EDITORIAL

Transformational AI: seeing through the lens of digital heritage and 'cybersyn'

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In AI&Society, we see an emerging AI narrative that encompasses transformational contexts of local–global cultures and global concerns. This narrative enriches the academic narrative on AI that has focused on social challenges of governance, ethics, accountability, and intervention. For example, what we learn from COVID-19 is that the transformation of this virus does not respect geographical or cultural bounds, it is both local and global at the same time. Moreover, this global Tsunami of virus cannot be controlled without human engagement and without social, cultural, ethical and moral constraints and interventions both at global and local levels. The pandemic has highlighted global governance challenges ranging from erosion of privacy to mass surveillance, increasing digital exclusion, and a transfer of power and control over infrastructure from governments to private corporations. COVID-19 pandemic has also shown the gaps between the limit of dependency on technocratic control and global inter-dependency between health and the economy and their vulnerabilities in diverse cultural contexts. The challenge is how in such a situation of uncertainty, the transformative narrative can transcend the techno-centric narrative of progress and predictive analytics to encompass human diverse social and cultural perspectives to cope with long-term consequences of the pandemic both at the local or the global levels.

What we have learnt so far from public narratives of COVID-19 is that it has sprung from a local lab or a local wet market in China and has spread all over the world. Further local social, cultural and health factors have impacted its transformation into various variants, and these variants again have spread from local to global levels, and these in turn are transforming themselves into yet more local variants. Over the recent past, we have seen similar transformation of another virus, the virus of the prediction paradigm.

Although it has sprung from within the Silican Valley culture of the academic body, its impact has spread globally like a Tsunami, so much so that, as Nowotny (2021) puts it, even public institutions all over the world are engaged in aligning governance with algorithmic predictions in the guise of the umbrella term, 'objectivity', thereby promoting the use of predictive analytics as tools of management of new uncertainties of the digital world, promising objectivity and efficiency in the delivery of public and private services, for example, in the decisions made by courts, and the police, by insurance companies and in healthcare systems. A question arises, how do we avoid becoming a part of this story of the Prediction Paradigm that inhabits new normal of automation and replaces human intervention and human judgments? But what is on offer? On offer is High-Tech Utopia; Surveillance Society, the Prediction architecture. But can we afford this utopia? In other words: can we afford the externalization of life to technological solutions? In contrast to the virus of the prediction paradigm, we have witnessed human, medical and organisational interventions to mitigate and control the COVID-19 virus through social interventions such as face mask and social distances, medical interventions of new vaccinations and diagnostic treatments and organisational interventions public funding and institutional rules and regulation to cope with the virus and its variants. We wonder whether similar harnessing of human, social, cultural and organisational inventions would have similar impact on limiting the increasing alignment of governance with the predication paradigm, or Big-Tech would have us live with this AI virus just as we are asked to make a cultural shift and live with new variants of COVID-19 virus. While the COVID-19 virus may be seen as another natural environmental disaster and we need to learn to live with it, we cannot say the same for the prediction virus as it has emerged from the dedicated academic body that should have been alert to its social and ethical responsibilities. It is hoped that those, who control and conduct the soothing discourse on cultural transformation in order to accommodate the predictive paradigm

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should be mindful that replacing human-in-the-loop engagement with algorithmic automation leads to weakening and ultimately destroying the social and cultural traditions of empathetic care, effective judgement, tacit engagement and socially and culturally responsive decision making. Moreover, the rhetoric of impartiality and neutrality of automated predictions rings hollow when we see an increasing externalisation of practices of prejudice, inequity and unfairness in the name of objectivity, for example, of surveillance to reinforce existing social, cultural and racial prejudices, stereotyping, social exclusion and discrimination. It may be entertained that the high-tech nudging of aligning human affairs with prediction algorithms only leads to creating alternative reality among certain sections of society. Such a narrow horizon of alignment side steps long-term side effects of dismantling social and cultural structures which act as catalysts of social cohesion and cultural valorization. However, the high-tech assurances of objectivity are unlikely to rescue us from the long-term social cultural damage of this alignment. As Jeremey Seabrook (2022) says, "Cultures are not clothes, but living membranes that bind together individual psychology and human society". Perhaps, academic research culture could give a thought on Seabrook's reflections on culture as a social glue of human progress when promoting automated alignment of human values to the machine determinants or human ethics to machine ethics. Our concern here is that while the academic research culture has been pursuing its well-wishing techno-centric dream of machine learning and machine ethics within diverse social and cultural contexts, the high-tech world has been engaged in automation of human behaviour without meaningful cultural bounds, not only through the propagation of the prediction paradigm, but also through social media as a tool to instill automated alignment of cultural transformation with the machine. Just as the talk about "live with the virus" distracts us from the seriousness of the virus pandemic, feeding into the narrative of denial and inaction to protect people from its variants, the talk of alignment of human action with the prediction paradigm leads to the narrative of denial of automating the diversity and richness of social and cultural discourse.

