACE ENCOUNTERS

The most important thing to know about the 21st Century is that humans are becoming hackable animals [...] How to live in a world where human beings can be hacked? How to protect democracy and the very meaning of human life when a computer algorithm could know us better than our mothers do? That's the most complicated challenge your generation faces (HARARI, 2020).

The face reappeared. It belonged to a man with a gentle expression who looked at Luo Ji and said, "Welcome to our era". As he spoke, a field of vibrant roses flashed on his white lab coat, then gradually faded and disappeared. As he continued speaking, the coat displayed a continuous assortment of delightful images that matched his expressions and emotions: seas, sunsets, and woods in the drizzle (LIU, 2018, p. 383).

Humanity and democratic societies today in the XXI century - parallel to the narrative imagination of Earthlings confronted by an "extra-terrestrial" invasion in Sixin Liu's sci-fi novel, "The Dark Forest" - are increasingly confronted with a total loss of privacy¹ (VÉLIZ, 2020). Contemporary, powerful *Big Data* and AI-driven tools can manipulate human thought, behaviour, decision-making, and how we are affected by others and express emotions.

¹ "Privacy is about being able to keep certain intimate things to yourself- your thoughts, your experiences, your conversations, your plans. Human Beings need privacy to be able to unwind from the burden of being with other people. We need privacy to explore new ideas freely, to make up our own minds. Privacy protects us from unwanted pressures and abuses of power. We need it to be autonomous individuals, and for democracies to function well we need citizens to be autonomous" (VÉLIZ, 2020, p. 3).

Biometric sensors², related to the human face, fingerprints, Iris-scans or the human voice build *Big Data* pools that inform programs for identification (WICHUM, 2017). These programs influence and may manipulate human embodiment, perception, affects and emotions, social behaviours, and thoughts in such a way that Harari proposes that in our present time, humans have become the “*hackable animal*” (HARARI, 2018b)¹. The growing importance of biocybernetics leads to increased hackability of embodied human beings (FUCHS, 2020). Hacks imply prediction, control, persuasion, and deceptive² as well as non-deceptive (COHEN, 2018) manipulation of what people do, how people decide and vote for, how people act, and how people feel towards themselves and others as social beings. Algorithmic rationalities influence the constitutive levels of self-and personhood. Moreover, algorithms and programs partake in sociality. As a result of this, data is never objective, but dirty³, messy and noisy.

² “Within a few decades, *Big Data* algorithms informed by a constant stream of biometric data could monitor our health 24/7. They could detect the very beginning of the influenza, cancer, or Alzheimer’s disease, long before we feel that anything is wrong with us. They could then recommend appropriate treatments, diets, and daily regimens, custom-built for our unique physique, DNA, and personality. [...] The key invention is the biometric sensor which people can wear on or inside their bodies and which converts biological processes into electronic information that computers can store and analyze. Given enough biometric data and enough computing power external data-processing systems can hack all our desires, decisions and opinions, they can know exactly who you are.” (HARARI, 2018, p. 49-50). Heed FUCHS (2020) on the criticism of Harari not seen as “critical warner”, but interpreted as affirmative “cynical destroyer” of autonomy, human freedom and of humans to be overcome by algorithms in a posthuman world-view instead of a world-view in which the “Defense of Humankind” (so the title of Fuchs’ book) but is seen as an outdated and obsolete fight at a lost cause (“*Homo sapiens* as an obsolete algorithm”) and handed over to *Big Data* endowed algorithms and data as the only foundation of nature: If Organisms are not algorithms, and if life is more than mere data processing then – and this is our position - something might get lost if human beings are steered and substituted by intelligent machines. Damasio (2017) as well criticized Harari’s algorithmic account of life: “Saying that living organisms are algorithms is, in the very least, misleading and in strict terms, false”.

¹ Cf. Harari (2018b): “In order to survive and prosper in the 21st century, we need to leave behind the naive view of humans as free individuals – a view inherited from Christian theology as much as from the modern Enlightenment – and come to terms with what humans really are: hackable animals. We need to know ourselves better”.

² The Facebook Analytica scandal and its social programming of behavior that played out successful for the Leave campaign on the Brexit vote are a first paradigmatic example (Cadwalladr, 2019).

³ “Here is the open secret of the *Big Data* world: all data is dirty. All of it. Data is made by people. In every seemingly orderly column of numbers, there is noise. There is incompleteness. This is life. The problem is, dirty data doesn’t compute. Therefore, in machine learning, sometimes we have to make things up to make the functions run smoothly” (BROUSSARD, 2018, p. 103-104).

Data today is analyzed and ordered by creating systems of scoring, rating and ranking (ESPELAND; SAUDER, 2007), systems of recommendation (such as in Netflix, YouTube, Spotify, Amazon, Facebook, Alibaba, Tencent or Baidu among others). The data networks may set up systems of social credit by selecting behavioural data. Thus, harvesting⁴ data (LEE, 2018) feeds AI systems for tracking, and analytics of reputation and creates *Big Data* superpowers, such as the Big Nine (WEBB, 2019) companies. In the quest for reputation in an attention economy, the inherent question is how far data together with algorithms and programs assign values (MAU, 2019, p. 15; VORMBUSCH, 2012) parallel to social esteem to our behavioural data. Companies and even governments, such as China and its social credit⁵ system project (SCSP), foster cybernetic reputation states”.

DAI (2018) exemplifies well the paradigmatic case of the SCSP. He shows how it affects China's government expansion and

⁴ The Ex-Google China President Kai-Fu Lee defines our age as the age of data. This age is defined by harvesting more data. Data are crucial for technological advance and the geostrategic “balance of power” between the US and China. China seems to be in advantage with its dominance of *Big Data*: “This brings us to the second major transition, from age of expertise to the age of data. Today, successful AI algorithms need three things: *Big Data*, computing power, and the work of strong- but not necessarily elite- AI algorithms engineers. Bringing the power of deep learning to bear on new problems requires all three, but in this age of implementation, data is the core. That’s because once computing power and engineering talent reach a certain threshold, the quantity of data becomes decisive in determining the overall power and accuracy of an algorithm. [...] Both of the transitions [...] -from discovery to implementation and from expertise to data- now tilt the playing field toward China” (LEE, 2018, p. 14-15).

⁵ “In spring 2015, the Chinese government announced the spectacular and truly revolutionary plan to develop a so-called Social Credit System by 2020. Under this system, data on individual conduct in every social sphere is to be gathered, evaluated, and aggregated into a single score. Internet activity, consumption, driving offences, employment contracts, teachers’ reports, supervisors’ reviews, conflicts with one’s landlord, or one’s children’s behavior – all this may be factored in and may affect an individual’s score. Everyone is to be included, whether they like it or not. The idea is to build up an overall picture of each person’s value as a basis for granting or refusing them certain opportunities in terms of housing, employment, or access to credit. Authorities will be able to draw on this information when interacting with citizens, as will companies seeking to gain an insight into potential business partners. In this way, the Chinese government proposes to reward honest citizens and punish dishonest ones. The declared aim of the project is to create an environment of trust, a ‘mentality of honesty’ – and to do so employing total social control. This book is about the emergence of a society of scores, rankings, likes, stars, and grades. It is concerned with data and indicator-based methods of evaluation and monitoring which are encouraging a wholesale quantification of the social sphere. In short, it is a study of the all-pervasive phenomenon of *sociometry* or the metric society. Sociologically speaking, quantified self- descriptions of this kind are not just a reflection of a pre-existing reality, but can be regarded as a generative method of constructing difference. Quantitative representations do not create the social world, they *re-create* it (ESPELAND; SAUDER, 2007); therefore, they should be regarded as a *sui generis* reality” (MAU, 2019, p.1-2).

