doi: 10.29843/JCCIS.202207_(43).0001

對話世界頂尖學者

平台勞動：誰成就了演算法文化？
Platform Labor: Who Makes Algorithmic Culture Possible?

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Time: May 24, 2022

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Abstract

With an interest in the links between the immaterial and material sides of digital technologies, Antonio Casilli approaches the algorithmic culture by analyzing dialectical relations between machines and humans. Although machines are often designed to be tools

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2. Antonio Casilli © Image courtesy of Hermance Triay 2018

for humans, machines can sometimes turn humans into tools of machines, making them perform tasks that are necessary for automated processes to work.

The conversations follow the main thesis of the book *En attendant les robots [Waiting for Robots]* that waiting for full automation is like waiting for Godot[3] (Casilli, 2019; Casilli, 2021). Casilli elaborates on the concept of digital labor by examining three types of platform-related occupations (on-demand labor, micro-work, and socially networked labor). He reflects on the material conditions of digital labor, because automation will be a vain endeavor without the contribution of underpaid, micro-paid, or unpaid workers. Also, he evaluates bottom-up regulations as a possible way out and weighs in on the sociological implications of studying AI inspired by diverse fieldwork and methods.

Introduction to Dr. Antonio Casilli

Antonio Casilli is a full professor of sociology at the telecommunication school (Télécom Paris) of the Institute Polytechnique de Paris and a researcher at the Interdisciplinary Institute on Innovation (i3), French National Centre for Scientific Research (CNRS.) He is also an associate researcher at LACI-LAP, Critical Interdisciplinary Anthropology Center of École des Hautes Études en Sciences Sociales (EHESS, School for Advanced Studies in Social Sciences).

His main research foci are social networks, digital platforms, digital labor, and privacy. He has conducted fieldwork in several countries (notably China, Brazil, Russia, Bolivia, Cuba, South Korea, Egypt, and Madagascar) and coordinated several international research projects. He is the author of eight books, including the award-winning *En attendant les robots [Waiting for Robots]*, an inquiry into the working conditions of underpaid humans who make AI possible.

WPC: Wei-Ping Chen

AC: Antonio Casilli

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3. This metaphor refers to the tragicomedy written by Samuel Beckett in 1948. See Beckett, S. (2004). *En Attendant Godot*. Bordas.

WPC：Your award-winning book *Waiting for Robots* was published in 2019 in French, and the English version will be published in 2023 by the University of Chicago Press. Would you talk about the background behind the study? How has the situation changed since you did the research for *Waiting for Robots*?

AC：I've been studying what can be described as digital technologies since 2010. My first book in French dealt with the social structures of digital communication (Casilli, 2010). At the time, it was perceived as a booming sector given the rise and dominance of social media, online social networks, and similar websites. Subsequently, I studied the privacy and health implications of these technologies, focusing on mental health, particularly eating disorders (Tubaro, Casilli & Sarabi, 2014; Casilli & Tubaro, 2016). After that, I focused on digital labor (Cardon & Casilli, 2015; Casilli, 2017).

Digital labor is a very broad term that describes everything related to platform-mediated or technology-mediated labor. Yet, those who practice this field of knowledge tend to specialize in invisible, unrecognized, and often poorly paid types of labor. They also tend to highlight the importance of this type of labor for the production of AI and, in general, to allow the very existence of today's digital technology.

My aim is to develop a comprehensive theory of digital labor. When I started working on the book in 2016 and 2017, the situation was changing with many new services becoming available, namely digital work platforms, gig economy platforms, online labor platforms… Also, I met colleagues that strongly influenced my way of studying these topics. I'm thinking about Mary Gray (Gray & Suri, 2019), a Microsoft researcher, Sarah Roberts (2019), who pioneered the study of content moderation, and all the colleagues that worked with me around 2017 in creating a network of researchers called the *International Network on Digital Labor*. Many of these people were very important to me, such as Kylie Jarrett (2017), who stressed the links between feminism and online free labor, and, of course, Mark Graham (Woodcock & Graham, 2019), Kate Crawford (2021), and Lilly Irani (2013). I am

grateful to all these colleagues, and I connect what they thaught me about digital labor and AI technologies to the broader debate about labor and especially what we call in the Italian theory the "social labor approach."

