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Humanities

The Humanities and the Rise of AI

Implications of Cultural and Societal Engineering

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Reasoning amidst Machines
Situating the Humanities between Data Capitalism and Algorithmic Culture

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In recent years, the world has seen a surge in the development of data-driven algorithmic applications, which are referred to by researchers and the public as "artificial intelligence" (AI). This rise in AI applications, most notably predictive generation models for text, images and video (generative AI), suggests radical change for many aspects of human practice given the improving processing capacities of such models in tasks like pattern recognition and token prediction (Mitchell 2019), challenging existing theoretical frameworks within the humanities. For tech enthusiasts, this development seemingly has opened the gate for a fundamental reshaping of human culture through data modeling and predictive algorithms. The disruptive potential of AI applications has recently been highlighted by the emergence of new virtual assistants such as OpenAI's ChatGPT or Google's Gemini that build on Large Language Models (LLMs). The focus of the discussion here is the often-impressive output quality when using such applications to simulate human capabilities and practices such as the production of text or visual representations such as images and videos. That said, it has also been shown what weaknesses these applications currently have in the generation of content, for example, so-called 'hallucinations', that is, nonsensical text output or conspicuous errors in the composition of images (e.g., frequently in the reproduction of human fingers). There are also complex copyright and ethical considerations when it comes to data collection and annotation on the part of tech companies (Crawford 2021).

In view of the current development progress in the field of AI and the public discourse on its cultural significance as a technology, the dynamic situation surrounding the topic is also referred to as "AI summer" or "AI spring" – in analogy to the "AI winter" (the topic of a debate between Marvin Minsky and Roger Schank in 1984; Crevier 1993: 203), at that time in view of stagnating development of computer-based data processing approaches. This complex also includes a growing interest in the economic exploitation of such systems as well as a broad public attention toward AI applications and the opportunities and risks associated with them. At the same time, there are first signs that the current cycle of technical innovation may be leaning towards its end already, as evidenced in the problems tech companies will soon be facing with LLM development due to the lack of new (i.e., not already generated with AI systems) training data (Villalobos et al. 2024). Also, the economic exploitation of AI technology currently seems unclear: As of 2024, no large tech company investing in AI development has reached the point when these applications become profitable. After the initial hype surrounding programs such as ChatGPT, the public debate seems to be increasingly differentiating between their apparent 'capabilities' and their technological nature as a human-made tool among others. Alongside the larger-than-life promises made by representatives of the tech in-

dustry, there are increasingly critical evaluations of the current technical possibilities as well as the ideological charging of current discourses on AI (Lundgren 2023).

An instructive example in this context concerns the possibility of not only technically simulating human capabilities with AI systems, but actually generating them. The discussion here encompasses many different aspects, such as the question of whether AI applications could output unseen character combinations, that is, produce 'creative' outputs in the human sense that cannot be derived from the stochastic probabilities for token sequences present in the training data (Leveau-Vallier 2023). Other researchers argue for (e.g., Otte 2021) or against (e.g., Fuchs 2020) the possibility to create an experience of the self ('consciousness') in machines. In this context, the embodiment of human experience plays a central role – as evidenced by current efforts to combine language models with movable joint apparatuses to create a new type of robot (Zeng et al. 2023). What is striking in these discussions about AI is a strongly metaphorically charged way of talking about technology that ascribes human characteristics to software programs, ignoring the fact that humans are responsible for all aspects of these applications, from design over development to use. These discussions can be seen as normal accompanying processes of a technological innovation that has to be integrated into the human lifeworld as a new form of tool. Similar discussions already accompanied the development of the printing press (Giesecke 1998) and the internet (Castells 1996). What seems to be new about the discussion surrounding AI and its supposed 'capabilities', however, is that the simulation of human action – and thus the illusion of agency – seems to touch the core of the human self-image, e.g., intelligence and, centrally, language. It is therefore no coincidence that many media reports and scholarly publications about AI read almost like science fiction novels (e.g., Tegmark 2017).

