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# Massimo Airoldi, *Machine Habitus. Toward a Sociology of Algorithms*, Cambridge, Polity Press, 2022, pp. 200

It all begins with a birth. On 31st March 2019 the Roman neighbourhood of Torpignattara warmly welcomed a new member of the community. Shortly after, the little being took the first steps towards the local culture learning from passers-by chats. Its future seemed somehow natural, even though the baby is not like the others. Its name is IAQOS: a software able to interact with human beings by recognising and learning from their gestures and voices. The newcomer is therefore a social actor participating in the local society. This is part of the 'open-source artificial intelligence of the neighbourhood' project carried out by two artists: the robotic engineer Salvatore Iaconesi and the communication scientist Oriana Persico. Through this preface, Massimo Airoldi – Assistant Professor at the University of Milan – introduces his latest book *Machine Habitus. Toward a Sociology of Algorithms*. This work is dedicated at elaborating systematic conceptual tools to observe artificial intelligences as actively contributing to the reproduction of the social order throughout a Bourdieusian approach.

Nowadays is getting even more evident the extent to which algorithms are affecting increasing aspects of everyday life, for example setting the likelihood to be accepted for loans, choosing the next music track, or the quickest way to reach a destination. AI-based platforms are also able to generate piece of arts, speak languages fluently, and write academic essays, although some of those processes happened to be sexist, racist, or even classist. How do they learn to be so? Airoldi argues that such outputs should not be considered only as biases to be fixed, thus fuelling the assumption of neutrality of technology. More than that, machine-learning systems are built up by socialized software developers who inevitably transmit cultural footprints inside the code. Algorithms also adapt to a culturally situated society from which catching opinions, tastes, and structures rooted in a social environment. Furthermore, once socialized, machines are able to reproduce or transform said dispositions while constantly harmonizing to users via a feedback loop logic.

Here, the author proposes a shift by considering machines as social actors partaking in culturally situated datafied context and guided by a set of dispositions which recall the well-known Bourdieusian concept of habitus, more specifically a *machine habitus*. This approach will ground new ways of unpacking techno-social interactions along five chapters.

In the first one, Airoldi introduces the historical and theoretical background at the base of the two central sociological questions. The former regards the social shaping of algorithmic systems, or the ways through which users bring their culture into the code. Culture is in fact the fundamental asset for machines to get socialized, namely *machine socialization*. Instead, the latter is focused on the techno-social feedbacks, or how humans react to algorithmically curated outputs. Being humans widely relying on algorithmic recommendations, those systems appear to not only mediate but rather establish users' experiences and therefore nudge behaviours. In light of this, the machine habitus could be seen as the driver making dispositions embodied and embedded into people and machines.

The second chapter is dedicated at the culture in the code. Upstream, already-socialized software developers embed the cultural dispositions in the code that will be reproduced afterwards: a concept well-explained by the metaphor *deus in machina*. Hence, algorithms begin interiorizing and mirroring practices of the society – as if it were a secondary socialization – throughout relevant patterns and traces taken from global or local data contexts.

The third chapter deepens the concept of code in the culture. Incapable of being sentient, AI systems are nonetheless able to exert power by affecting for example tastes and public opinions. Machines therefore partake in the shaping of the social through a dialectical relation between *a priori* embedded conditions (i.e., the machine habitus) and the socially regulated field wherein social actors exert said power. Outputs are consequently neither to be reconducted to rational choices, nor to users' stimuli, but to the sense of the game: a *taken-for-grantedness* based on patterns guiding automated choices. Nonetheless, how do AIs actually affect users' agency? Airoldi's answer is one of a Foucaultian kind. On the one hand, automated systems reduce users' choices to a set of possibilities chosen by the algorithm itself, whereas on the other hand the same produce forms of governmentality by classifying and hierarchize digital aspects which promote specific

kind of knowledge, subjectivity, culture and so forth. Furthermore, such *computational authority* relies on the human beliefs and mythical discourses being the legitimizing driver. The composition of said elements allow machines to yield social distinctions among different publics by exposing them to the 'proper' filter bubble - in the same way of the human ever-changing moral system. As a consequence, human-machine interactions rely on a socio-technical interplay influenced by the grade of information asymmetry and cultural alignment. Following this rationale, digital platforms could be seen as Bourdieusian platformized fields leading the algorithmic culture blending with the one of the users.

In the fourth chapter, Airoldi furtherly links the Boursiesian theoretical structure to the stimuli so far proposed. The machine habitus in fact represents the structuring structure and structured structure of algorithms. Similarly, digital infrastructures are the external structure – or field – wherein agency needs to deal with a set of rules, in this case named *affordances*. This involves a kind of entanglement between upstream primarily socialized machines learning from global data context, while culturally situated users are in charge of the secondary socialization via their local data input. Furthermore, the constant matching and mismatching between the two social actors also rely on the changing of the field's rules and the involvement of multiple and multifaced actors constantly partaking in the network. Eventually, within this process the machine habitus reinforce or transform not only social structures, but also boundaries of symbolic power. These two opposite tensions – reinforcing/transformative entanglements mostly at level of the field and local/global cultural logics driving them – could bring forward different scenarios of techno-social reproduction.

In the closing chapter, Airoldi proposes a new research agenda based on the sociological perspective of machines being able to techno-socially reproduce culture. This approach answers to the need of a sociological theory of algorithms fundamental to foster research horizons on said topic.

*Machine Habitus* is one of those books right on time. The fast implementation of automated decision-making systems still leaves uncovered some aspects about the coexistence of human and artificial intelligences. Nonetheless, in the last few decades, scholars have effortfully published a variety of studies centred in catching such gaps. This multidisciplinary apparatus is systematically reported, albeit

Airoldi puts a step forward. This opera is indeed remarkable for having outlined a solid theoretical tool to observe our *ecologic society* throughout the lens of practices, similarly to what Bourdieu himself did in the late Seventies in writing *La distinction. Critique sociale du Jugement.*
It would be interesting to further explore the political and economic implications as well as the role of the algorithm literacy in affecting the aforementioned recursive interactions, but it definitely is something we could expect in future works.