

# Computers as Ethical Artifacts

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One of the advantages that historians of computing have over their colleagues in other historical disciplines is that our object of study has broad contemporary relevance. It is rare that I meet someone who doesn't know something about, think they know something about, or wish they knew something about the topics about which I regularly teach and write. This is not simply because the history of computing is intrinsically interesting, nor because it is so inextricably linked with so many other important social, technological, and economic developments, such as the rise of the modern nation state, the emergence of industrial and post-industrial capitalism, the great wars of the 20th century, and the emergence of a globally networked economy. As fascinating and important as this larger history can be, the proverbial man or woman on the street is primarily interested in a more local level of social and political development. They are concerned about what are often referred to as the "social impacts" of computing, the ways in which the computer has affected, and seemingly will continue to affect, the ways in which they work, live, consume, recreate, and engage in social and personal relationships.

Historians and sociologists have long rejected the overly simplistic notion of technological "impacts." The relationship between humans and technologies is much more complicated, much more mutually constitutive, than such a deterministic model suggests. But we should never forget that for most people, including possibly ourselves, it often seems as if technology does drive history. And in that respect, what we do has direct relevance to many of the great social, political, and ethical questions of our day. This is an exciting—and daunting—opportunity.

Historians of computing have many ways in which they can effectively engage with the popular interest in the social dimensions of computing without compromising the scholarly integrity of our work. I am not suggesting that we start pontificating on the meaning of life in the virtual world, or predicting the future of either computers or society. But let me suggest two simple ways in which historians can fruitfully and responsibly engage with social and ethical questions.

## **Ethics as history, and the history of ethics**

The first, and most obvious, contribution that historians can make to contemporary discussions about the social implications of electronic computing is to situate them in their historical context. Developments in computing do not take place in a historical vacuum; computers are hardly the first technologies to be implicated in widespread and controversial social and political change. Historicizing the discussion about "computer ethics" helps define more clearly what is, and what is not, unique about the computer revolution.

In what is arguably the very first public introduction to the electronic computer, we can already see ways in which computer technology fits into a larger pattern of debate about the uses of technology. In the 16 February 1946 press release unveiling the recently developed ENIAC, the US War Department clearly felt compelled to reassure the public that this new machine would not be used to replace human workers: it would most definitely not "replace original human thought" or eliminate the need for human scientists or engineers. The War Department was responding to long-standing concerns about the use of machines to "deskill" or displace human workers. Given how mechanization had affected previous generations of industrial workers, such concerns were not unreasonable. The fact that within a few years of the ENIAC announcements, technological enthusiasts such as Norbert Wiener, in his *The Human Use of Human Beings* (Da Capo Press, 1950), were suggesting the electronic computer would usher in a second industrial revolution that would demand radical change to existing work patterns, business practices, government regulations, and professional standards, only served to keep the labor implications of computing at the center of the debate about computer ethics.<sup>1</sup> In many ways the current debate about outsourcing is but a continuation of this longer discussion about the relationship between technological innovation and the politics of labor, management, industrialization, and globalization.

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The increasing centrality of the electronic computer to the economic, social, and political life of industrialized nations also began to raise profound questions about the qualifications of computer workers. Who were these “computer boys” who were not just processing the payroll, but also radically reshaping organizations? Despite their relatively low status in the managerial hierarchy, they seemed to exert an undue degree of power and autonomy. What were their qualifications? They were increasingly responsible for constructing systems that were increasingly mission- and safety-critical. But who were these people? Were they scientists, engineers, or technicians? Should they be required to be college-educated, or certified by the state, or members of a professional society?

To address growing concerns about the lack of professionalism in the computer fields—often couched in terms of rising costs, budget overruns, and buggy software—many professional and academic organizations began establishing codes of ethical practice. In 1967 the Data Processing Management Association established the first such codes, followed by the Association for Computing Machinery in 1973. They were generally based on similar codes that had been long established in the engineering disciplines. (The IEEE code of ethics, for example, dates all the way back to 1912.) The establishment of ethical codes in the computing fields was a deliberate and self-conscious move toward the professionalization of the computer industry. In fact, many of the technological and professional developments of subsequent decades were aimed at regulating and controlling the “long-haired programming priesthood.” The widespread adoption of the term *software engineering* following the software crisis of the 1960s is

just one indication of these concerns about the safety and reliability of computer-based systems.

***Do computers have politics?***

The history of the adoption of technical standards and professional codes of ethics aimed at the protection of the public good is only part of the story, however. Such mechanisms help reassure the public that critical systems are being built only to the highest technical and ethical standards of safety, reliability, and security. What they don’t do, however, is say much about what should, or should not, be built in the first place. This brings us to the second, and less specifically historical, opportunity for public engagement.

Beginning in the 1970s, a more formal discussion about computer ethics took shape in the public and professional literature. This discussion addressed issues that seemed unique to computer technology: computer crime, child pornography, free speech and censorship concerns, surveillance and privacy regulation, digital divides of various kinds, intellectual property regimes, the possible negative effects of violent video games, and so on. The bulk of the computer ethics literature addresses such topics of use and behavior. In most of these discussions the computer is treated as an ethically neutral object. To borrow from a common argument in the debate about gun control, it is not computers that violate privacy (or steal intellectual property, or censor free speech, or perpetuate economic or social inequality), but rather the people who use them.

But in his provocative and influential 1980 essay “Do Artifacts Have Politics?” the political scientist Langdon Winner showed us that not only were technologies political and ethical objects in the sense that they were used for political purposes (such as the suppression of political dissidents), but also that some technological systems are “inherently political,” meaning they are strongly compatible with particular kinds of political relationships. His primary example of the latter was the nuclear power plant, which because of the catastrophic potential of malfunction, the theft of nuclear materials, and the problems associated with the disposal of waste, required strong, authoritarian controls and regulation.<sup>2</sup>

In recent years, historians have begun asking questions about the ways in which the

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design of computers might also be inherently value-laden. Paul Edwards, for example, has argued that a "closed-world" mentality, originating in Cold War development projects, has influenced not just how computers are used, but also how they are built.<sup>3</sup> Batty Friedman and Helen Nissenbaum, in an edited volume on *Human Values and the Design of Computer Technology*, suggested numerous ways in which social and political bias get constructed into computer-based systems, in some cases deliberately, but more importantly, often inadvertently.<sup>4</sup> In this sense, computers are anything but neutral objects. They embody power relationships and political agendas. They empower some users and disempower others.<sup>5</sup> In short, computers are ethical objects.

There is obviously much that could be said on this topic. This is an area in which a historical perspective is particularly valuable. Much of the public discussion about the social implications of computing takes for granted the notion that computers are unique, unprecedented, and outside of history. The historical approach makes it clear that computers are technologies created within socie-

ties to accomplish social objectives. They are inherently social and ethical.

For the time being, however, it is enough to suggest that enduring public interest in the social and ethical implications of computers is itself a historical subject. And in telling this history, we also have an opportunity to engage more directly in some of the most significant debates facing modern society.

## References and notes

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