Fondazione
Giangiacomo
Feltrinelli

Unboxing AI

Understanding Artificial Intelligence

Edited by
Elinor Wahal

With the preface of
Antonio Casilli

Utopie / 108
Futuro del lavoro

UTOPIE

Unboxing AI

Edited by Elinor Wahal

with the Preface of
Antonio Casilli

Unboxing AI

Edited by Elinor Wahal
with the Preface of Antonio Casilli

© 2021 Fondazione Giangiacomo Feltrinelli
Viale Pasubio 5, 20154 Milano (MI)
www.fondazionefeltrinelli.it

ISBN 978-88-6835-429-9

Prima edizione digitale luglio 2021

Tutti i diritti sono riservati. Nessuna parte di questo volume può essere riprodotta, memorizzata o trasmessa in alcuna forma o con alcun mezzo elettronico, meccanico, in disco o in altro modo, compresi cinema, radio, televisione, senza autorizzazione scritta dalla Fondazione. Le riproduzioni effettuate per finalità di carattere professionale, economico o commerciale o comunque per uso diverso da quello personale possono essere effettuate a seguito di specifica autorizzazione rilasciata da Fondazione Giangiacomo Feltrinelli.

This volume represents the editorial output of the conferences “Unboxing AI” organized by Fondazione Feltrinelli in collaboration with ENDL (European Network on Digital Labor), Independent Social Research Foundation and Nexa Center for Internet & Society (Politecnico di Torino).

The Text

Over the last decade, Artificial Intelligence (AI) has steadily surged in popularity, with AI solutions being increasingly adopted in a wide range of industries. AI's rapid technological advancements have also prompted the enthusiasm of many consumers: for instance, during 2019 the unit sales of voice assistants like Google home and Amazon Alexa increased by 70% compared to the previous year.

Concomitantly, there is a growing fear over smart technologies' negative impact on societies, with mainstream media routinely discussing security risks, job displacement, and algorithmic discrimination. This contrast has sparked scholars' interest in the economic conditions, the political tensions, and even the philosophical assumptions underlying intelligent technologies.

From Amazon fulfillment centers to cyber-automation and data colonialism, this volume sheds light on the bodies at work in AI, providing a variety of approaches to the study of AI and its social, economic, and ethical implications.

Table of Contents

PART 1 - MATERIALITY OF ARTIFICIAL INTELLIGENCE

Unboxing AI

Preface

Antonio Casilli

Since the beginning of the 21st century, artificial intelligence has become a "black box ideology". The meaning of this expression is twofold. On the one hand, it designates an ideology of black box science which promotes approaches such as deep learning and data intensive models that adversely affect the transparency and accountability of techno-political systems. On the other, it means that the ideology itself is a black box, insofar as its actual policy content and social consequences are largely unknown to its proponents.

When designing the Unboxing AI conference, our intention was to change this state of affairs. Not by inviting our participants to think outside of the box — as tech gurus and media commentators like to say — but to unpack this cultural and technological construct that we call automation, to list its components, to describe its inner workings. Although most of the current research exclusively focuses on the consequences of AI on society and economy (job displacement, increased discrimination through algorithmic bias, security risks), there

is growing interest in the economic conditions, the political tensions, and even the philosophical assumptions underlying intelligent technologies.

Insights into these assumptions come from Dominio e sottomissione [Domination and submission], the last book of Italian philosopher Remo Bodei. This 400-page strong tour de force through human technology and animal nature, globalization and colonialism, labour and slavery posits a fundamental question about the Logos. The Greek notion designates both the philosophical Reason and the spiritual power of the Word—the same that famously "was made flesh" in the Christian myth of incarnation and in other religions' theophanies. What if — Bodei asks — the Logos didn't become flesh but rather machine to dwell among us?

Today, this question hangs over much of the public discourse about artificial intelligence. In the media, in the boardroom, and regrettably even in the academe, the starting point of every other conversation about algorithmic and data intensive technologies seems to be the assumption that contemporary machines are about to deliver on their promise of transcendental salvation. They leverage the Logos and give it back to us under the guise of smart objects, virtual assistants, self-driving cars.