Ever since its beginnings, AI as a concept and technology has triggered an enormous rush of utopian and dystopian thinking. With the ongoing hype around AI, some researchers now dream of immortality and the vanquishing of poverty, disease, and warfare (e.g., Panic and Arthur 2024), others highlight the destructive potential of AI systems in the form of "surveillance capitalism" (Zuboff 2019) or predictive decision making (O'Neill 2016) and foresee a bleak future for those parts of humanity that find themselves outpaced by technology. Potential consequences of the changes imposed by technological advancement on human practice affect all aspects of societal organization, from the individual (e.g., self-quantification; Lupton 2016) through cultural techniques (e.g., photography; Jurgenson 2019) and social practices (e.g., group organization; Pariser 2011) to society as a whole (e.g., the datafication of the social; Mau 2017), raising fundamental questions about the social fabric of culture. The understandable (public and academic) interest in these developments and their imaginary potential should, hence, not obscure the fact that models and algorithms currently labeled as AI can only be developed on the basis of a far-reaching datafication of human practices, and vast amounts of invisible, often underpaid human labor for data annotation and moderation (Crawford 2021). In fact, the extensive human and material foundations of AI leave ecological and economic footprints of considerable proportions on the terrestrial environment and raise questions about the ethical justifiability of human data work, forming the basis for the economic exploitation for AI – that benefits tech companies in

rich countries at the expense of underprivileged workers from poorer parts of the world. Even in those privileged parts of the world where AI appears primarily as a new fascinating component of the digitally enriched lifeworld, however, algorithmic models are influencing culture and society far beyond the limited scope of their practical application: They reshape communicative processes as well as the way we orient in the world, largely driven by the *information engineering* of tech companies like the adaptation of search results and social media streams based on typified user profiles (e.g., Bernard 2017), thus subjecting the individual and society to new forms of data surveillance (Cheney-Lippold 2017), "platform capitalism" (Srnicek 2016), and behavioristic control (de Jong and Prey 2022).

This also affects human behavior in areas where people do not interact directly with computers. As Pasquinelli (2023) argues, the essence of AI lies less in the replication of human intelligence in machines than in the "algorithmization" of culture, economy, and society, the history of which can be traced far back to the birth of modern society, for which a digital logic ("patternedness") has been found to be fundamental (Nassehi 2019). In the "information age" (Castells 1996), the process of algorithmization is not only evident in the creation of ever-growing data collections; it also shapes the specific form of interactivity that the Internet has enabled. According to Pasquinelli, this interactivity is designed to trigger – and quantify – as many social interactions as possible. The platforms enabling digital social practices are in essence developed to function as data collection tools, with social interaction as the input for the training of powerful algorithms to optimize user engagement – a global social experiment carried out in real time. It has been shown that for any digital service offered in platform capitalism for free, users pay with their interactions, their data (Rudder 2014; Krumay & Koch 2023). The economic and political logic of an *algorithmic culture* are thus at work long before its products, the platforms and services with which users interact, become available, and they incentivize the constant optimization to collect more data and increase revenue (Finger & Dutta 2014).

This nexus of technology-power-profit sitting at the core of the current hype around AI, as well as its epistemological underpinnings, constitute the main interest of the present collection of papers. Its primary objective is to examine the role of the humanities in view of the fundamental transformation of the social in the spirit of data capitalism. In doing so, this volume focuses on the specific position of the human in the technologized world. However, instead of joining in the swan song of those who see mankind in a rearguard fight against the rising machine supremacy, this volume asks how the current changes in the way we organize and understand culture affects the understanding of man as a social being. The contributions in this volume develop different analytical approaches to this overarching topic, for example, concerning the implications of attempting to replace human intelligence with predictive data analytics, of defining the human mind through the mirror of the technology it creates, or of revaluing art and science as highly developed but predictable products that can be outsourced to AI. The authors of this volume explore potential answers to such questions, and find them in the core domain of the humanities, that is, in scholarly reflection on the socio-technical conditions of culture, by examining art and science as expressions of human creativity, and by monitoring

the changes to communication and society imposed by their technical reshaping. As the different perspectives on the rise of AI and its implications for culture show, the humanities have a special position among the disciplines involved in examining the weal and woe of modern society, that is, the critical reflection of the human condition in a digitally-enriched lifeworld, and a responsibility to reveal the hidden motives and ideological foundations of current developments, especially when they affect humanity's basic understanding of the world it has created – which is currently being significantly readjusted by datafication and algorithmization (Brzeziński et al. 2024). By engaging with these foundational aspects, the contributors to this volume seek to unpack the ideological and epistemological underpinnings of AI, offering new insights into its impact on human creativity, cognition, and communication.