How have things changed since 2019? This is a question that both my French and US publisher have asked. The answer is that I have produced an update of the book. The pocket version of the book published last year in France is accompanied by a new chapter describing the situation during the COVID-19 pandemic. And I am now working on the American version of the book, which includes new chapters related to the latest research and evidence. Things have changed in the sense that some of the ideas in the original book are even more relevant now. Delivery and logistic labor mediated by platforms is visible to anyone. Even micro-work is more recognizable today than two years ago in the area of data annotation for AI.

WPC：Digital labor is the broad way to describe the phenomena you are studying. As you just mentioned, your work is concerned with the knowledge that individuals adopt in their everyday platform-related practices. So, what exactly is this knowledge?

AC ：Regarding digital labor, the first area I approached back in 2015 was what is now call "user labor" or "socially networked labor." By this, I mean that all consumers of digital technologies, even those who do not consider themselves YouTube creators, Instagram influencers, or TikTok personalities, are an active part of the economy and of the social structures of these technologies. People involved in data consumption also produce content and data, which constitutes labor. By this, I mean that digital labor can be construed and defined on a very basic level as the economic subsumption of our everyday activities on the internet.

Whenever one clicks, watches, or comments, despite the very mundane aspect of these activities, there is an element of value production appropriated by the platforms one performs these tasks on. Platforms, especially those that provide social media, leverage digital literacy and turn it into a knowledge base they can monetize.

For instance, if I live in a specific country and am familiar with specific cultural references, such as the names of political personalities, the titles of popular songs, etc.; these are all things that I know because of who I am and where I live, and this knowledge can be taken advantage of by the platforms that I interact with all day long. Data production and content production are extremely useful to the algorithmic processes and AI solutions that digital platforms produce directly or indirectly.

WPC：How exactly do these platforms engage people in data production?

AC：For example, these platforms can ask users to tag the name of a person or of a place. So, Twitter or Instagram users can receive a prompt to identify a friend in a photo, or to check in a place. Another example is Google reCAPTCHA, which is quite common in the English-speaking part of the internet. It is a pop-up message that prompts users to transcribe a sentence or recognize an image.

For users, the reCAPTCHA promises that they will be able to access a website, retrieve a password, or receive symbolic benefits. For the company that produces the reCAPTCHA, users are actually training algorithms that read text or drives automatic vehicles. So, by selecting a traffic light or a crosswalk in a reCAPTCHA, users are probably helping Waymo, Google's subsidiary that specializes in driverless cars, by training their autonomous vehicles. This is an example of a very mundane type of digital labor, but it questions the very notion of work we inherited from our industrial civilization.

Conventional work is defined by a contract and subsequently has a beginning and an end in terms of rewarded hours. However, work also exposes workers to subordination to their bosses, in exchange for a certain amount of social protection or benefits that come with their job. Now, the entire concept of work has been completely reconfigured by digital labor. On the one hand, this digital labor does not necessarily call itself work, but rather consumption, or even online socialization. It is a productive activity which emphasizes elements of pleasure, passion, of a voluntaristic nature—"You do it 'cause you like it." On the other hand, many

elements undermine the idea that this activity is pleasurable. We are all confronted with the problematic use of online platforms, be it an addiction, an attention overload, or even the alienation from the user's social environment.

The social costs of digital platforms reveal that their use doesn't fall under the rubric of free activity. Platforms put tools and solutions in place to maximize the time users spend online. Producing data is a form of subordination and dependency between the users and the platform. Even those platforms that market themselves as "free" services, where users do not pay to access and where content creators are amateurs who are not paid for their labor, owe their profits to the digital labor of millions and, in some cases, billions of users whose content and data they are able to monetize.

This is clear to those who study the burgeoning economy of marketing experts, communication consultants, influencers, creators, and micro-celebrities that has been in operation for two decades. But my main point here is that even occasional users perform digital labor for the platform—and this is true although they do not actually earn their livelihood on these platforms. Another historical example is YouTube. YouTube was created more than 15 years ago as a platform for sharing videos. In the beginning, the main problem they faced was that their average users lacked video equipment as well as basic skills as videographers. To create their initial user base and their initial stock of videos that could appeal to audiences, YouTube started attracting video creators from other online communities by providing them with hosting facilities and visibility. Enlisting an army of content creators is one side of how platforms engage people and extract value from them. The other side is, of course, turning a user base into an active audience.