Sometimes, this naive belief morphs into a political program. Probably best articulated by computer science pioneer Edward Feigenbaum, when he described artificial intelligence as the "manifest destiny, the goal, the destination" both of our scientific research and of our societies.

"I hold no professional belief more strongly than this. (…) I learned the term 'manifest destiny' when I studied American History as a young student. In the early 19th century, when the small population of the young United States extended only to the Appalachian Mountains of the east, great visionaries like Thomas Jefferson imagined a USA

that encompassed all territories to the far ocean at the continent's western edge. That vision, motivating generations of settlers and policy makers, was called the Manifest Destiny."

Expansionism and providentialism go hand in hand. The USA setting is emblematic, but it is not exclusively there that such belief has been expressing itself. From China to India to Europe, it lays the blueprint of major geopolitical ventures that favor specific groups of persons at the detriment of others. Whether it reveals itself as AI "evangelism", as data "colonialism" or as digital platform "imperialism", it proceeds by erasing the actual bodies and lives of persons that stand in its way. In Feigenbaum's metaphor, the settlers did manage to homestead the electronic frontier. But what happened to the natives? Sure, renowned visionaries like Thomas Jefferson dreamt of expanding their plantations from Monticello to San Francisco. But, to paraphrase a popular musical, "we know who's really doing the planting".

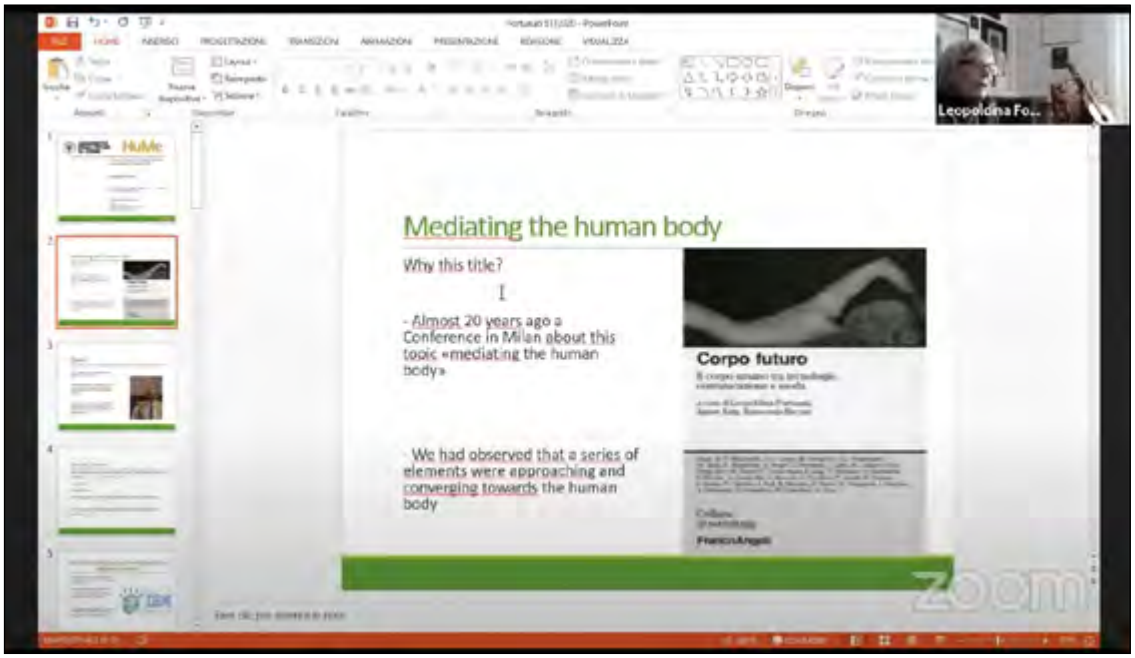
This explains why in this ebook, which contains on the proceedings of the conference Unboxing AI, Elinor Wahal has chosen to put a definite emphasis on the bodies at work in AI. Not only to document the presence of women and men behind the gleaming screens and the flying drones that constitute the facade of automation, but above all to provide evidence that intelligent technologies are deeply embedded into social structures and material conditions of existence.