Dissecting the episteme of algorithmic culture

But what exactly does this epistemological shift consist of in the context of the algorithmic culture? Primarily forms of digitization, quantification, sorting, and measurement are used to capture the complexity of society and culture in patterns, datasets, models and classification and predictionsystems (Bowker & Leigh Star 2000). These forms of "making sense of the world" (Grimm 2017) are often assumed to be objective and 'natural', while they are actually produced, that is, established as symbolic representations of the world by using devices and methods manufactured for the exact purpose of measuring and categorizing (Janich 2000). The results of this *artifactual empiricism* not only inform economic and political as well as individual decisions, they are also pervasively integrated into everyday life through apps and digital assistants for self-quantification, suggestion and recommendation systems, and anthropomorphic interface design. In this way, society has entered a state where the human experience in the world is replaced by "smartness regimes" as ways of knowing and representing the world through data (Halpern and Mitchell 2022) – with "data selves" seen as a new extension to being human (Lupton 2020).

The goal of such smartness regimes is to integrate computerized processes into any environment possible. As "environmental targeting" (Nosthoff and Machewski 2023: 13) tailors the lifeworld to individual needs (as identified by algorithmic typification), its digital and analog components become increasingly intertwined. This environmental integration of AI inevitably creates new forms of governmentality, a new interplay of self-knowledge and external control. To the critics of datafication, it seems obvious that the combination of capitalism and extensive forms of computerized datafication is working towards a new form of control society (Zubov 2019). On the other hand, the utopian and dystopian discourses surrounding AI, which often show a tendency toward teleological reasoning, run the risk of contributing to a depoliticized perception of this governmentality and to a general acceptance of the power imbalances that new technologies produce (McKelvey and Roberge 2023).

However, not only the economic and political implications, but also the epistemological dimension of AI itself has become a subject of debate. While supporters of the ongo-

ing datafication of self and society proclaim an "end of theory" (Anderson 2008) in the humanities and emphasize the extensive possibilities of big data for researching comprehensive cultural contexts (Manovich 2020) and influencing human action to the better (Thaler and Sunstein 2021), critics have pointed out that datafication is actually the opposite of scientific inquiry. According to Haggart (2023), for example, the datafied world corresponds to a "post-rational, post-scientific world view: a belief that if you gather enough data and have enough computing power, you can 'create' authoritative knowledge." It is this belief itself, not the data, that challenges the epistemological foundations of society, because it leads to a blind faith in "oracular tools" whose knowledge production is not at all objective and neutral "automated wisdom", but is based on authority, just like the oracles of antiquity. Dataism demands "acceptance, not understanding", according to Haggart: "In effect, it degrades knowledge into a form of magic. It removes from individuals the power to understand, question and challenge. It's infantilizing".

The purely affirmative description of the *data-as-knowledge episteme* is thus countered by a critique that defends human practices of understanding and of sense-making (Viola 2023). In contrast to these debates, this volume seeks to examine the challenges and changes the human condition is confronted with in the context of social practices that rely more on the logic of data-as-knowledge. It aims to challenge the epistemological shift that informs this form of *ascientific sense-making*. To do this, this volume first brings together theoretical approaches to rethinking the relationship between humans and algorithms in a new and more complex way than is the case in the public debate. By including scholars and scientists from the humanities and social sciences (in the broad sense of the word) as well as from AI research, the volume focuses on the implementation of advanced technology in different domains of everyday life, that is, in relation to concrete areas of application such as art, science, education, or economy. In doing so, the volume investigates not only opportunities and shortcomings of AI research, but also implications and potential structural effects of technological innovation for the organization of societal practice (e.g., labor) and techniques of cultural self-reflection (e.g., history). By structuring the discussion in this way, we aim to provide a comprehensive view of how AI is not only shaping but also being shaped by human cultural practices. The volume not only asks what technologies can be used for (or will be used for in the future), but also how these uses can be compared and related to the human practices with which they become intertwined, e.g., perception, cognition, and communication. In education, for instance, the influence of AI applications is currently being discussed not only in relation to tools for the acquisition of knowledge but with a view on the potential transformation in the learning culture as well as the role of educators in technology-driven learning processes. Our objective is to examine how AI technologies are embedded in and transform human practices, and to assess the implications of these transformations for our understanding of human agency and cultural identity.

