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Will robots know us better than we know ourselves?

Antonio Carnevale*

Dirpolis Institute, Scuola Superiore Sant'Anna, Pisa, Italy

HIGHLIGHTS

- How the role of technology in society has been changed.
- Technological innovation is moving from the physical to the abstract.
- Next generation of robots will affect our idea of privacy.
- We need contextual–normative approaches to privacy and robotics.

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ABSTRACT

This paper aims to highlight some conceptual aspects on the impact of robotics on our concept of privacy. In those areas where robotics applications will invade the privacy of individuals as computers or mobile phones do today, the current idea of privacy will no longer suffice to ensure the right level of people's protection. If we think to answer or stop the forthcoming controversies only relying on self-regulation of private parties, we will escape the real challenge: the next generation of robots does not affect solely persons and their individual rights, but the entire structure of society. This article assumes the robotics–privacy relationship as a clear illustration of how the technology–society nexus should be regulated in the future. We need approaches that are contextual–normative and that should be politically addressed to the creation of a *critical culture* of technology.

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1. Introduction

Technology usually makes privacy violations easier. In this paper I will highlight some crucial aspects of how the future development in robotics could affect our idea of 'privacy'. If current predictions of experts will be confirmed by trades [1], diffusion of robots in sensitive aspects of human life [2] – as, for example, in surveillance and security, to profiling customers' choices, as personal care givers – will make hard to distinguish between private and public.

It is also likely that this scenario will not happen, that robots will not spread to such an extent as mobile phones and tablets have today. However, in order to assess emerging technologies, it is always opportune to see the future with a hypothetical and idealistic perspective, trying to imagine how the world will be on the basis of ideas and prototypes that are available today.

This implies that in the future we might need new conceptual tools (norms, principles, models for policy implementation) not only to understand how to regulate the introduction of innovative machines in our private lives, but also to distinguish between a technology of control and a technology of freedom [3–5]. Otherwise, the risk is that the idea of privacy as such may become an obsolete and unnecessary form of protection [3].

However, before providing new tools, we should ask ourselves what the regulation of a technological innovation really means. When is a technology so new that it needs to be regulated? Why is the new generation of robots so pioneering as to require different regulatory policies than those already applied to the Rumba vacuum cleaner? I will discuss this in Section 2 of this article.

Only after understanding what the techno-regulation of the innovation means, can we investigate the role that robotics will play in the future society. In my opinion, their role is increasingly conceptual and abstract, since I anticipate the spread of intelligent autonomous machines designed to interact more with our thoughts and feelings than as supporters for humans in manufacturing or logistics (Section 3).

In this framework, I place the relationship between robotics and privacy (Section 4). The future generation of robots questions the current idea of privacy because they are part of an increasingly technologically abstract society in which there are only slight differences between the material and the immaterial, physical and information (Section 5). The conceptualization and the implementation of models for techno-regulation will therefore be essential,

* Correspondence to: Piazza San Quirico 6B – 55100 Lucca, Italy.
E-mail address: alephkaf@gmail.com.

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also with the aim of promoting a critical culture of technology (Section 6).

2. Why regulate technological innovation?

Where exactly technological innovation and legal regulation meet is difficult to define. Each new technological development suggests new sets of behaviors, risks, and uses, and hence legal scholars and governing bodies must examine whether the application of such technologies has consequences that may fall outside existing legal frameworks [6]. But why is a society's legal system triggered by the need to regulate a technological innovation?

In front of the technological innovations, the legal researchers focusing on regulatory issues are mainly concerned by questions that relate technologies with the existing legal systems. The great dilemma could be reassumed in this way: to what degree, do existing legal frameworks provide sufficient protection against the possible problems, risks and dangers that may arise in the slipstream of new technological developments? And, in case the existing norms are found to provide insufficient protection in one or more areas, then how can these frameworks be adjusted, so as to solve the problem? [7] *Lex lata* or *Lex ferenda*?