Thus, contributors to this ebook adopt a radically immanent stance that consists in scraping the surface of AI as a "spiritual Word that was made machine" to listen to the human voices embodied in the flesh of tech workers working for big companies or startups, of blue collars operating warehouses or delivery apps, of social media influencers or data annotators, of parents juggling between house chores and telework. By anchoring artificial intelligence to human occupations and their vicissitudes in a time of health and economic crisis this joint INDL and Fondazione Giangiacomo Feltrinelli initiative aims to put

the human back in the heart of today's industrial and technological systems.

Chapter 7
Mediating the human body in AI creation. Communication, the body, and AI

Leopoldina Fortunati (University of Udine) and Cristina Voto (University of Torino / Universidad Nacional de Tres de Febrero)



1. Mediating the human body

The beginning of this text can be situated in 2001, when a conference organized in Milan by a network of universities from Europe, the United States, and Canada resulted in a publication titled *Mediating*

the Human Body: Technology, Communication, and Fashion (2003). The focus of that foundational event was the research for an interdisciplinary approach that is necessary in order to face the complex and emerging phenomenon of the mediation of the human body throughout technology. Today, two decades after that conference, a technological approach towards the human body has continued to mark our daily life, and three main fields of interaction can be recognized: 1) medicine, 2) fashion, and 3) Information and Communications Technology (ICT), especially mobile technologies, with a general increasing attention to robotics.

1.1 Medicine, technology, and the human body

Medicine has always had the privilege to advance in the sacred reign of the human body, because in the face of science and its promise of survival, there is neither the resistance nor the courage to defend the naturalness of the body. As a result, over the last twenty years, medicine has developed the tendency to constantly appeal to technology to mediate its relationship with the human body.

A starting point for this first typology of human body mediation can be found in the way in which technology has turned diagnostic tools into physical robots or software systems, as in the case of IBM Watson Health, a division of the company aimed at facilitating medical and clinical research through the use of advanced information technology. These technologies are in step with the questions that emerge from the social-health context. Today, for instance, another system called Diagnostic Robotics has been designed to fight Coronavirus (COVID-19): it is a medical triage and clinical prediction platform that uses Artificial Intelligence to make healthcare systems more affordable and widely available. Apart from that, medicine has also activated robots at the therapeutic level: robots are being used in hospitals for welcoming or providing information to people and for assisting healthcare work-

ers. Among these therapeutic technologies, robots have been used to improve the mood of hospitalized children and in therapy for people with autism, Alzheimer's, and dementia. Another field of application is rehabilitation with the implementation of prostheses, where exoskeletons that can be created with computer-aided design and a 3-D printer are utilized. This hybridization between the human body and technology reactivates the issue of cyborgs (Haraway 1991), that mixture between flesh and plastic, metals, and ceramics, while posing the following question: to what extent is it possible to call such a mixture a human body as such? Finally, another test benchmark for mediating the human body toward technology is robot-assisted surgery, as in the case of the da Vinci Surgical System, which is designed to facilitate surgery in several fields like Gynecology, Neurology, Urology, and Orthopedics with a minimally invasive approach controlled by a console.

1.2 Fashion, technology, and the human body

The approach to the human body through technology has always meant to cope with aesthetics and fashion: these two aspects cover and manage the widest area of the human body that mediates fundamental socio-cultural dimensions of our being in the world, such as the presentation of the self, sense of beauty, etc. Technologies, moreover, connect with fashion, contradicting the picture of the black box that is frequently offered through appearance: mobile phones and computers are designed in order to match the taste and aesthetic needs of the customer. Over the last twenty years, robotics has implemented its entanglement between technologies and fashion in two separate processes that need to converge in order to fertilize each other: first of all, robotics has experimented on materials, and second, fashion has experimented on the aesthetic appearance of robotics due to the entrance of robotics into customers' houses and the need for these robots to be pleasant. For instance, Givenchy Robotics, a department

of the French luxury fashion and perfume house, created fashionable robots to stay inside the house with elegant appearances, something that introduces a new question for understanding the encounter between fashion and robotics: do robots need to be dressed? Looking at what the robotics market has to offer, the answer seems to be yes, as suggested by the design of the three robots DORO (DOmestic Robot), CORO (COndominium Robot), and ORO (Outdoor Robot), a group of elegant domestic robots that help the elderly and were produced by Robot-ERA, an international network for implementing easy-to-use and acceptable robotic service systems. The entry of the robot into our houses decreed the similarity between human and artificial agency.