efficiency. This Chinese project as well fosters an optimal approach to enforcement and intra-governmental agency control: Let us take the Chinese reputation approach seriously. We have to become very attentive to our actual techno-social programming: Our extended digital doubles and interconnected bodily selves are in danger of being hacked by profiling, tracking, surveillance, and data-driven *predictive policing*⁶ (BRAYNE, 2017), automated decision-making⁷ and *Big Data* analytics. The resulting predictions of the collection of *Big Data* about us may redefine values of humanity such as friendship⁸ or intimacy and even render biases from the social world invisible by substituting them with numbers and algorithms. FRISCHMANN and SELINGER (2018) call these phenomena “techno-social engineering”, “processes where technologies and social forces align and impact how we think, perceive, and act”. Bucher (2018, p. 4) in a similar stance, though seeing a vital junction between Software and sociality calls them “programmed sociality” in the line of two thinkers. For once she hinges

⁶ Brayne (2017, p. 977) in a case study of the data use of LAPD argues that: “the adoption of *Big Data* analytics facilitates amplification of prior surveillance practices and fundamental transformations in surveillance activities. First, discretionary assessments of risk are supplemented and quantified using risk scores. Second, data are used for predictive, rather than reactive or explanatory, purposes. Third, the proliferation of automatic alert systems makes it possible to systematically surveil an unprecedentedly large number of people. Fourth, the threshold for inclusion in law enforcement databases is lower, now including individuals who have not had direct police contact. Fifth, previously separate data systems are merged, facilitating the spread of surveillance into a wide range of institutions” cf. (BRAYNE, 2020, upcoming).

⁷ Concerning policing Brayne (2020b) talks about the risk of importing with data-driven decision-making an illusion of objectivity as a kind of a “Trojan horse” of “data worship” in society, that mistakes *transparency* of (big) data use with human individual and collective *accountability*: “Humans *decide* what data to collect and analyze, about whom, and for what purpose. So, just as individuals carry a range of biases that affect their decisions, an algorithm can become a Trojan Horse: positioned as a gift to society, it actually smuggles in all sorts of biases, assumptions, and drivers of inequality.[...] Cautiously, we will need to avoid the trap of data worship. Data is not objective. Accountability does not flow automatically from transparency”.

⁸ “From a computational perspective, friendships are nothing more than an equation geared toward maximizing engagement with the platform [of Facebook, A.G]. [...] The quantification and metrification of friendship are not merely part of how connections are computed by Facebook’s algorithmic infrastructure but increasingly make up visuals of social networking systems through the pervasive display of numbers on the graphical user interface. [...] Algorithms and Software [...] do not determine what friendships are in any absolute or fixed sense. Rather, technicity usefully emphasizes the ways in which algorithms are entities that fundamentally hinge on people’s practice and interaction, in order to be realized and developed in the first place. Taking such a perspective allows to see friendship and other instances of programmed sociality as emerging socio-material accomplishments” (BUCHER, 2018, p. 11-14).

on the assertion of Deleuze (DELEUZE, 1988, p. 34-35) on Foucault that each society has its diagrams that extend to the whole social field and thus “what is at stake here is thus a diagrammatics, understood as the cartography of strategies of power” (BUCHER, 2018, p. 73). Secondly, Bucher's programmed sociality goes beyond neutral views of technology and leans on Mackenzie's (2006) concept of Software. For Mackenzie, Software is not only a technological but foremost a techno-*social* object and process, serving as a base for programmed sociality.

Programming participation seems to presuppose already engineered objects or systems, though algorithmic rationalities even act and perform and eventually decide *for* and *instead of us*⁹. Thus, algorithmic sociality, and programmed faciality in specific, grant humans' access, or the other way around, close down opportunities. Biases lie at the core of algorithmic rationalities. These include black racial disadvantage or white privilege. Moreover, male/female reckoning and subsequent gendered value attribution and gender objectivation enter the sphere of bias. Another form of the automatic decision-making process may become decisive in important life decisions: The use of *Big Data* and AI entails decisions in insurance and bank credit applications. Another example of AI and *Big Data* applications are situations of recruiting for a job in which an AI program ranks applicants.

Moreover, even in the judiciary and executive system, AI might profile criminals. AI endowed programs may access supra-individual patterns and personal infra-individual data that modulate our *de facto autonomy*. These pattern-following systems may seriously diminish or exclude the face-to-face situation of reflexive human subjects. Profiling and preselection of information might be detrimental to critical thinking and everyday encounters and co-presential decision-making in shared experience as "We". Bucher explains the importance of two dimensions of Software, *algorithms*, and *protocols*, for programming sociality as follows:

⁹ Cf. the problem of non-supervised decision-making for instance in below human threshold decision-making of high-frequency trading problem and its necessary critic: The contemporary importance of handling dynamic or even, predatory (Johnson et. al., 2013) “algorithms in the stock markets is nowadays due to the subhuman experiential threshold level events at the millisecond-scale in which data of the global financial market in a new all-machine phase characterized by large numbers of sub-second extreme events automatize the stock market below human decision-making capacities, as humans lose the ability to intervene in real-time.” (Ibid.) These sub-second extreme algorithmic events are causally linked to the system-wide financial collapse in 2008 (JOHNSON et al., 2013).

I concern myself primarily with two dimensions of software algorithms and protocols. Algorithms are the coded instructions that a machine needs to follow in order to perform a given task. Protocol refers to a set of conventions governing the transmission and exchange of messages in distributed networks. Both- algorithms and protocols- can be understood as plans of action or rules that govern computational processes [...] Algorithms not only epitomize the operability of Software, as Mackenzie (2006: 43) suggests, they also participate in defining the orderings of the social field (BUCHER, 2012, p. 17).

She also stresses that:

Algorithms are at the centre of our information ecosystem, where they are used to sort, filter, suggest, recommend, summarize, map, and list information and content of the Web according to predefined parameters. Increasingly, we have come to rely on these programmable decision-makers to manage, curate, and organize the massive amount of information and data available on the Web, and to do so in a meaningful way.

As we delegate an ever-increasing amount of tasks to algorithms functioning as automated decision-makers, it becomes imperative to understand their operational logic better. [...] what role do algorithms play in Facebook? What kinds of cultural assumptions are, in fact, encoded? How do algorithms configure their users? What forms of sociality do algorithms aspire to emulate? Which associations are made, and what relationalities do algorithms articulate? (BUCHER, 2012, p. 17).

Transversal epistemological challenges that exceed the scope of this paper give rise to questions concerning *Big Data* to scientific research that we can only pose here and need a research program to answer in the future:

“What defines *Big Data* as a new scientific method, and where are its epistemological limitations?”. “How does the availability of *Big Data*, along with the analysis of new data, challenge established

epistemologies in the sciences, social sciences, and humanities?”¹⁰. In line with these general issues, we have to ask questions concerning tools of supervised, or unsupervised machine learning¹¹ algorithms such as Neural Networks: “How is Artificial Intelligence changing Science?” (SUDMAN, 2020). “How is AI trained on *Big Data* challenging society?”.

In our case, the specific questions posed would be the following:

“How do we deal with the inherent predetermination of Big Data and the praxis of AI tool use concerning human faces and the transformation of our human-to-human social encounters?”. “Can *Big Data* and AI help with uncertainties and the ‘techno-social uncanny’” (GERNER, 2019)?