Disentangling human practices and their artificial enhancements

The public debate on AI seems to oscillate around two conceptual poles, descriptions of what AI *is* and definitions of human traits like intelligence or consciousness. The discursive construction of the human mind and its 'artificial counterpart' is strongly dominated by metaphorical language use: The *anthropomorphization* of technology – algorithms are described as 'intelligent' and apparently 'read' texts – is countered by a *technomorphization* of humans, for example, in describing the brain as a computer (West & Travis 1991). Such comparisons and equations can be found not only in feature articles and popular books (e.g., Ramge 2023), but also in neuroscientific research and computer science (e.g., Krauss 2024). They are based in the assumption that AI is meant to be the "automation of human cognitive abilities, from audio-visual perception to memory processes" (Craglia and Gómez 2022), and that human cognition is nothing but 'calculating'.

The cultural techniques in question here, however, are precisely those that have always been at the heart of the humanities endeavor: writing, reading, and understanding. This volume argues that the humanities must critically engage with these shifts, exploring how AI impacts cultural, social, and economic practices and structures. The central thesis of this volume is that the intersection of algorithmic culture and data capitalism requires a renewed examination of the human condition through the lens of the humanities. On the one hand, the contributions in this volume are concerned with finding more complex forms of describing the cultural intertwinedness of humans and technologies such as algorithms in society; on the other hand, they question the discursive construction of AI through specific forms of language use and trace the history of ideas that enabled the parallelization of human traits and their computational enhancement (e.g., the brain and the computer). It has been shown, for example, that the philosophy of mind since the early modern period has been based on the concept of the algorithmization of thought, a concept that quickly led to the effort to automate and thus externalize such algorithms (Gramelsberger 2023). In the 20th century, the advent of the computer prompted a cascade of reframing the relationship between artificial and human cognition, which continues to influence contemporary discourse (Ernst et al. 2019).

Examining such questions obviously involves theorizing about how the role of human cognition and communication for the production of cultural artifacts like language, texts or images, how meaning is constituted by dint of "symbolic pregnance" (Cassirer 1953–57: III 202), and the extent to which these processes rely on the human capacity for self-determined yet unpredictable action in relation to purposes. The goal here is to find a level of phenomenological description that makes the interconnectedness of human practices and their artificial enhancements in practices like reading, writing and learning palpable. For example, the development of 'self-learning' neural networks depends on models of learning that can be juxtaposed to models of learning as developed, on the one hand, by neurology and cognitive sciences, and, on the other hand, by pedagogy. The results of such a comparison are momentous: our notion of inventing and exploring, for example, might change due to technological progress, just like today's tech-

nological innovation will be considered as 'just another tool' in light of new technological innovations.

Another focus is on the development of new ideas of consciousness and subjectivity beyond the utopia of the "homo deus" (Harari 2018) and the dystopia of a "machine singularity" (Kurzweil 2005). Can the core of human self-valorization (vulgo 'the soul') be approached algorithmically? And what happens when emotions, desires and plans are surveilled and controlled by inscrutable algorithmic applications? The comparison of models of consciousness and the mind as developed in psychology, cognitive sciences, and philosophy with models used in computer science to build AI promises a clearer perspective on a topic that is currently subject to many mystifications.

For example, while human actors are self-aware and capable of switching between a first- and a third person-perspective, those notions hardly apply to current AI applications, that is, an algorithm has no experience of itself – or even a self – and of 'what it is like' to be an AI. For AI, just as for any other artifact created by humans, the mere idea of perspective is defined by the human utilization of tools. For this reason, one of the discussions around LLMs concerns the diverse cultural biases that are part of the human perspective on the world – and are inscribed in language models via the training data. Do we have to understand this as a limitation or rather as a necessary precondition for the effectiveness of an artificially trained system? How does the lack of consciousness shape our ways of working with AI applications and our expectations in relation to such uses (e.g., ethically, aesthetically, economically, socially)? How does the emergence of AI as a new enhancement to human action capability, as well as the integration of 'algorithmic knowledge' into everyday life, including even processes of human self-reflection (Fisher 2023), change both the conceptualization of society and the role of human individuality, i.e., the reevaluation of personal experience in technologically-enhanced societies and the algorithmic assessment of human individuality?