These dilemmas remain constantly inside the legal reasoning about the possible disalignment of each new technological innovation in relation to the legal system. Technological innovation proceeds faster than the innovation of regulatory systems. This gap explains why laws that are right when applied to a given technology become obsolete as the time passes. It is the case of how is changed the royalty-payment scheme for the radiobroadcast license [4]. "Traditional radiobroadcast license fees are based on estimates of the number of listeners of a particular radio station. Webradio allows for a much more precise scheme, because the listener's mediaplayer, iTunes for instance, requests a particular webradio station to start streaming content to the client. The webcaster therefore knows exactly which clients tune in to its broadcast, when, and for how long" (p. 130) [4]. This example shows clearly how in a simple innovational passage – from over-the-air radio to webradio – it is hidden a completely different regulatory scenario: from the application of a copyright law to the risk of a privacy infringement.

A new technology that is introduced (or is near to be introduced) into daily use spreads or will spread because it makes a certain aspect of life 'better'. 'Better' does not necessarily mean an *additional* quality, like a virtue that when added to an aspect of life makes it good in itself. Instead, technological innovation improves some aspects of life simply because it enhances these aspects for other things, i.e. it gives people easier access to the world, more freedom to choose according to their capability, mitigating the external circumstances that prevent them from realizing freely their aims [8].

Technical innovation does not appear to upset the world. It changes things quietly, not in perfecting life and creating some ideal of good, but in simplifying it and making it more usable and accessible. While it is always possible to discuss whether a completely new technology is good or bad for itself, an innovation is socially relevant when it is good to do something else. For example, it is not the quality of a computer in itself that led to its diffusion, but rather the operating system that governed it, the fact that through the software and by sitting at a 'desktop', it was possible to perform all the functions which before needed an entire office.

However, this process of simplification has not always been the same. The genesis of the modern idea of 'work' is here a good example. It is the human desire not to struggle too much with heavy work that has accelerated the modern – and will increasingly accelerate the future – spread of technological innovations. Namely, technological simplification was at the basis both of the industrial revolution and the formation of the proletarian consciousness. Karl Marx did not condemn the steam engine or the spinning mill because they represent in themselves the negativity of the bourgeois mode of production; he believed that ongoing technological innovation were necessary steps toward the future socialism and communism [9]. And not surprisingly, among the earliest forms of worker struggles, the Luddites did not intend to attack the factory owners, but the machines.

Greatly reducing the issue, it could say that is exactly the simplification of work operated by the modern mechanical machines to have produced the historical moment that, only at a later stage, we will know as the 'industrial revolution' [10]. This is to say that questions of technology regulation always have to take into account the location both of the technology and regulatory attempts, so that relevant socio-cultural, legal, economic, and institutional factors associated with that place can be factored in [3].

Accordingly, it could argue that the rules to which technology should be subjected not as rules to regulate the technical functionality of its product, rather as full tools of mediation. By regulating the use of technological artifacts, it can intervene and improve some aspects of people's behavior. "It is the difference, for example, between systems that make it physically impossible to exit the Underground (or Metro) without a valid ticket and low level barriers that make it more difficult (but not impossible) to do so" (p. 103) [6].

Techno-regulation means many things. Firstly, facing the concrete risks concerning a distorted and defected relationship between humans and technological devices and applications. In so doing, the risks are codified in the existing legal systems. But this is one side of the problem. Secondly, techno-regulation means facing the historical process of rationalization behind the society–technology relationship. This is a secondary level of understanding of the possible problems, risks and dangers that may arise in the slipstream of new technological developments, i.e. whatever determines and transforms the constitution of knowledge, discourse, domains of objects, or, in other words, the political order of a society: the concept of property, the price of the products, the access to the resources, the codes of law, the behaviors of people, to make some examples. In the name of this complexity, it is always possible to choose between codifying approaches (preserving the legal culture in force) and transformative ones (changing legal culture to make life different in the future) [11].

Summing up, techno-regulation is surely important in order to provide legal norms to guide the technological development, but also to choose those political and ethical principles that will guide the technology in a determined direction, and not in another. For example, by "privacy by design"—which means that data protection safeguards are built into products and services from the earliest stage of development [12].

3. The future role of robots in the society

As seen, the techno-regulation is important to regulate the right use of technologies as well as to govern their roles in the future societies. But, precisely, which is the future role of technology in the society? And how is this role linked to robotics? Let us start by answering the first question.

The Enlightenment placed the knowing subject at the center of the world. Advances in technology have led to a world that is no longer made up of people, their actions and thoughts, but an informational structure where every action and thought is translated into computational codes [13]. Human rationality seems, thus, no longer determined by the exchange between the thinking subject and the world of thought. The thinker and the thing being thought are both determined by the technological apparatus that is used

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