If we create digital faces for social interaction with our Avatar¹²-doubles – as promoted by the research of platforms such as Facebook - do these eventually generate new uncertainties for face-to-face encounters? For example, they propose hyperrealistic mappings,

¹⁰ Cf. Chandler (2015); Kitchin (2014a); Kitchin(2014b) argues: “(1) *Big Data* and new data analytics are disruptive innovations which are reconfiguring in many instances how research is conducted; and (2) there is an urgent need for wider critical reflection within the academy on the epistemological implications of the unfolding data revolution, a task that has barely begun to be tackled despite the rapid changes in research practices presently taking place”.

¹¹ For SUDMAN (2018) the machine learning methods are given as follows: “But what are machine learning methods? [...] The primary characteristic of machine learning methods is that they enable a computer to learn from experience to solve certain tasks and make predictions without having been explicitly programmed for this function [...]. Or, to follow MITCHELL (1997) in trying to give a more formal definition: machine learning is the study of algorithms that improve their performance p in relation to any task t on the basis of experience e . / The machine learning process is typically as follows: There is an input (x) and an output (y). The goal is to predict for any input x (e.g. images or pixels) the corresponding output y (e.g. the content of an image) as accurately as possible. For this purpose, the machine learning system is trained in a so-called learning phase on the basis of huge amounts of example data (based on learned matches of x , y) until the system is able to generalize even new, unknown input data correctly, based on the learning experience from the training. The process as briefly described here, corresponds to the type of *supervised machine learning*. In contrast to *unsupervised learning*. The latter is about learning constellations in which only the input (x) is given without the corresponding output (y). But even under such conditions where input data without a label are available, machine learning methods can recognize conspicuous statistical structures in large amounts of data. For example, computer systems can determine that in videos of the social media platform YouTube, cats are the dominant pattern, without having a (semantic) concept of cats” (SUDMAN, 2018, p. 10; my translation from the original German).

but still, we should ask: Do these avatars of ourselves merely mimic non-animate death-masks in action? Their as-if- realism seems to mimic us in deep-realistic fakes of human faces that might dissolve our *reality-virtuality* distinction? How do algorithms determine our reality through AI? How is non-transparent technology thought of as neutral? How can we reduce (AI) technology to the mere technical use of *Big Data* without considering data manipulation and social-political issue of propagation and propaganda¹³? Is there a possibility of opening up the black box by hacking? How are inherent confirmation biases, inequalities in its use, and control mechanisms treated? How is economic inequality inscribed in particular data sets rethought?

Governments face a particular challenge when governing platforms and calling for responsible research and innovation since any

¹² The “Facebook Reality Labs” confront the difficulties of generating photo-realistic renderings of dynamic scenes of faces and its material properties- usually computationally intensive and time-consuming- and develop with AI tools including 40 machine vision cameras synchronically capturing 5120x3840 images at 30 frames per second a “Codec Avatar” (RUBIN, 2018) using deep appearance *conditional variational autoencoder* (CVAE; cf. KINGMA; WELLING, 2013) neural network models (LOMBARDI et al., 2018) for face rendering technology. These models are semi-supervised in real-time settings such as VR for achieving “truly” realistic, acceptable Avatars beyond/despite the uncanny valley effects and -including facial expression and eye-gaze as well as complex and difficult to simulate parts such as eyelashes, pores, vellus hair, and oral cavities and a shading model for achieving realism for meeting in Virtual space: “Our model jointly encodes and decodes geometry and view-dependent appearance into a latent code z , from data captured from a multi-camera rig, enabling highly realistic data-driven facial rendering. We use this rich data to drive our avatars from cameras mounted on a head-mounted display (HMD). We do this by creating synthetic HMD images through image-based rendering and using another variational autoencoder to learn a common representation y of real and synthetic HMD images. We then regress from y to the latent rendering code z and decode into mesh and texture to render. Our method enables high-fidelity social interaction in virtual reality”. (LOMBARDI et al., 2018, p.1).

¹³ “However, viewing computational propaganda only from a technical perspective—as a set of variables, models, codes, and algorithms—plays into the hands of those who create it, the platforms that serve it, and the firms that profit from it. The very act of making something technical and impartial makes it seem inevitable and unbiased. This undermines the opportunities to argue for a change in the social value and meaning of this content and the structures in which it exists. Big- data research is necessary to understand the socio-technical issue of computational propaganda and the influence of technology in politics. However, *Big Data* researchers must maintain a critical stance toward the data being used and analyzed to ensure that we are critiquing as we go about describing, predicting, or recommending changes. If research studies of computational propaganda and political *Big Data* do not engage with the forms of power and knowledge that produce it, then the very possibility for improving the role of social media platforms in public life evaporates. /Definitionally, computational propaganda has two important parts: the technical and the social. “Bolsover, G., & Howard, P. (2017). Computational propaganda and political *Big Data*: Moving toward a more critical research agenda” (*Big Data*, 5(4), p. 273–276, here p. 273).

effort must involve issues of competitive jurisdiction, different notions of freedom of expression, and large-scale technological trends towards automation. Policy mechanisms that enable the rights of individuals (data protection and mobility) are likely to be more effective than those that seek to limit or regulate. We ask then: Who is responsible when AI systems, including data curators using data about us, hurt us? How do we understand these harms, and how do we address them? Where are the points of intervention and what additional research and regulation are needed to ensure these interventions are effective?

Currently, there are few answers to these questions, and the structures that presently control AI are not sufficiently able to ensure accountability. As the scope, complexity, and scale of these systems grow, the lack of meaningful accountability and oversight - including essential safeguards of liability, responsibility, and due process - become an increasingly urgent concern.

Big Data use in social media to algorithmically manipulate or program social behaviour touches on themes of autonomy, privacy as well as Truth, reality, causality, and trustworthiness and human values such as friendship, intimacy or fairness. In all these cases, we have to deal with difficulties while curating information and distinguishing true from false assumptions: How do we find causes? How can we access reliable information in “data-driven science”? Which digital *Big Data* praxis should we accept? Do these practices entail *data-discursive*¹⁴ approaches? How can the scientific challenge be met to get into a more robust and more direct dialogue with society and its players? How should we handle simulations and manipulations of social encounters with artificial agents via data-intensive “programmed sociality”? These issues are related to the quality of information and the crisis of management or data curatorship as well as dignity in the digital realm: How should we ensure that data and information sources are of sufficiently excellent and reliable quality for the purposes for which we use them? What should we do with the open access

¹⁴ “From a discourse ethics perspective, [...] research involving *Big Data* currently relies on norms whose validity is largely speculative with regards to the (dis-)approval of affected individuals. I, therefore, argue that researchers need to move away from *Big Data-driven* approaches, focused merely on techno-methodological innovation, towards *data-discursive* research foregrounding ethical controversies and risks as well as moral change. This discursive development needs to occur in combination with innovative approaches for engaging potentially affected individuals and stakeholders” (RICHTERICH, 2018, p. 101).

movement? Other security and access issues may as well become important: How can we adequately protect data by making it accessible to those who need it? Can we confirm that *Big Data*, digital algorithms, and AI are significant challenges for democracy? How can the arts and artistic practice become strategies of reflecting and renovating our thinking on *Big Data* and AI?

The threat to democracy from misinformation, but as well from fostering less autonomous and critical decision-making is rendered possible by structural problems in our digital infrastructures: First of all, we have to heed how personal and social data is collected, commodified, and monetized within surveillance capitalism¹⁵ in the realm of the *quantification*¹⁶ of the social (MAU; 2019), introducing structural economic inequality between the creator, enactor or performer of information of behavioural data and the entity or company harvesting its commercial use, in which we as humans pay with our faces, and get our data harvested as well.