We already see the role and impact of social networks and social media in exploiting automation of human behaviour by propagating alternative realities about not only COVID-19 virus but also about race, religion and identity politics. The danger is that it would lead to a new normal in which new anxieties are created about the 'otherness', thereby creating a new normal of cultural polarization, surveillance, prejudice and injustice. Elif Shafa (2017) illustrates an impact of alternative reality when she argues that we have entered a new stage in world history in which collective sentiments, amplified and polarized by social media and social networking, guide and misguide politics more than ever

before. Although ours is a digital age of increasing anxiety, anger, distrust, resentment and fear, analysts and experts are so busy with data and metrics as if emotional life can be measured and clustered under statistical models. Her assertion is that techno-centric dualists preach certainty, but we know that life has plenty of magic and plenty of ambiguity. She notes that we are losing multiplicity, both within our societies and within ourselves, and makes a case for paying more attention to emotional and cognitive gaps worldwide and how to bridge these gaps. However, Shafa (ibid.) recognises the limit and threshold of emotions and makes us aware that not only individuals, but perhaps nations, too, have their own tipping points. We should thus take notice that even alignment of governance with prediction analytics may reach their own limits, where people may feel they are losing control of their social, cultural and economic destinies and may thus be obliged to remedy back to human–machine symbiotic alignment.

We learn from Zuboff (2019) that high tech, not content with automation of human experiences into behavioural surplus, has misappropriated affective computing architecture with the aim of automation of human emotion, the creation of an emotion chip, the creation of emotion AI. The implications of automating 'us' is to instil an awe of 'inevitability of technology' and the culture of 'economic and market dependency' and a sense of helplessness in the face of when the computer says "NO". We wonder whether the creators of the computational paradigm in 1956 would have imagined that one day their dream of functional rationality would be misappropriated by high-tech companies in the 2020s to automate not just problem- solving processes but to venture into automating human behaviour in the pursuit of automating the human itself. Not content with automating the human *behaviour,* the next frontier of High-Tech is the creation of the *Emotion Chip*: or "Emotion AI". What does *automation of the emotion* mean? It means automation of the *inner being* of the human self, making the body itself as redundant. In other words, having automated the *outer of the self,* the human behavior, and then having automated the *inner being*, the emotion, the body is then seen as just an *object of profit calculation*. The COVID-19 pandemic has also shown us that just as profit-centred economy is a very narrow cultural way of organising life and deciding who is important and who is not, so is making the prediction-centred digital future as our global home a narrow technological way of thinking about what can be, what should be, and what ought to be done for the benefit of diverse cultures in a global society (Gill 2022, Zuboff ibid.).

In this volume, authors of the special issue on 'Born Digital' reflect on the transformation of a techno-centric focus of academic culture to an inter-disciplinary and humanistic perspective of digital heritage. And authors of the special issue on 'Cybernetic in Latin America' provide an historical

insight into the transformation of cybernetics from Europe to Latin America through the USA, leading to the concept of 'cybersyn'. In their special issue on 'Born Digital', Stapleton and Jaillant (this volume) broaden the academic narrative of AI into transforming AI, shedding light on how custodians of cultural heritage (artists and musicians for example) and curators of cultural materials and information architects now inhabit a shared online space, and co-create cultural artefacts using data as the new raw material. At the same time, they recognise that digital may also hide cultural materials in an impenetrable archaeology of technological obsolescence or in inaccessible vaults created by the Internet, thereby recognising the dangers of losing early internet content to the darkness of technical obsolescence. They note that whilst Banerjee (2007) offered a vision of AI as both ethical and liberating, he saw the need for a deeper understanding of the ethical and aesthetic implications of contemporary machine intelligence in its relation to human society and culture. They argue that at a time of ongoing social change and upheaval, digital solutions perhaps can also aid in our journey towards more inclusive research practices, laying a strong foundation for the future of archives as repositories of our shared history and a basis for deeper, mutual understanding and respect.

In their special issue on Cybernetics in Latin America, Larrain and Mariategui (this volume) provide an insight into the transformational journey of cybernetics from Europe and the US to Latin America. In this journey we learn about Alfred Korzybski's theory of 'general semantics,' with a focus on human evaluations and orientations of neurological mechanisms that are present in all humans; Rapoport and Shimbel's insights into understanding the events in the nervous system and analogous systems as determined by their structure (which) is fundamental for the understanding of abstraction, evaluation, and communication. Wiener, they note, devoted himself to researching on automatic firing devices for anti-aircraft guns, and that Shannon's theory of communication gives us our modern notions of 'information' and 'noise,' 'made possible due to the statistical structure of the original message and due to the nature of the final destination'.