WPC：Tell me about your characterization of active audiences?

AC ：According to Dallas Walker Smythe's (1981) notion of "audience commodity", an audience can be bought or sold to economic actors such as advertisers, media, data brokers. Now let us take this a step further. Saying that the audience is a commodity

or an object is too passive a view. In my characterization, one might say that there is an active role for the audience, and this active role consists in producing an increasing amount of data. For example, if I watch a video for 30 minutes, I also spend time on the video platform clicking around, which produces data. This is how these data constitute the actual wealth for these platforms because they can then be sold to advertising companies. In addition, data can be used to train algorithms.

And this is one way of investing the data into new technology. For example, everything we click on YouTube helps its algorithm to recommend the next video. Therefore, in a way, we are training that algorithm by providing it with enough data to function. In addition, there are algorithms that we don't even know about because they are still in the development phase. These algorithms are a source of wealth and value for platforms. They may include face recognition, semantic categorization of different types of content or algorithms that perform transcription or translation.

WPC：You use the term free labor quite often in your work. In relation to the concerns of Dallas Walker Smythe and other communication scholars, what might be the characteristics of free labor in the platform economy?

AC：Although I have been talking a lot about the free labor and leveraged a body of research developed by other authors between the 2000s and the 2010s, I have recently shifted my focus to paid activities and activities that are in a continuum between paid and unpaid.

The idea of free labor online, especially the free labor of consumers or audiences, was initially pioneered by many great scholars in previous decades. Specifically, the Italian theorist Tiziana Terranova (2000), who published an article about free "networked labor", has been highly influential to me. This is still one way of qualifying free labor: free labor is free because platforms are not paying for its actual value. This is still relevant today, even if this notion was developed in a period when there were only a few online platforms or portals, as they were called, but not as we know them today. And, more importantly, internet was not as the corporate

hellhole it has become today.

Since then, the economic structure of the internet has changed dramatically. And this pushes us to look at users' work and activity in a different way. On the one hand, users are still prompted to perform activities such as content production and sociability building, like in the 2000s. To what extent are these activities free? That's another problem. Because one might say there is increasing awareness that whenever we click on something online, we are producing data that has value. Thus, in a way, I think that even the least interested or the more digitally impaired individual now recognizes that what they do online is not entirely devoid of commercial value.

More importantly, even if we are not paid for whatever we do online, that does not mean that people in other parts of the world are not paid for the same activity. Imagine you have English-speaking friends who write down something on Facebook, which automatically translates it into Mandarin. After that, Facebook asks you whether you are satisfied with this translation or whether you want to improve it. You, a common user, can give your feedback and suggest another version of the translation. It's a free editing and translation job that we perform. But the same activity that we perform pro bono is, in some parts of the world, performed for a dime. Many people are recruited on micro-work platforms to perform poorly paid and highly repetitive activities. The further you go to the Global South, the less these people are paid.

What is the actual difference between data for which $0 is paid and data for which $0.00001 is paid? The difference is minimal to us or the platform, but the difference can be enormous for people living in countries where the average wage is less than $40 per month. Each cent can make a difference because these cents become a sufficient amount of money at the end of the month to meet a family's needs.

WPC：In your work, you suggest that there are at least three different types of labor on platforms, including on-demand labor, micro-work, and socially networked labor. Is there a reason why you categorized digital labor into these different

types?

AC：This categorization has been evolving over the years. In the beginning, our empirical data suggested the existence of several data-producing activities on platforms. Today, we see these three main types of activities relevant to value production during the development of AI and algorithmic processes.

Firstly, on-demand labor is made up of activities that are related to the logistics and transportation of commodities, merchandise, and people. It is embedded in physical locations: food delivery, for example, has to be performed over a limited area, be it a neighborhood or a city.