¹⁵ Cf. on how *Big Data* and AI is used and misused to fight Covid 19, the Amnesty International alert (AMNESTY INTERNATIONAL; 2020)
Zubov (2019) explains how six declarations lay the foundation for a wider project of *surveillance capitalism* and its original thrive for dispossession: “We claim human experience as raw material free for the taking. On the basis of this claim, we can ignore considerations of individuals’ rights, interests, awareness, or comprehension./• On the basis of our claim, we assert the right to take an individual’s experience for translation into behavioral data./• Our right to take, based on our claim of free raw material, confers the right to own the behavioral data derived from human experience./• Our rights to take and to own confer the right to know what the data disclose./• Our rights to take, to own, and to know to confer the right to decide how we use our knowledge./• Our rights to take, to own, to know, and to decide to confer our rights to the conditions that preserve our rights [...]” (ZUBOV; 2019: 347-348).

¹⁶ „The cult of numbers that masquerades as rationalization has momentous consequences: it changes the way we construct and understand value or desirability. Indicators and metric measurement techniques stand for specific concepts of social worth, in terms both of what can be deemed relevant, and of what is or ought to be regarded as socially desirable and valuable. Within the quantification regime, such data receive high recognition, as we can see from the role of ratings on commercial evaluation platforms or citation indexes in the academic sphere. The more this mindset is instilled, the greater its social influence. The symbolic dimension of hierarchizing sociometrics is then reflected in an unquestioning acceptance of many of the criteria underpinning quantitative ranking. When those criteria come to be perceived as appropriate, self-evident, and self-explanatory, then society can be said to have taken a major step towards the naturalization of social injustice.” (MAU; 2019: 5)

2 A FUNDAMENTAL CRITIC OF MATHEMATIZED PROGRAMMING THE SOCIAL OR THE F2F ENCOUNTER: ABOLISHMENT OF OTHERNESS AND INDUCTION OF A BIG UNIFIED DATA ENFORCED DIGITIZED (FACIAL) IDENTITY

“Algorithms and programs follow the laws of repetition and identity” (HENKE et al., 2020, p. 52). As far as they have their roots in mathematics, they obey logical principles, in particular, the proposition of identity and the *principium contradictionis*, which excludes contradiction. By following Mersch's critique of the hype of the “digital” as O/1 rationality, we refuse to equal algorithmic rationalities with *thinking of difference*. The algorithmic schema prefers regimes of sign-identity¹⁷ and thus cannot produce *difference* or *otherness*: In the iterative execution of discrete steps, digital programs recur to their respective predecessors. However, algorithms and programs do not reflect their proper limitations. They do not heed the conditions of their possibility, such as their necessary foundation in materiality. As such they do not have experience about bodies and their material and temporal limitations: they know nothing about their material or temporal limit conditions (cf. Gerner, 2019), so that the peculiarity of art and the concrete social encounter which exceeds mere human-machine interaction, must fail or at least become paradoxical in its algorithmification via Social Programming because algorithms and programs cannot read *between the lines* of code and at the same time almost everything that constitutes a human being - love, creativity, the suffering of the death of the beloved other - falls

¹⁷ “In the course of the first media-scientific euphoria of digitalism in the 1980s and 1990s, the digital scheme {[0], [1]} was inadmissibly short-circuited with the structuralist or post-structuralist chains of difference. But "digitalism" has little in common with thinking in differences. The opposite is the case: It is about logical regimes which everywhere prefer the identity of "signs" (MERSCH, 2019, p. 870, note 44, my translation from German Original).

between the lines of the code. Therefore we have to heed the *critic*¹⁸ of *algorithmic rationalities* of Dieter Mersch¹⁹: programmed sociality cannot tackle art, aesthetic experience, and the social, often exploit contradictions, material specificity, leaps, and singular encounters as well as antagonisms- and multiple selves and plural identities to make

¹⁸ “A critique of algorithmic rationalization offers at best some initial reasons and preliminary ideas. Critique is understood as a reflection on validity. It is limited to an ‘epistemological investigation’ of the limits of the calculable or of what appears ‘knowable’ in the mode of the algorithmic. The argumentation aims at the mathematical foundations of computer science and goes back to the so-called ‘foundational crisis of mathematics’ at the beginning of the 20th century with the attempt to formalize concepts such as calculability, decidability, and provability. The Gödel theorems and Turing’s halting problem prove to be essential for any critical approach to “algorithmic rationalization”. Both, however, do not provide unambiguous results, at best they run towards what later became known as ‘Gödel’s disjunction’. The chosen path here, however, suggests the opposite way, insofar as, on the one hand, the topos of creativity appear constitutive for what can be regarded as cognitive ‘algorithmic rationalization’ and which encounters systematic difficulties in the evaluation of non-trivial results. On the other hand, the investigations lead to a comparison between the ‘mediality’ [Medialität] of formally generated structures, which have to distinguish between object- and metalanguages, and the ‘volatile’ differential of human thought, which calls for sense structures that are not able to be simulated syntactically” (MERSCH, 2019, p. 851).

¹⁹ “‘Algorithmic rationality’ is understood to be the complex ensemble of formal operations as it is situated from the very beginning in a mathematical universe. To a certain degree, this is already true for ‘digitalization’ itself, as far as it is fulfilled in discretization, i.e. the decomposition of the world into disjunctive units. It is thus a matter of interval thinking, which, due to its syntactic structuring, allows coding of those fields of activity or questions that can be made transformable employing rules. For their algorithmic processing, two further elements are added: Firstly, data as values of those functions which, as ‘recursive functions’, make these data ‘calculable’, and secondly, their programming, which transforms their programs into ‘universal Turing machines’, which in turn function as mathematical formalizations of algorithms in general. At the same time, however, it should be added that mathematics and mathematization do not merge into the uniform terrain of ‘digitalization’ and ‘algorithmics’. The latter are sub-areas of the former, not the other way around; rather, digitization and algorithmics describe mathematical provinces in which the categories of decidability and calculability alone dominate. Consequently, we are dealing with an arithmetization of problems that must have been formalized beforehand, which is expressed, among other things, by the fact that only those questions are dealt with that can be solved numerically, i.e. based on algebraic equations or by approximation and the like. Mathematics as a whole, on the other hand, is a structural science, which includes the theory of spaces and relations as well as ‘non-recursive’ problems, so that mathematics alone does not easily fit into a continuous computation.” Mersch, Dieter (2019b), “Kreativität und Künstliche Intelligenz. Einige Bemerkungen zu einer Kritik algorithmischer Rationalität”, In Zeitschrift für Medienwissenschaft. Heft 21: Künstliche Intelligenzen, Jg. 11 (2019), Nr. 2, S. 65–74. DOI: <https://doi.org/10.25969/mediarep/12634>. here: p.68-69, my translation of the German original.

its statement or show and enter unique encounters, that can never be identical. Can algorithms and programs in which *Big Data* are rendered operational²⁰ even exclude the possibility of *becoming other*²¹?

As a consequence of these interrogations, we must put forward a clear-cut critic of the *identical* and a quest for *alterity* in human-technology relations in strong opposition to surveillance capitalism (ZUBOFF, 2019)²². This questioning must include what the Facebook Founder Mark Zuckerberg proposes as the consequence of social media data harvesting as control over the data as the firm exclusion of alternative others and the fixing of one identity: “Mark Zuckerberg: ‘You have one identity. The days of you having a different image for your co-workers, and for the other people you know, are coming to an end. Having two identities for yourself is an example of a lack of integrity’” (KIRKPATRICK, 2010, p. 199).

