The Humanities and the Rise of AI

Implications of Cultural and Societal Engineering

World Expo Dubai, 6-10 February 2022

Organized by the
Faculty of Humanities, Education and Social Sciences of the University of Luxembourg
in cooperation with the
Faculty of Sciences, Technology and Medicine of the University of Luxembourg
and with the
United Arab Emirates University

Resubmission of abstracts:	(up to two pages) for paper presentations of 20 minutes by 9 July 2021 to: riseofai@uni.lu
Conference language:	English
Registration fees:	None

Travel and accommodation expenses: borne by the participants

Conference Description

Digitization and the rise of artificial intelligence forecast radical change on all aspects of human practice, especially given the ever-improving abilities of algorithms in tasks like pattern recognition and their practical application. Powerful technology arises from AI research, opening the gate for various forms of *cultural and societal engineering*, i.e., a reshaping of culture and society through algorithmic models and 'intelligent' applications. To date, however, even highly-trained algorithms are only outperforming humans in very specific tasks with limited scope (e.g., chess), as opposed to banal – yet cognitively highly complex – everyday actions like assessing the immediate consequences of a lie.

Thus, although the development of artificial intelligence is still in its beginnings, it has already triggered an enormous rush of utopian and dystopian thinking. While some dream of immortality and the vanquishing of poverty, disease, and warfare, others foresee a grim future for those parts of humanity that will find themselves outpaced by technology. Potential consequences of the changes imposed by technological advancement on human practice reach from the level of the individual, through cultural techniques, to the organization of society as a whole, raising fundamental questions, such as:

- How does artificial intelligence impact our understanding of the human mind, especially in relation to the role of its computational equivalents that reach more and more aspects of everyday life (e.g., chatbots, driverless mobility, risk assessment software in the banking and insurance sector)?
- What are the consequences of digitization and machine learning algorithms for education and our understanding of learning and creativity (e.g., in schooling through adaptive tutors, but also against the background of our current notion of creativity as a unique human ability)?
- How will the increasing use of computational methodology change the ways we relate to the past and envision the future (e.g., by reading), both in academia and in society? How can the enrichment of algorithmic models with methods and results from the humanities shape and improve computational assessment of human practice (e.g., data mining of big text corpora, automated translation, racial bias in neural networks)?
- How does the use of artificial intelligence in all domains of human practice influence how we deal with complexity and human control thereof? Can computational methods help to reduce, organize, and analyze cultural complexity, or do they pose a threat to human control over different aspects of the lifeworld (e.g., security and network technology, automation of industrial production, autonomous weaponry)?
- How does the omnipresence of classification (e.g., in data annotation and machine learning) impact our understanding of social representation and political power? How can the increasingly powerful corporations be held accountable for the impact of their business model on the world, that comes at increasing ecological cost and undermines basic human values such as privacy, self-determination, and equality for the sake of corporate benefit?

Against the background of such questions, the conference aims to foster an open and critical reflection on the consequences of cultural and societal engineering. Namely, algorithmic models influence society and culture far beyond the limited scope of their practical application. They reshape communicative processes as well as the ways we interact with the world; and thus, subject culture and society to new forms of ‘engineering’. By including scholars and scientists from the humanities and social sciences (in the broad sense of the word) as well as from AI research, this conference focuses on the implementation of advanced technology in different domains of everyday life, i.e., in relation to concrete areas of application (e.g., classification and pattern recognition) as well as associated human-machine interfaces (e.g., devices and applications). In doing so, the conference 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., work) and techniques of cultural self-reflection (e.g., history). It will not only ask what technologies can do (or will be able to do in the future), but also how these capabilities can be compared and related to their human equivalents, e.g., perception, cognition, and communication.

Accordingly, the conference will establish a reflection on the methodological differences between the areas of scholarship involved. Hosted by a faculty that unites humanities and social sciences, the conference aims at exploring how empirical sciences based in statistical evidence and scholarship grounded in interpretation can learn from one another, how they can profit from computational methodology, and how they are potentially altered by information technology. A central perspective in this context relates to the question of how humanities and

social sciences develop and implement models – and to what extent they reflect upon the preconditions and implications of their ways of modeling their objects of interest.

It is assumed that while the humanities can learn a lot from the rigorous procedures of building, testing, and evaluating models in (data-driven) scientific research, the sciences can surely benefit from the critical approach the humanities take when dealing with concepts and models for the (interpretation-driven) analysis and assessment of human practice, e.g., in assessing unintended consequences of models, or their role in society as a whole.

The conference will focus on the following areas of interest, each of which will assemble representatives of different disciplines:

Section I – Mind and Consciousness

- **Consciousness & computing:** How do models of the mind and of consciousness relate to models of data processing as used in AI development?
- **Experience & effectiveness:** To what extent are AI algorithms capable of self-experience, or does their effectiveness rely precisely on the lack thereof?
- **Action & assessment:** How does our notion of social activity and of assessing others change with the emergence of AI as a new type of social actor?

Section II – Learning and Inventing

- **Neurons & networks:** How can models of 'learning' neural networks be compared to those developed by psychology, the cognitive sciences, and pedagogy?
- **Cognition & creativity:** How do our notions of human competencies, such as problem solving, strategic thinking, and exploration, change with the emergence of AI?
- **Exploration & education:** How does AI change the ways in which we try to foster innovation and reshape educational systems?