1.3 Mobile technology and the human body

Mobile and information and communication technologies (ICT) may be the most redundant type of technology that stays directly on the human body, a novelty that brings many consequences with respect to other remote technologies such as computers, TVs, or radios. The loss of distance blurred the perception of alterity between human bodies and mobile technologies, making the mediation deeper. Among these technologies, the first object to be grabbed upon awakening and the last to be set down before sleeping is the mobile phone, something that always accompanies individuals. At the same time, it makes new connections between the productive and the reproductive sphere, as a consequence of the entry of work into people's homes. The human body hybridizes itself and its perceptions with all of the following communication and portable technologies: laptops, iPods, smartwatches, and Google Glass. Thanks to these devices, the human body expands its communication agency. The first outcome of this pervasive presence has been the mechanization of immaterial labour in the domestic sphere. This strategic area has been completely reshaped: thanks to mobile technologies, communication, education, entertain-

ment, emotion, and sociality have been automated and redesigned by platforms and software such as WhatsApp, Facebook, Instagram, forums of discussion, Meet, Zoom, Badoo, Meetic, Tinder, etc. This panorama seems to result in the implementation of uniform, undifferentiated, and homogeneous social behavior which, in the worst case, can be more easily influenced, manipulated, and controlled. Furthermore, the development of social automation in many fields such as emotion, taste, dating, and conversation has produced a double and parallel mechanism for which technologies are shaping and being reshaped by people's practices of use. However, with some insight, it is possible to recognize that these mechanisms have also served to bring about the acceptance of social robots by humankind, a process that consists of two main motivations: the first is to reduce the power gained by women at the communicative level through technology, and the second is the general need of the capitalist system to create a different labour source.

2. From body mediation to robotization: outcomes and consequences

The diffusion of ICTs in the domestic sphere has taken place in a particular, historical moment; it is occurring during a reshaping of gender power relationships in the family and in the public sphere. Despite the ebb of feminist movements, in the 90s, women were involved in many social processes: the reshaping of gender power relationships within the family to be more in their favor than in the past; the strengthening of their mastery and control over communication; the appropriation of communication in the public sphere; and also, the reshaping of power relationships between generations inside the family (Fortunati 1998). In this particular moment, through the computer and the mobile phone, women's strength in communication was downsized. This

is one of the cases in technology in which women's strength in communication was used against women.

The advancement and circulation of these technologies has brought about two different scenarios: initially, women were less numerous than men in both accessing, owning, and using ICTs. Male users took control over communication and strengthened their control over information. However, subsequently, women have appropriated smartphones in particular.

The focus on the socio-cultural consequences of this diffusion also opens up a series of problems concerning the need by the capitalist system to create a different labour power with the following characteristics: mobility, which means that it is no longer sufficient for workers to sell their work capacity (the capacity to move is the relevant point); automatization and intimate interaction with machines; separation from others, which makes the labour power more individualized and less politicized thanks to more delocalized networks of relationships; and the flexibility and capability to cope with alienation.

In the meantime, the human body has also inspired another specific technology: robotics. Different from automata, robots do not aim to refine the imitation of their inspiring entities but rather aim to imitate human gestures and actions to replace the material capacity for work. Furthermore, in the reproduction sphere, social robots aim to imitate humans' immaterial capacity of care. Today more than ever, robots have begunto perform a large range of tasks and specially to communicate and talk back, as it is already possible to experiment with robots in factories, chatbots in services, and artificial agents in people's houses. There is a convergence between robotics and ICTs: today, mobile phones are incubators of robotic interfaces, such as Siri and S-Voice. This new horizon allows scholars like Sugiyama (2013) to talk of mobile phones as quasi-robot, while Vincent, Taipale, Sapio, Lugano, and Fortunati (2015) argue that mobile phones are personalized social robots.