In what sense do we become what *Big Data* or digital doubles decide *on* and *for* us to be? We do not only perceive the face and gestures of a human body and its differences in expression. Preferably, the face-to-face and body-to-body encounters include inter-corporal gestures, exceed the reckoning of any manifest phenomenological form of a face or body morphologies. It is even possible to create realistic and mathematically and algorithmically mapped simulations

²⁰ “Data indicate where a person, product, service, or organization stands; they guide evaluations and comparisons; in short, they both generate and reflect status. Continuous measurement and evaluation lead to an intensification of both external and self-monitoring activities. If everything we do and every step, we take in life are tracked, registered, and fed into evaluation systems, then we lose the freedom to act independently of the behavioural and performance expectations embodied in those systems. Rating and ranking, scoring and screening processes habituate us to patterns of perception, thought, and judgment which relies increasingly on data and indicators” (MAU, 2019, p. 3-4).

²¹ My introduction to the possibility of alterity is underlined in the idea of “hacking into” the hackability of human beings and their social and individual behavior and affects. Therefore despite adhering to the realistic observation of humans becoming hackable and programable by AI and *Big Data* algorithms, I favor a less moral and one-sided definition of hacking that goes beyond mere negative intruding and manipulation of the other’s behavior, and in which the possibility of reflecting and counter-hacking or ‘hacking into’ is given to us as well.

²² “Part of what makes the incipient *Big Data* revolution a watershed human moment is that for the first time in history we cannot leave the question of personal identity for later. Are we going to be one tightly integrated self, or will the disintegration of multiple, serial identities remain a vigorous possibility? As the volume and variety of gathered data rises, and as the velocity of the processing accelerates, and as more of our lives plug into those circuits, it’s decreasingly possible to avoid sensing that if a decision is not made *by* us, then the forces of information gathering and surveillance capitalism will make it *for* us.” (BRUSSEAU, 2019, p. 4).

of any kind of face and body. Still, we should not equal simulated and synthetic faces, bodies, and agents with real persons. Hence, the encounter with artificial agents such as computer-simulated faces and bodies must be transparent, and the algorithms persuasiveness of the computer sciences and AI research need to be “trustworthy” (EU, 2020). Nevertheless, AI and algorithmic rationalities may entail *systematic deception in the sense of an as-if*. The Turing test proceeds from an “imitation game” that is not concerned with the distinction between *thinking* and *arithmetic*, nor about the difference of a *free play* (Ludus) that include jumps over gaps or skipping rules and formalized, pre-established *rule-following games* in which the situation of *undecidability*, of the “as if” prevails.

Here we have to discuss the reality of an animated image as a simulated or modelled thing that prevails in an *as-if* faciality. Can we discuss this problem of algorithmic faciality and sociality from a “loss of face” (Antlitzverlust; cf. GERNER, 2019) perspective? A simulated face is a thing, a surface, an animated thing, at best, in analogy to an incomprehensible *as-if-face* of *algorithmic rationalization*. In the “simulation” of a human face by an algorithmic image, we can critically assess its digital functions. In the simulated image, a face becomes an animated mathematical topological map. This map reanimates the anthropological death mask (BELTING, 2013, p. 77-90), as is the case in the image-simulation of Albert Einstein’s face²³. To understand the consequences of transforming a human face into a mathematical and algorithmic digital image requires knowledge of the persuasive power of algorithms that simulate by sorting. In line with KNUTH (1998) who defines algorithms functionally by its properties of 1) finiteness 2) definiteness 3) effectiveness and 4) input 5) output, Bucher (2018) refers to the task of “sorting” that implies given sets and its various types of sorts as the most common task an algorithm has to solve:

A given sorting problem may have many solutions; the algorithm that eventually gets applied is but one possible solution. In other words, an algorithm is a manifestation of a proposed solution. Just as there are multiple ways of sorting a bookshelf in a well-defined order- for example, according to an alphabetical order by the author's surname, by genre, or even by the colour of the book jacket, different sorting algorithms (e.g., selection sort, merge sort, or quicksort) can be

²³ See the “resurrection” of Albert Einstein's artificial face in an animated image created by animation scientists at the Film Academy Baden-Württemberg using a movable composite body: (HELZE; GOETZ, 2018) .

applied for the same task. Anyone who has ever tried to arrange a bookshelf according to the colour of the book jacket will probably be able to understand how this specific organizational logic might have an aesthetically pleasing effect but also come with the added practical challenge of finding a particular book by a certain author (unless you have an excellent colour memory). Hence, algorithms understood as forms of organizational logic, come with specific affordances that both enable and constrain (Bucher, 2018, p. 23).

Sorting and simulation programs stage technical *mise-en-scènes*. In this technical dramaturgy, we need digital literacy to access what is at stake. Mimetics of faciality and *simulation literacy*²⁴ would have to distinguish acting from a Simulation, or an *acting as-if*. In this situation, we require heeding that its recipients might “forget about the constitutive gap between simulations and reality, and therefore to mistakenly understand what was simulated ‘as if it were real’ as ‘being real as a matter of fact’” (GRANSCHE, 2017, p. 34). In the same line, the participation that simulated faces in their as-if-faciality propose, have to be conceived as as-if participation.

3 DE-FACING THE SOCIAL MEDIA: ON ARTISTIC/AESTHETIC DRAMATURGIES AND MEDIA STRATEGIES OF HACKING PROGRAMMED FACIALITY

Information technologies and the use of *Big Data* for medical purposes or scientific discoveries can contribute to the welfare and prosperity of a free and open society. Nevertheless, *Big Data* and AI might

²⁴ “As computer simulation is a subtype of simulations more broadly, it possesses certain simulation-specific properties. Simulations can be seen as composed imitations of something real, and as creations of something fictitious or imaginary. In this perspective, to simulate means ‘to act as if.’ Simulation can be understood as an act of transforming the world into a composition that is configured to allow for specific insights. The science and art of simulation has reached an impressive performance level that can be overwhelmingly persuasive. Computer simulations artistically present their imitations or creations as if they were real. This can tempt recipients to forget about the constitutive gap between simulations and reality, and therefore to mistakenly understand what was simulated ‘as if it were real’ as ‘being real as a matter of fact.’ Simulations have a very powerful capacity to persuade, to present creations as apparently obvious and thereby to hide their composed nature. As such, they are a powerful tool for influencing social discourse and allocating resources—attention, support, and funds alike. The 2° C target in climate policy, for instance, is derived from climate simulations and used to motivate all sorts of action, from individual energy-saving behavior to global emission limits. / This leads to the question of how simulations affect their recipients and to what extent their persuasive power has to be contained or accompanied by recipients’ simulation literacy” (GRANCHE, 20173, p. 4).

compromise people's autonomy and the importance of human decision-making skills and thus restrict human freedom of action. With this in mind, we should discuss and negotiate the rules of a new social contract in the digital age. In this digital social contract, we should reorganize the utilization of algorithms and the subsequent values attributed to algorithmic rationalities. The power of privacy and autonomous life has to rebalance the power of selecting, harvesting, and drawing upon *Big Data* for a more just society with algorithmic rationalities.

In this more just society, people -once providing their data- would be honestly informed that they are needed, and would earn compensation for services, that they help to improve, and hence equally thrive socio-economically. Therefore, this poses a question about our *laissez-faire* attitude by giving away our data for free and unwillingly so. Significant Data harvesting by AI companies such as Facebook, Alphabet, Amazon, Netflix, Disney pose the question: Why do we allow these companies to collect behavioural data about ourselves and even minors? Why do we allow Google to check and harvest data from our emails or Facebook to process all our data of preference and clicking likes? Why do we accept with Disney's AI-endowed audience reaction modelling research (DENG²⁵ et al., 2017) by neural nets that cinema as a consequence has to cut out anything that programmed reactions to identify as *boredom* or with Alipay filter out *ugly* faces? What does this say about the anthropological normativity of algorithm-influenced faciality?