Works of art can also be used to answer such questions. Literature, visual art, and film are not only fields in which the 'capabilities' – real or imagined – of AI systems are reflected upon in aesthetically impressive ways; they also negotiate the relationship between human creativity and its artificial enhancement. Just as realistic forms of painting were thrown into crisis by the invention of photography, AI is opening up new fields of artistic activity, while others are falling prey to automation, for example, literary translation. Conversely, the arts serve as observers of digital change and can therefore be linked to theory. This is particularly evident in the narrative arts, such as film and literature, which are currently increasingly reflecting the transformation of the human subject, that finds itself spun into a network of algorithmic analyses, calculations, reflections, and services. These works often question the future and destiny of humanity in a more subtle way than is conveyed in public discourse.

Dismantling the connection of complexity and power

While all these perspectives focus on the similarities, the obvious comparisons, and the productive or dangerous confusion between humans and algorithmic applications, oth-

er contributions of this volume investigate the irreducible contrasts between AI and human thinking. First and foremost, the use of AI has made it possible to analyze complex ecological systems (e.g., climate, public opinion, economy, health) that go beyond what can be comprehended without using such tools. On the other hand, increasingly complex technologies have been designed to become integral parts of these ecologies. The emergence of networks linking human practices with AI applications, for example, in social media or finance, brings about both new utopias of transparency and fears of total surveillance. Artificial control systems challenge established forms of decision-making and cherished concepts of (Western) societies that are inherently linked to the question of human control, such as democratic governance, privacy, or personal responsibility for actions. So, as we rely more and more on new ecologies that we neither fully understand nor control, does the increase in technological processing of complexity inevitably lead to a loss of human control? Or can AI applications be beneficial in addressing pressing environmental and societal problems?

Undoubtedly, one of the main challenges in this context is the inevitable concentration of (political and economic) power in the hands of a small number of tech giants that develop algorithms and platforms, regulate access to (personal and collective) data, and control large parts of the technological, social, and economic infrastructure. This is evident in the sheer volume of data points collected and classified on every user of digital technology and even those who avoid such technologies. While today, many assessments of human activity are based on algorithmic – and highly biased – AI models (e.g., in bank lending or evaluating job candidates; O'Neill 2016), the data basis for such decisions relies heavily on problematic forms of low-paid labor, e.g., for data annotation. This shift in the distribution of economic responsibility poses a challenge for sustainable economies, but also raises questions about the value of human individuality in a globalized data economy.

These questions also affect our understanding of human beings, both in self-regulation and social interaction, such as the logic of our emotional communications, which are subjected to a new form of analysis and manipulability by "affective computing" (Minsky 2006). Affective computing means the integration of humanities concepts of emotion into the design of human-machine interfaces, thus demonstrating the exploitability of any kind of knowledge production under the data paradigm (Tuschling 2014). In digital communication, we also encounter new forms of camouflage, for example, in the form of "virtual contingency" (Esposito 2022), which gives artificially simulated social actors (e.g., chatbots) the appearance of naturalness.

Against this backdrop, the contributions in this volume implicitly or explicitly explore the possibilities of using artificial intelligence to reimagine and open up the future. New forms of critique and thinking must respond to the ecological complexity generated by current technological change, leading us out of the conceptual and fatalistic dead ends in which the current discourse on technology and AI specifically are stuck. For many of the utopian or dystopian narratives are propagated by those who profit from technological developments, with the (implicit or explicit) intention of presenting the future they promise to create as inevitable – with AI as the latest power tool to sell economically-driven imaginations to the public. If humanities research is to have any meaning, it must

question those *techno-teleologic* narratives, expose their ideological underpinnings (e.g., long-termism and effective altruism; Ord 2020, McAskill 2022) and connections with current economic and political efforts, and develop counter-narratives that emphasize the primacy of the human over the excesses of technological development, data capitalism and algorithmic control.

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