Section III – Reading and Data Modeling

- **Production & processing:** How does AI change the ways in which humans produce and process language, texts, and meaning?
- **Meaning & machines:** To what extent can human procedures of making and understanding meaning be established in algorithms?
- **Classification & corpora:** How does large-scale data analysis change the ways in which we classify phenomena, process data, and interpret human practice?

Section IV – Complexity and Control

- **Complexity & control:** How can AI foster the ways in which we control societal and environmental complexity – and how might it bring about a loss of human control?
- **Analysis & adaptation:** How does AI enhance our capability of analysing complex systems and thereby make processes of decision-making more adaptive?
- **Transparency & transformation:** How does AI affect the transparency of societal and political processes, also regarding our engagement with complex ecologies?

Section V – Accountability and Power

- **Politics & power:** How does the concentration of power over data and infrastructure in technology corporations affect our understanding of political representation?
- **Economy & exploitation:** To what extent is the dependence of AI and the tech industry on problematic forms of labor a threat to sustainable economies?
- **Reshaping & regulation:** How can we hold the tech industry accountable in view of the impact of AI on human practice and the negotiation of social cohesion?

Detailed Descriptions of the Thematic Sections

Section I – Mind and Consciousness

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. From a scholarly point of view, one of the big issues related to the development of AI is the difference between computing and consciousness. 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, i.e., an algorithm has no experiences of itself and of 'what it is like' to be an AI. 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 interaction with AI applications and our expectations in relation to such interactions (e.g., ethically, aesthetically, economically)? More concretely, this section will investigate how the emergence of AI as a new type of intelligent, but unconscious social actor changes both the conceptualization of society and the role of human individuality, i.e., as for the re-evaluation of personal experience in technologically-driven societies and the algorithmic assessment of human individuality?

Section II – Learning and Inventing

The development of AI, particularly of 'self-learning' neural networks, depends on models of learning that this section will juxtapose to models of learning as developed, on the one hand, by neurology and cognitive sciences, and, on the other hand, by pedagogy. In doing so, this section will contrast the ways in which these disciplines model the acquisition of competences in pattern recognition, strategic thinking, and human(-machine) interaction. But it will also explore how they describe creativity, i.e., the emergence of new, unpredictable insights, experiences, and competences. Thereby, it will also discuss how our notion of inventing and exploring might change due to technological progress, taking into account that not only 'inspiration', but also more concrete competencies such as the ability to decide what to learn and explore have often been considered uniquely human. As a result, this section will try to examine the consequences of AI for the organization of education and evaluate the claims made by proponents of the application of AI to learning processes.

Section III – Reading and data modeling

This section will focus on the operational basis of the humanities, but also of cultural (re)production in general. It will ask how human cognition and communication create texts, language, and other cultural artifacts; how, in this process, meaning is constituted; to what extent these processes rely on unconditioned and unpredictable operations; and to what extent these operations can be modeled by algorithms. More concretely, this section will examine how human cognition and communication can be compared to automated information processing, e.g., in machine translation, machine-machine-communication, or the processing of historical corpora. Further, how is reading a book different from a computational 'reading' of big data, and how can the humanities make use of algorithms to challenge and improve hermeneutic methods? This section will foster a dialogue between scholars from the humanities (digital and non-digital), from cognitive sciences, and computer science. It will try to evaluate how an algorithmic assessment of the human past might affect societal self-description or even society's relation to time.

Section IV – Complexity and Control

Complexity is a key concept for the self-description of modern societies and therefore a central object of investigation both in the sciences and humanities, with descriptions that have roots in interdisciplinary approaches such as systems theory, ecology, and cybernetics. Yet, AI adds another layer to such theoretical attempts to reduce and describe complexity and thereby – maybe – control it. Not only is it possible to analyze complex ecological systems (e.g., climate, public opinion economy, health) with the help of AI. These increasingly complex technologies have themselves become integral parts of these ecologies. The emergence of networks that interlink humans and AI, e.g., 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 which are inherently linked to the question of human control, e.g., democratic governance, privacy, or personal responsibility for actions. Thus, if we rely more and more on new ecologies that we do not fully understand, nor oversee, does the increase of technological processing of complexity inevitably lead to a loss of human control? Or can AI be beneficial to overcome pressing ecological and societal problems? This section addresses sociologists and political scientists as well as computer scientists. It will try to assess the claim that AI is a solution for controling highly complex ecologies and its impact on societal discourse.

Section V – Accountability and Power

One of the main challenges accompanying the rise of digital technology relates to 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 the technological, social and economic infrastructure. This becomes apparent in the sheer amount of data points that are collected and classified of every user of digital technology. While many assessments of human activity rely on algorithmic – and highly biased – AI models (e.g., in credit allocation or candidate evaluation), the data basis for such decisions relies heavily on problematic forms of poorly paid labor, e.g., for data annotation. This shift in the distribution of economic responsibility poses a challenge for

sustainable economies, but it also raises the question of the value of human individuality in a globalized data economy. Against this backdrop, this section will engage with the manifold challenges that societies are facing concerning the regulation of AI and the tech industry, but also in light of the dramatically increasing ecological footprint of digital technology. It brings together political scientists and economists with computer scientists and industry professionals to examine possible scenarios for accountable AI as part of a human-centered and sustainable data economy.