Moreover, why do we allow the big digital (social) media companies of the 21st Century to get away with adapting our online experience around triggering and amplifying addictive patterns and mostly negative emotional responses that maximize our time spent on their platforms? Data disequilibria that LANIER and WHYL (2018)

²⁵ The software monitors the viewer's Coded Affective expression with the help of *Big Data* analysis in Disney research using a method called a factorized variation autoencoder or FVAE. Neural networks model the reactions of viewers to films. The software automatically recognizes patterns in cartographed vector-based facial maps of facial expressions and analyzes how viewers react to films in Disney's research experiment. Presented in collaboration with Caltech and at the IEEE Conference on Computer Vision and Pattern Recognition in Hawaii, this study shows how a face recognition system modeled after American filmmakers can help to understand some of the emotions and reactions generated by the films in the audience. The software monitors the viewer's facial expressions using a method called a factorized variation autoencoder or FVAE. According to one of the researchers, the individual reaction of a single cinema viewer becomes predictable: "with enough information, the system can assess how an audience is reacting to a movie so accurately that it can predict an individual's responses based on just a few minutes of observation".

designate as “injected manipulation” concern how the actual Internet works. Hence, we need an epistemology of *data voluntarism*. In Data voluntarism, we quickly and unconsciously hand over our data. In the case of health apps that read our pulse, measure our temperature or our blood pressure. However, scandals such as *Google's* project Nightingale remind us that rarely we are asked to consent to the handing over of our medical data to third parties such as insurance companies that might hinder us from getting a housing loan. LANIER and WHYL (2018) propose not only resistance to data voluntarism, but moreover, call for the creation of an entirely new just system of how the network data companies monetize personal behavioural user data that we create. The principle of *data dignity*²⁶ as the form of data-driven economy and sustainability “[...] translates the concept of human dignity that was central to defeating the totalitarianism of the twentieth century to our contemporary context in which our data needs to be protected from new concentrations of power” (LANIER; WHYL, 2018, p. 5).

For the new deal of the economy of the Internet, we can foresee that we will be increasingly becoming conscious of the value that we as humans produce data. We will not only want to gain economically from our data, but want to be more and more empowered by the possibility of perceiving ourselves as *creators of value*. The means of how we use data about our identity - such as our face - are used by big technology companies to make money. They make even money with the reckoning of our faces and our social behaviour and interactions, especially online. In public space, we have always already paid with a social reputation for losing our face in public. However, in China -for a growing number of restaurants - this is already a fact: we can ‘Pay with your Face’ (FENG, 2019), fostered by face recognition technologies such as *face*

²⁶ “Data Dignity/ A coherent marketplace is a true market economy coupled with a diverse, open society online. People will be paid for their data and will pay for services that require data from others. Individuals attention will be guided by their self-defined interests rather than by manipulative platforms beholden to advertisers or other third parties. Platforms will receive higher-quality data with which to train their machine learning systems and thus will be able to earn greater revenue selling higher-quality services to businesses and individuals to boost their productivity. The quality of services will be judged and valued by users in a marketplace instead of by third parties who wish to influence users. An open market will become more aligned with an open society when the customer and the user are the same person. / Glen has called this idea of a true market economy for information ‘data as labor’ and ‘liberal radicalism’, while Jaron has called it ‘humanistic digital economics’ and ‘entrepreneurial democracy’” (LANIER & WYL, 2018, p. 4).

++ (Megvii²⁷ Technology; FACEPLUSPLUS; 2020) for face detection, face comparison, face searching your face is rendered a technical device of reckoning and linked to your bank account.

*Alipay*²⁸ (Alibaba) and *Wechatpay* (Tencent) are among the first internet and *Big Data* giants that have a growing number of customers using face recognition for economic transaction applications. Other start-ups such as the Israeli company *Faception* (FACEPTION, 2019; SIMANOWSKI, 2018, vii-xxxi) have built ecosystems of security to recognize a face and its attributed personality. Thus, we have to ask: how do companies such as *Face++* or *Faception*²⁹ serve or hack the four pillars of democracy³⁰ by technological power. They utilize *Big Data* and monopolize corporate algorithmic governance in the sense of using the human face as payment or access tool to society and its evaluation and esteem. This principle can come in the form of economic activities in which *Big Data* of faces push for a transformation of facial politics

²⁷ Other companies besides *Megvii* {Face++} (China) as *Clearview AI* (USA)- the tools the latter of which “(m)ore than 600 law enforcement agencies use [...], which depends on a database of more than **3 billion images gathered from millions of websites**, including Facebook, Instagram, Twitter and YouTube” (BIOETHICS OBSERVATORY, 2020), include: “NEC (Japan), Aware (US), Gemalto (Netherlands), Ayonix (Japan), Idemia (France), Cognitec (Germany), nVviso SA (Switzerland), Daon (US), Stereovision Imaging (US), Techno Brain (Kenya), Neurotechnology (Lithuania), Innovatrics (Slovakia), id3 Technologies (France), Herta Security (Spain), Anometrics (US), FaceFirst (US), Sightcorp (Netherlands), FacePhi (Spain), and SmilePass (UK).” (Cf. MARKETS & MARKETS, 2019) estimates that the market for face recognition technologies solutions to rise from 1,6 Billion (2019) to 7 billion US Dollars in 2024.

²⁸ Cf. on *Alipay*’s application “Smile to Pay” (GILBERT, 2020): “A poll by news portal Sina Technology found that over 60% of respondents said scanning their faces for payments made them feel “ugly”./In response *Alipay* pledged to introduce “beautifying filters” into all the *Alipay* cameras” (AGENCE FRANCE PRESS, 2019).

²⁹ “The promise that *Faception* software will improve human interaction could turn into a nightmare once the product is used beyond airports, subway stations, and other enhanced security locations. Algorithmic screening could be used to analyze new members of a health club, job applicants, and potential partners on a dating site before people have a chance to speak for themselves. Ultimately, the only limits on the human drive for knowledge are technological. Anything that can be measured will be measured, in the name of transparency, enlightenment, and truth. Who would think about getting in the way of such a noble cause or the technological innovations that result from it?”(SIMANOWSKI, 2020, viii-ix).

³⁰ 1) free and fair elections (cf. the Cambridge Analytical case) 2) active participation of the people, as citizens, in civic life 3) Protection of the human rights of all citizens 4) The rule of law, in which laws and procedures apply equally to all citizens cf. Diamond, Larry. “What Is Democracy?” (DIAMOND, 2014).

ethics and aesthetics³¹ and even transform social interaction through the means of programming technologies. With faciality becoming a productive technological tool of the Digital Age we have to heed that AI technology & *Big Data* curate new simulated data-based face interactions and reconfigure how and for what purpose we produce and interact with our faces.

In terms of WEIGEL (2017), KÖRTE & WEISS (2017) emphasize that we produce faces and how important this is for the formation of us, as human cultural beings in which we have no choice but to permanently “produce a face” (KÖRTE; WEISS, 2017, p 9). Above all: what is a faciality³² in a face-to-face encounter? Is the encounter of the face of the other not a resistance to the already reckoned facial map and reckoned death mask in programmed faciality: How can a face be alive if not in the encounter of the uncontrolled Other?