Additionally, in socio-healthcare systems, we witness the slow colonization of robotics, facing a reduction in the amount of domestic and care work by women with the relative decrease of the birth rate, the increase in divorces and separations, the increase in people living alone, etc. In the last decades, it is in the reproductive sector where the most important cycles of struggle and behaviors of resistance against capitalism have taken place, and from there, they have diffused into factories and workplaces. Thus, the diffusion of robotization, in terms of critiques of political economy, means the attempt to increase the value production in the social and individual reproductive sphere, increase social discipline, and correspondingly, decrease the autonomy, control, and knowledge of how to do things of the labour force.

The contemporary dynamics of the robot market have been marked by COVID-19 in terms of a block of industrial robot sales in 2020, and in the short run, a major contraction must be expected. In the medium term, there will be a digitalization booster that will create growth opportunities for the robotics industry. In the long run, observers claim that prospects will remain excellent for this sector. It is certain is that this pandemic has forced societies to increase their mechanization.

3. Conclusion

The question we must pose in the face of these processes of information, automation, and robotization of societies is, once more, about the model of the society we want to live in. With the current diffusion of machines, do artificial agencies have to replace or to support human work? The first idea is the logic applied in the industrial sector, and the second has dominated in the reproduction sphere so far. However, is a world where we can leave all the work to machines a desirable world? Is a world in which our relationship with reality will be increasingly mediated by machines a desirable world? Finally, is a world in which

intelligent machines place the human body in the minority and make humans feel incapable a desirable world?

References

Ármannsdóttir, A.L., Beckerle P., Moreno J. C., *et al.* (2020). Assessing the Involvement of users during development of lower limb wearable robotic. *Human Factors*, *62(3)*: 351–364.

Dominoni, A. (2003). Conditions of microgravity and the body's "second skin". In L. Fortunati, J. Katz, & R. Riccini, (Eds.) *Mediating the human body: Technology, communication and fashion* (pp. 201–208). Mahwah, New Jersey: Erlbaum.

Fortunati, L. (Ed.) (1998). *Telecomunicando in Europa*. Milano: Franco Angeli.

Fortunati, L., Katz, J., & Riccini, R., (Eds.) (2002). *Corpo futuro. Il corpo umano tra tecnologie, comunicazione e moda*. Milano: Franco Angeli. (Engl. trans. (2003). *Mediating the human body: technology, communication and fashion*. Mahwah, New Jersey: Erlbaum).

Haraway, D. (1991). *Simians, cyborgs and women: The reinvention of nature*. New York: Routledge.

Jeong, S., Logan, D., Goodwin, M., *et al.* (2005). A social robot to mitigate stress, anxiety, and pain in hospital pediatric care. Retrievable at: *https://robotic.media.mit.edu/wp-content/uploads/sites/7/2012/08/p103-jeong-1.pdf*

Scarry, E. (1985). *The body in pain: The making and unmaking of the world*. Oxford: Oxford University Press.

Sugiyama, S. (2013). Melding with the self, melding with relational partners, and turning into a quasi-social robot: A Japanese case study of people's experiences of emotion and mobile devices. *intervalla: platform for intellectual exchange*, *1*, 71–84.

Tapus, A., Tapus, C., & Mataric, M.J. (2009). The use of socially assistive robots in the design of intelligent cognitive therapies for people with dementia. Retrievable at: *https://www.researchgate.net/profile/Maja_Mataric/publication/224580410_The_use_of_socially_assistive_robots_in_the_design_of_intelligent_cognitive_therapies_for_people_with_dementia/links/0c96052747a2d26a86000000.pdf*

Vincent, J. (2013). Is the mobile phone a personalized social robot? *intervalla: platform for intellectual exchange*, *1*, 60–70.

Vincent, J., Taipale, S., Sapio, B., Lugano, G. & Fortunati, L. (2015). (Eds.) *Social robots from a human perspective*. Berlin: Springer.