The second type of digital labor, also called micro-work, is a form of extreme remote work that can be done anywhere. It's like freelancing: if you are a graphic designer or a software developer, you can be in India and work for a Russian or a German company. Microwork is like that, but instead of performing a high-value, usually well-paid project, workers perform low-skills, poorly paid microtasks. Examples of micro-work include receiving an audio file containing five seconds of audio, listening to the recording, and checking that the transcription corresponds to what you have heard. If the sentence you hear is in Mandarin, which is very simple for you as a Mandarin speaker, then you can complete the task in one second. For me, it would take forever. This explains why specific countries or communities are the targets of this kind of activity. Sometimes though, people from all over the world can perform the same activity. This is usually the case with image-based microtasks which consist in tagging and annotating pictures and photographs. Because such labor can be performed anywhere, companies tend to allocate it to workers in countries with the cheapest labor.

The third type of activity is socially networked labor, which we have already discussed. This labor is usually free labor that people perform on a social platform, although some people are paid to moderate content, and some others to like and share it. Clicking on a content can be considered as the simplest activity that can be done

on a social platform. Nevertheless, given the sheer number of persons who perform it, this type of labor is extremely important today.

WPC：For these three types of labor, what does the labor entail and what does it mean for the worker? What struggles do they encounter?

AC ：That's a very good question. Workers do face specific problems, but a general trend has been an increasing awareness of their role as workers. Let us start with on-demand labor. Some countries have been good at protecting the rights of these workers. As of 2022, nobody will say that what they do is not work, which was not the case 10 years ago; back then, Uber and similar firms tended to describe their activity as the "sharing economy." Notably, some unions help workers to organize, and sometimes self-organize, by creating crucial steps toward recognizing this labor as work that needs to be dignified, recognized, and fairly compensated.

The second type, micro-work, is more problematic. Here, too, there are some encouraging signs towards recognition, although this is more challenging than for on-demand labor, because micro-workers do not always know or meet the principal employer—or each other. Over the years, many of the workers we met worked from home, in complete isolation. Conversely, we have also met many people who knew whom they were working for, what their activity was used for, and who was getting rich from their activity. Such knowledge is extremely important because the monetary aspect and legal precedents of this work have been built over the last few years. Between 2020 and 2022, judges in France and Brazil have sentenced micro-working platforms to reclassify their independent micro-workers as employees.

Workers organize collectives or unions to gain recognition as value producers. For instance, there has been a class action organized by an actual union on YouTube for YouTube creators in Germany. Creators who want to be reclassified as employees to continue producing content are paralleled by users who want to get paid for their data. The latter, in my opinion, is a very tricky thing. Paying individuals for every piece of data they produce would create economic incentives to overproduce data,

and would de facto generalize micro-work… Anyway, these are all attempts to recognize online free labor not as "free", but as unpaid labor.

WPC：I see. Would you say that, when speaking of the solutions for unpaid digital labor, a country's regulations or policymaking is a possible solution?

AC：Regulation is seen as a silver bullet for many. You can put in place new laws or just apply existing ones at a national level, or in some cases, geographical levels, such as Europe, the common market, or Asian countries. However, regulations are not the overall solution that they are made out to be for three main reasons.

The first reason is that whenever a new regulation is put in place or an existing one is enforced, lobbyists from the platforms targeted by the regulation try to sabotage or impair its effectiveness to protect their profits and interests. This is understandable but also extremely cynical behavior by the platforms.

The second reason is that many people still perceive regulation as something that hampers innovation and progress. I agree with this, to an extent, but one might also want to start a larger conversation about how much innovation is enough, or when to stop innovating. Are we doomed to keep creating new stuff or new solutions? Or do we have a goal in mind, and we stop after a certain point? That's a more philosophical and abstract question.

Finally, the third reason is that when you say "regulate", we usually think about government bodies as the only regulating authorities. But even democratically elected governments can go rogue, and some others are made up of people who do not deserve our trust as citizens.

Yet when we talk about regulation, there is also the possibility of regulating these platforms without exclusively using government-driven policies. Sometimes we can have bottom-up regulation, when users can create communities to rein in the power of the platforms. One example is platform cooperativism, which means creating cooperatives of users that run their own platform. For instance, for every Uber, there are several cooperatives of drivers who are independent but share the

profit. In 2022, when Elon Musk declares he wanted to buy Twitter and make it his private garden, activists resuscitated the old idea of a cooperative Twitter: "We are 500 million users. Why don't we put up $1 each, buy Twitter, and make it a people's social platform?"