Today programmed faciality can detect faces even in clumps of clay. Thus, the artwork “Face Detection” (HD Video; 5 forms of clay) of Johanna REICH (2018) shows differences between the face as appearing to our human gaze and the technological programmed faciality of an iPhone to identify faces to take a photo:

³¹ On the 15th of April Face++ launched the FaceStyle Tool in which not only facial make-up is proposed but as well the analysis of skin tone among other “AI-powered beauty-solutions” to “recreate” and transform the user’s face aesthetics. “Using Megvii’s leading facial recognition technology and its proprietary Brain++ AI productivity platform, FaceStyle accurately captures and replicates end-users’ facial features, via a few thousand key points around the mouth, eyes, nose, and eyebrows, to demonstrate the effect of makeup in a realistic setting. It is able to analyze and recreate the individuals’ facial appearance, including skin and lip color, wrinkles, and spots. FaceStyle can also generate skin condition diagnosis and provide personalized skincare recommendations to end-users” (FACEPLUSPLUS, 2020).

³² “What we in German call face is less simple and uniform than assumed. There is no basic face in the sense of Danto's basic actions. [...] While the Latin word *facies*, like the English word *face* derived from it, is reminiscent of making (*facere*) and thus brings the plastic shape of the face to the fore, the French word *visage*, like the German word *Gesicht*, refers to seeing and being seen. In contrast, the Hebrew word *panim*, like the German word *Antlitz* (face), emphasizes the special process of relationship building and facing, the sight that lights up like lightning and multiplies itself in the changing view. The Russian word *lico* means face, cheek, person. In this last signification, it resembles the Greek word *prosopon*, which literally refers to the act of gaze, but it does not stand for the face, but also for masks and roles, which in Latin are rendered with *persona*. In this way, gaze and address are combined” (WALDENFELS, 2005, p. 187-188, my translation from the German original).

In her work “**Face Detection**” JOHANNA REICH explores the relationship between man and machine in the digital age. In front of a smartphone camera with face detection, she is forming clumps of clay until they were recognized by the facial recognition program of the smartphone as humans. At the point of recognition, she stops forming. When does the human appear? When does it disappear? Furthermore: The Software seems to have a sense of abstraction because it discovers it already in roughly worked lumps (REICH, 2018).

Has hacking the programmed face-recognition biases (BUOLAMWINI; GEBRU, 2018) *coding with a white mask* helped change the policy of using AI Face recognition?

In June 2020, in the aftermath of global racial injustice after the police killing of John Floyd, US companies IBM, Amazon, and Microsoft announced (KAY, 2020) took their Face-Recognition programs temporarily out of the market. The reason was that they wanted to hinder police from using it in racially biased recognition of faces for law enforcement of arrest, as specifically black people are disadvantaged in being misidentified by this kind of program. The consequence of these actions is partly due to the influential³³, critical and very insightful work of the MIT Media Lab member Joy Buolamwini (BUOLAMWINI; GEBRU, 2018) on “gender shades” (BUOLAMWINI et al., 2018). Buolamwini was using face recognition with *Big Data* sets of faces as she discovered that she was coding with Face Data sets that as a person of darker colour would not recognize her face as such. “Coded gaze” is a critical stance towards coding with a white mask. She creates programs that initially could not recognize her face and subsequently investigated the degrees of racial and male/female biases that several face-recognition programs entailed in their data sets. Thus, Buolawmni rendered facial bias visible. We are not only confronted with the formation of single subjectivity but more fundamental than that: with the algorithmic and programmed influence on and manipulation of face-to-face social encounters. When the face

³³ The EU created an *ethical AI label* for EU companies. In its white paper of the European Commission (EU, 2020, p. 11) quotes Bualmini & Gebru (2018): “Certain AI programs for facial analysis display gender and racial bias, demonstrating low errors for determining the gender of lighter-skinned men but high errors in determining gender for darker-skinned women”.

is measured (“vermessen”³⁴), mathematized and finally reprogrammed³⁵, the image is algorithmically synthesized.

As a consequence, the unique plastic-gestural encounter with the face of the human other and its counter-gaze might get lost. The paradox in political and social programming of faces political lies in artistic and aesthetic³⁶ strategies and dramaturgy of simulated or "fake CHAILLOU, 2019, p. 27) "faces in contrast to "real" faces that AI media provokes. These strategies of provocation start with the questioning and hacking of modelling and mathematical cartographies for the (early) recognition of identity and its influence of affective computation on social behaviour (programmed sociality).

The adversarial network program *StyleGan* (KARRAS; LAINE; AILER, 2019) is an example of the generation of simulated faces. *StyleGan* led to the creation of a polemical website that is officially producing aesthetic hyperreal fakes, such as non-existing *human image synthesis* faces by the ex-UBER engineer Philip Wang “thispersondoesnotexist”: WANG; 2019) among other non-existing objects (Fakes)³⁷. Other artistic, political approaches are strategies of “Facelessness” (DORINGER; FELDERER, 2018) or of “obfuscation”

³⁴ On the paradox of the use of the word "measured" between a) quantifying b) mismeasuring and overestimating and c) not respecting the limits of quantification and measurability of social relations see Mau (2017).

³⁵ See the “resurrection” of Albert Einstein's artificial face in an animated image created by animation scientists at the Film Academy Baden-Württemberg using an actor that has his head and face movements scanned and digitally transformed (HELZLE; GOTZ, 2018).

³⁶ “The practices of aesthetic thought cannot be made into algorithms or programs. The qualities of aesthetic practice are re- contouring themselves with the dispositive of digitalization. Acting aesthetically in digital technologies will be the challenge of the future. [...] *Fuzzy Logic* is just as little able to make the incalculable calculable. The aesthetic is rather based on the kind of estimation which cannot be carried over into measurement. Art is thus neither what can be captured with binary operators nor what lies ‘between’ the binaries as remnant categories: it is rather the praxis which requires a change of terrain./If in the future the measurable side of the world should become totally ascertainable through digital actions, it does not yet follow that the non-measurable will fall into irrelevance or that the unmeasurable side of reality will be sacrificed as a vestigial stage of digitalization” (HENKE et al.; 2019, p. 51-53).

³⁷ See as well the Meta-page of inexistent VEA-GAN created fake X's {X= fake start-ups; cats; horses; emotions; resumes; questions; vessels; lyrics; rentals; snacks; memes; chairs; foot; satires; Chemicals; Words} URL; thisxdoesnotexist (HORA; 2020); We cannot speak of a creative boycott by fake operators as the technical improvements are continuing to appear: In this affirmative sense of perfecting hyperreal fake simulations already an improved *StyleGAN 2* exists and as such (KARRAS 2020) avoids the first *StyleGAN* errors such as artifacts of unaligned teeth concerning face/head-position.

(BRUNTON; NISSENBAUM, 2015) as well as *de-facing*³⁸, facial “obliteration”³⁹ or digital filter masks (camouflage) to counter-surveillance such as initiated with *CVdazzle*⁴⁰ by Adam Harvey in 2011 as an artistic praxis. These gestures of reinvention of privacy and subversive media strategies in dealing with controlled programmed sociality faciality go as far as deep fakes by real-time reenactments⁴¹ (THIES et al., 2016). These counterstrategies show a radical ethical gesture - in continuation of Levinas - of *face-hacking* as resistance against the commercial and martial control use of face recognition. Concepts of the anthropological sense of face the post-structural facial machine of lines and holes, the ‘visagiete’ (“visum”), persona, panim, lico, prosopon (mask), and a mapped surface of face recognition. After the reckoning process, an automatic decision-making algorithm attributes and infers emotions in the actual facial movements (BARRETT⁴² et al., 2019), and has to reassess critically how algorithmic rationalities of programmed faciality in the age of *Big Data* and AI change observed movements of the face into preselected emotion patterns.

³⁸ Thomas Macho (MACHO, 2018, p. 22) refers to the cultural re-arrangement or destruction of the portrait for instance in the German artist Arnulf Rainer and his face-overpainting and the iconoclasm shown by BECTON and HOBAN (2010).