They note the contribution of Macy Conferences in 1950s to the evolution of the modern 'cybernetic' term, principally, in the United States. Since the 1950s, cybernetics stopped being criticized as an American reductionist concept based on mechanical models. It then became possible to counter previous ideological criticisms and redeem it in the public domain. Encouraged by this new policy vision, Markov developed his idea of probabilistic causal networks, which defined cybernetics as the effort to address the synthesis of causal systems, i.e. the construction based on given elements of causal systems which respond in a fixed manner to external influences. This focus on causality that could modify

the entity's functioning and its own operations also brought together contributions from a diverse number of epistemologies interested not only in computation, information, control, and feedback, but also in art, culture, management, philosophy, psychology, medicine, anthropology, among others. They further note that Macy Conferences brought the transfer of ideas from biology to physics and the dissolution of discipline-specific dominance. It is noted that the process of linguistic accommodation transformed the early French reflection on the word 'cybernetic' on governance into an independent corpus of reflection on technology that in many ways is closer to a systematic turn of its definition, classification, and clarification. The expansion of cybernetics on living systems argues for this corpus of variety for a system to regulate itself and maintain stability between its boundary and its environment.

Larrain and Mariategui also reflect on contribution of Stafford Beer, Humberto Maturana, von Foerster, Francisco Varela and Ricardo Uribe in influencing further transformation of cybernetics into a science of control and communication, a highly cooperative, self-organizing systems, such as brain, where the brain is not perceived as an information processing device, but rather a machine that creates and maintains correlations between sensor and motor activities in a world that is unknowable in its essence to any observer. They argue that if the distinction between regulation and self-organization was made in the first-order cybernetics, in the second one the focus is on cognition and self-reference. Both theories, they posit, agree that there is a circular process that establishes the difference with the classical Newtonian science where causes are followed by effects, in a simple linear sequence. Second order cybernetics more closely applies to quantum mechanics, because it is interested in processes where an effect feeds back into its very cause; the observer and the observed cannot be separated, and the result of observations will depend on their interaction. The observer is, in a cybernetic system, trying to construct a model of another cybernetic system. In other words, the observed agent of a social system interacts with the observer agent through self-application and self-organization to open and close looping feedback cycles.

In their reflections on the transformation of cybernetics from Europe and US to Latin America, Larrain and Mariategui note that towards the end of the 1960s, Latin America saw the emergence of an interdisciplinary and experimental art forum which explored the relationship between art, science and social studies. It led to the exploration of creative possibilities of an exhibition featuring computers, featuring artistic explorations associated with representation and control mechanisms through the organization and management of personal information. The notion of cybernetics stimulated many Latin American artists, poets, designers, architects in their experiments and works through theoretical

inputs in the field of information theory, aesthetics, and semiotics. It is further noted that the ideas of social 'cibernetic' and that 'social homoeotasia' established a dialectical relation between the individual and the collective, involving biological, social, political and philosophical implications and also considering the data for demographic research. They posit that impacted by the struggle and discontent against authoritarianism, artists in Latin America created new art forms using video, technology and communications and proposed a new way of education. They discuss how Stafford Beer's publication, the *Brain of the Firm* (1972), and his Viable System Model (VSM) had a huge impact in Latin America, as in the 'Cybersyn' project (a neologism combining the words "cybernetics" and "synergy") which proposed a complete reorganization of the public sector economy in Chile.They note that regardless of the tragic end of the Cybersyn project and the fall of the Allende's government, a dynamic was generated from the academic world in Chile that is influenced by Maturana and Varela's *concept of* 'autopoiesis' where an autopoietic machine is a machine organized as a system of processes of production of components concatenated in such a way that they produce components. Authors in this volume reflect and comment on the ongoing debate on computational models and their relation to cybernetics. For example, Maulen validates the use of the autopoiesis conceptual behavior as a model for bio-digital architecture, Rodríguez Gómez argues for opening of new ways of using 'metaphorical devices and tools for thinking' using 'structural coupling' and enaction. Ongoing research on cybernetics includes the work of Roberto Mancilla from the National Autonomous University of Mexico (UNAM) who introduces a basic model of human sociability and alternative frameworks to the idea of the state, the constitution, applicable to the concepts of checks and balances, the separation of powers, the public/private distinction and the concept of constitutionalism, proposing a theoretical management system for the years to come, revealing the continued interactive relation between different epistemologies incorporating the notion of cybernetics.

Larrain and Mariategui conclude that Cybernetics in Latin America should not be seen as a mere technical tool but as a conceptual framework that acted as an operator inspired by biological and cognitive research. This focus contributed to new political and social models pursuing the construction of national projects, opening a new path based on education, knowledge, culture, and scientific research. We learn how Latin America has struggled to take control of its fate and eliminate its cultural and technological dependence on the West. 'Cybersyn', according to them, may be seen as the most palpable case of a multinational team devising a new technological system bent on carrying out structural social changes, and integrating political and social values. Thus, a biological approach to computation could serve for new research on possible adaptations of socio-system administrations in Latin America. They emphasise the continuation of the transformational debate on the significance of cultural and artistic practices and collaborations between artists and computer scientists in creating a focus on human computer interfaces and human-centered research.

In its hospitable and humanistic tradition of cultural diversity, AI&Society welcomes comment and contribution to debate on cultural transformation of AI. The debate also needs to reflect upon as how we draw upon social knowledge and cultural wisdom in transforming AI for social good.

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