We can also think about the popular governance of internet platforms and infrastructures. For example, the app you are using is probably made in Taiwan, the smartphone is produced by Foxconn, but the lithium extracted in South America. Within this supply chain, the extraction of minerals is necessary to produce batteries or microprocessors. Despite being an extremely regulated sector, industrial mining has a long history of human rights abuses against local communities. Companies such as Facebook and Google have produced no fewer problems but are even less regulated. One might say that we should establish rules of governance with respect to specific laws and regulations on labor at each step of this supply chain. However, different countries have different legal systems and governments, some of which are interested in partaking in more responsible and sustainable supply chains, while others are not. The problem is how can we harmonize the rights, laws, and regulations in all countries involved in this extended supply chain that extends from, say, lithium mined in Chile to an app developed in Taiwan.

WPC：I have noticed that your research is based mainly on fieldwork conducted in several countries. Can you share the current developments in your research? What are the similarities and differences in these countries? What might be the implications for international or local researchers?

AC ：I describe myself as a fieldwork sociologist, but I am also comfortable publishing more theoretical work. Some of my research fieldworks are small and exploratory. The research that I carried out over a couple of weeks back in 2018 in Bolivia, for example, was very important because it opened new perspectives on the link between digital economy, developing countries, social policies and natural resources. This planted the seed for research areas that I'm only recently, four years later, developing.

My research team and I have fielded several inquiries in Europe, Latin America and Africa. With my colleagues, I have been interviewing people in Madagascar, Egypt, Cameroon, and other African countries. This is interesting to the extent that we are, on the one hand, confirming our previous hypotheses, specifically about outsourcing processes moving from European countries to the Global South. On the other hand, we are also observing something new. Many of these countries tend to specialize and have become more formal in the way they recognize and hire their workers for reasons sometimes connected to their legal system. Unfortunately, this has much to do with the application of AI, that is increasing in strategic industrial services and the military. If you are working with the "top secret" data, tagging images of targets in war-torn countries, this may risk people's lives. There is an increasing level of secrecy which in turns determines an increasing formalization in digital labor, although that does not mean that the situation is getting better for the workers. In this time of data work, having a formal employment instead of working as an independent contractor doing piecework on a platform does not mean that your working conditions and your career opportunities improve.

South America is another major area of our research activity. Venezuela in particular has experienced increasingly severe political and economic crises in the last several years. Highly qualified professionals, especially in the oil industry, are now unemployed. As an alternative source of income, they perform microtasks online and work on digital platforms with a smartphone or an old PC. This also means that platforms have created an opportunity to earn money and, importantly, to earn dollars, a highly sought-after stable currency. New questions are emerging regarding cryptocurrencies. For instance, some micro-workers now want to be paid in Bitcoin. Sometimes this is used just to store value, since they are easily exchangeable into dollars.

WPC：The algorithmic culture has been deeply woven into the fabric of people's life and has become increasingly interdisciplinary. As someone trained in sociology,

what unique perspective can you bring to the study of AI and big data?

AC：That's a good question. I'm not entirely sure that it has become more interdisciplinary. Still, many new disciplines not traditionally interested in AI have started showing interest and studying it more intensely. Until the end of the previous century, people from the STEM disciplines sometimes turned to philosophers and asked to share their expertise on the very nature of intelligence, symbolic thinking, and cognitive processes. This was a very instrumental relationship, where STEM had a hegemonic position, and others were sometimes invited to weigh in.

The situation has changed because more disciplines are looking at AI and developing their research agenda: law, arts and humanities, economics, social science… There is a dialogue among different disciplines, as people are trying to converge towards a common language. When I conduct my research on digital labor, I customarily deal with software engineers. I always allow for a bit of adjustment so that they can understand my arguments. I find myself increasingly using topics or concepts developed in computer science to inform what I do in sociology.