³⁹ “As soon as there is an obliteration - by opening or closing, it remains the same - there is a wound. But its meaning for us does not begin because of the principle that is torn open by it, but in the person in whom it is suffering and in the other in whom it provokes our responsibility. [...] The obliteration makes us speak. [...] It invites to speak [...] Yes, there is an appeal of the word to sociality, to be for the other. In this sense, the obliteration naturally leads to the other” (LEVINAS, 2019, p. 44-46). My translation from the original German.

⁴⁰ Adam Harvey warns to heed the algorithms actually used in Face recognition: “Attention: whether a look works or not is up to you. CV Dazzle is a concept, not a product or pattern. Evading face detection requires prior knowledge of the algorithm. Most of the archived looks on this page were designed over 10 years ago for the Viola-Jones face detection algorithm. Current face surveillance uses deep convolutional neural networks (DCNNs). To use CV Dazzle, you must design according to the algorithm (hint: don't use Viola-Jones looks for a DCNN face recognition system)” (HARVEY, 2010).

⁴¹ See the work the TMU Munich AI Lab develops: <https://niessnerlab.org/projects/thies2016face.html>. “This research shows how ‘fake’ is real. Faces that perform on our screen can be manipulated, fabricated, and used as distributors of designed narratives. It is no longer a big deal to access an archive of faces of famous people and apply it to the body of another actor, performer, or porn model. This has been the case with a few pop stars whose faces have been applied and shared on a porn channel known as ‘deep fakes’” (DORINGER, 2018, p. 11).

⁴² Barret et al. (2019) underline the how important it is to not mix up interpretation, perception and inference with observation of fascial movement: They call for rethinking “emotional expressions” as actual “facial movements” and to always cautiously translate “reckoning of emotion” with *perception of emotion* or *inference of emotion*.

4 FACING A CONCLUSION: NOTES ON OVERCOMING PARTICIPATION WITHOUT DEMOCRACY

In the encounter of gazes measurable by algorithms, the recurrence to simulations of death masks and facial landscapes is unavoidable, though mostly never heeded. The reanimation of the eye-gaze and the face leads to the following question: In how far is the face-to-face encounter even more fundamental for the social in our age of AI and *Big Data*?

Let us develop our questioning and artistic and philosophical praxis of thinking faciality further. Hence, instead of a conclusion, let us assume that we have to do more than to hide or obfuscate our faces. With our face as the symbolic surface of our identity, we should confront fears of a surveillance society. We probably have to start to become more visible political actors and to be technological hackers. New voices that *hack into* technologies of *Big Data* and *Reckoning Faces* such as the artists Adam Harvey or Johanna Reich play with our algorithmic data culture. These artists are not only aesthetic specialists that show us gaps in the matrix from where we can act in a freer manner to create private Face-to-face spaces free of data monetization. Artists and their works often remind us how we have to balance the success of our scientific endeavours with our human needs.

The mathematization and empirical measurements can dissolve human needs in disruptive technological innovations. One such disruption will be the introduction of ubiquitous artificial “social presence” (TECH@FACEBOOK, 2020) of simulated Avatars. Hence, what we need to heed with an artistic and aesthetic approach is a more open theoretical and democratic space in which we question technological and programmed mediations of human sociality rather than quick technological fixes and analytic answers. Hence, we should employ art for creating a surplus of significance and critic for a praxis of questioning and thinking to avoid automatic algorithmic ways of reasoning and preset actions. These actions cannot be confounded with acts of wise deliberation and informed democratic and forward-looking decision-making processes. We are living in a time of a historical chance.

We can change the supposedly unavoidable “hacking humans” approach by rebuilding the data-economy and digital society. Thus, we need to introduce new democratic structures, policies, laws and economic models that take advantage of new technological

developments such as AI and *Big Data*, but not succumb to convenience in digital automatism that entails a loss of our autonomy. While developing “blueprints for a new digital society” (LANIER & WEYL, 2018) we have to be certain that these new institutions and policies are apt for a just and fair digital and *Big Data* era that does promote digital literacy, justice and digital dignity. Non-sensical automation, which deprives humans of their autonomy of action without alternatives without possibilities of correction when biased, is a danger to democratic societies. Thus, automated AI & *Big Data* systems must include the option of humans ending toxic automation by a possible manual controlled shut down of algorithmic rationality by using human judgment and have the right for things as simple as a face-to-face encounter.

No commissioning of automata should be allowed without systematic planning of two options (cf. MAZZOLA & HOFMAN, 2020): First, a possibility of turning algorithmic machines “Off” in a controlled way, and secondly the introduction of an "Esc" function to take manual control over automated normative action-chains and behaviour. These two functions would foster our right not to be automatically reckoned in face-recognition free public and private spaces. These proposals have to consider “pull the plug” (VÉLIZ, 2020) mechanisms to stop rendering personal data *toxic* for our private life, our social interactions, and our democracies. Shielding against toxic data entails the possibility not to be tracked and reckoned based on our unique faces and to be able to opt-out of simulated faciality in virtual and simulated encounters and obfuscate AI facial reckoning.

Globally distributed data networks, data storages and network populations as they are now, using *Big Data* and AI, are not already leading towards a new form of democracy. They do not comply with accountability, equality, or fairness of democratic representation. Our critic might heed the praxis of how to obfuscate faces, as people from Hongkong, but, moreover, we have to reclaim our right of privacy and uniqueness of the face-to-face encounter as well in its digital form and applied to our digital doubles. If we are still interested in keeping democracy in the digital age, we have to start working on new digital literacies and praxis. We have to have a say in how we can be empowered by our data and our digital data doubles. We have a right not to be only users that have to buy into or rent a world in which we can only participate as much as the Software, the app, the algorithm, or the machine learning program or technological companies and brands

lets us. We are more than payments and more than users and more than the *Big Data* that is collected, selected, stored, and processed without our knowledge and best judgment. Our faces might get digitalized, mathematically measured or reckoned, but they are not for sale without our consent, nor can we be reduced to be paying with its uniqueness.

Can we reform the *Big Data* economy that threatens our democracy, if not by stopping the possibility of personalized advertisement and its inherent business model of us being the product? How do we get hold of the Big Nine (WEBB, 2019) that create global corporate citizenship after their corporate image? How can we diminish the influence of foreign rule and if necessary, vote out democratically certain digital powers? Are we heading towards a globally installed participatory model such as the Chinese Recommendation system that undermines the democratic rule of law? Democracy manifests itself in constant access to all accountable information. Hence, we have to ask how does it work in a system that 'presorts' information, for instance, starting with facial recognition and automatic judgments based on *Big Data*? Thus, we should reject the reduction of persons to *users* that make part of a system of *participation without democracy* (FÄBLER, 2020). We know that already some cities refuse to make part of a permanent surveilled data exchange about the movement of their citizens in public space.

We cannot let algorithmic rationality and mathematical programming undermine our autonomy, privacy, societal freedom, sociality and human interaction. We neither should allow for turning democracies into a nightmare of ubiquitous algorithmic control of permanent face screening and automated decision-making in the sense of the Chinese Social Credit System. However, we have to go further in becoming possible *creators of value* deeply related to our data, such as derived from our social face and our gestural face-to-face encounters. AI and *Big Data* have to be held accountable and regulated towards human values and used for the common good of unique social encounters.

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Affiliation: Alexander Gerner, Centro de Filosofia das Ciências, Departamento de História e Filosofia das Ciências Faculdade de Ciências, Universidade de Lisboa, Campo Grande, Lisboa, Portugal. Contact: amgerner@fc.ul.pt

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