In some cases, the relationship between humanities and social sciences and STEM disciplines is not instrumental, but quite adversarial. I remember some heated discussions with engineers regarding what they do with data and what an algorithm should do, which were framed into the present debate about algorithmic bias or AI as a tool of domination. There is some feedback from social science and there is legitimate criticism, that computer engineers and data scientists are increasingly taking into account. For example, in response to the threat that digital technologies pose to the natural environment, underlined both by academics and the civil society, data scientists are trying to develop new algorithms that consume less energy.

Moreover, academics are sometimes hired by companies to be their R&D experts or scientists. They are well paid, and universities cannot match their high salaries. This means that sometimes the best and the brightest people are hired by companies such as Microsoft and Uber. Moreover, a sizeable infrastructure and computing

power are required for cutting-edge research in fields such as machine learning. These are usually available for employees of Amazon, Google, Baidu, and other large companies. This means that technological solutions developed in academia find it hard to challenge the level of accomplishment reached by those created by companies who throw millions at them. Moreover, there's a threat to academic freedom and to the circulation of knowledge, as usually people who work for these companies are not allowed to discuss their results without being vetted by their legal team.

Today, I perceive my role as a sociologist who studies AI from academia as being akin to an astronomer who watches a star with their telescope. The star has probably exploded a million years ago, but the light of this explosion has not reached our planet yet. This is the situation I face when studying, say, an algorithm that Amazon developed in 2015 but has since moved away from. We are still asking ourselves why this happened, how did they go about it, what challenges they faced, etc. which Amazon will not tell us. But this is the situation, because we are dealing with information that these companies are not volunteering. Sometimes, we have to collect this information in a creative and innovative way.

WPC：Thank you for your illuminating answers.

References

Cardon, D. & Casilli, A. (2015). *Qu'est-ce que le digital labor? [What is Digital Labor?]*. Editions de l'INA.

Casilli, A. & Tubaro, P. (2016). *Le phénomène "pro-ana". Troubles alimentaires et réseaux sociaux [The "Pro-ana" Phenomenon. Eating Disorders and Social Networks]*. Presses des Mines.

Casilli, A. (2010). *Les Liaisons numériques: vers une nouvelle sociabilité? [Digital Relationships: Towards a new Sociability?]*. Editions du Seuil.

Casilli, A. (2017). Digital labor studies go global: Toward a digital decolonial turn. *International Journal of Communication, 11* [Special Section Global Digital Culture,] 3934–3954.

Casilli, A. (2019). *En attendant les robots. Enquête sur le travail du clic [Waiting for Robots. An Inquiry Into Digital Labor]*. Éditions du Seuil.

Casilli, A. (2021). Waiting for Robots: The ever-elusive myth of automation and the global exploitation of digital labor. *Sociologias, 23*(57): 112-133.

Casilli, A. (forthcoming). *Waiting for the Robots*, University of Chicago Press.

Crawford, K. (2021). *Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence*. Yale University Press.

Dallas W. S. (1981). On the audience commodity and its work. In *Dependency Road: Communications, Capitalism, Consciousness, and Canada*, pp. 22–51. Ablex.

Gray, M. & Suri, S. (2019). *Ghost Work: How to Stop Silicon Valley from Building a New Global Underclass*. Houghton Mifflin Harcourt.

Irani, L. (2013). The cultural work of microwork. *New Media and Society, 17*(5): 720-739.

Jarrett, K. (2015). *Feminism, Labour and Digital Media: The Digital Housewife*. Routledge.

Roberts, S. T. (2019). *Behind the Screen: Content Moderation in the Shadows of Social Media*. Yale University Press.

Terranova, T. (2000). Free labor: Producing culture for the digital economy. *Social Text, 18*,

33-58.

Tubaro, P., Casilli, A. & Coville, M. (2020). The trainer, the verifier, the imitator: Three ways in which human platform workers support artificial intelligence. *Big Data & Society, 7*(1).

Tubaro, P., Casilli, A. & Sarabi, Y. (2014). *Against the Hypothesis of the "End of Privacy." An Agent-based Modelling Approach to Social Media*. Springer.

Woodcock, J. & Graham, M. (2019). *The Gig Economy: A Critical Introduction*. Polity.