Engaging rational discrimination: exploring reasons for placing regulatory constraints on decision support systems

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Abstract In the future systems of ambient intelligence will include decision support systems that will automate the process of discrimination among people that seek entry into environments and to engage in search of the opportunities that are available there. This article argues that these systems must be subject to active and continuous assessment and regulation because of the ways in which they are likely to contribute to economic and social inequality. This regulatory constraint must involve limitations on the collection and use of information about individuals and groups. The article explores a variety of rationales or justifications for establishing these limits. It emphasizes the unintended consequences that flow from the use of these systems as the most compelling rationale.

Keywords Race · Discrimination · Surveillance · Ambient intelligence · Privacy · Insurance · Technology assessment

Introduction

Although I am not a philosopher, I am going to attempt to place my thinking about emergent sociotechnical systems within frameworks that are common to discussions about ethics and technological choice. At the heart of my comments is a concern about the role that decision support systems should be allowed to play in our lives.

I believe that much of what we are concerned about as we imagine a not too distant future is the role that high-tech sentinels will play at the various nodes and access points we will encounter as we navigate an increasingly integrated network infrastructure.1

We understand the role of a sentinel at an outpost asking “who goes there; friend or foe?” We understand the sentinel makes use of a technology: it asks for a code, and it asks documentation. The sentinel is in control.

We already envision a time when this sentinel will be a kind of an ambient intelligence (AmI),2 so it shouldn’t take much for us to understand that the sentinel doesn’t need to query us directly, but will access our identity systems automatically.3

It is already obvious that the bulk of this surveillance infrastructure will not be contained within us, or carried entirely on our person, despite the kinds of technological developments that Ray Kurzweil perceives on a not too distant horizon.4 The sentinel will query a networked system of distributed intelligence that will evaluate our identities not only in terms of who we are biologically and historically, but also in terms of the state of the environment and its readiness to engage with the likes of us.5 The sentinel will make use of Bayesian systems processing continuous streams of transaction-generated information to routinely update and adjust the system’s assessments of risk.6 Of course, these estimates will be of interest to a continually changing network of interested parties, and

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1 Committee on Networked Systems of Embedded Computers (2001).
2 Patrick (2007).
3 Hildebrandt and Meints (2006).
4 Kurzweil (2005).
5 Lafuente-Rojo et al. (2007).
6 Haddawy (1999).
autonomous agents that will have claimed a right to be informed about who goes where.

While our own interests and desires will certainly play some role in determining just how our encounters with these sentinels will unfold, none of us should really assume that we, rather than the network will actually be in control.\(^7\)

Of course, my comments in this paper may not stray as far as some who have actually begun to suggest that we have pretty much lost all control over the determination of just who, or what we will actually come to be.\(^8\) Instead, I will attempt to draw your attention to more mundane considerations about what it means to develop and implement systems that discriminate between people in ways that affect their life chances.

Although my concerns are framed in terms of a technological future when these systems are likely to be ubiquitous and therefore not only inescapable, but also not subject to identification as individually responsible actors or agents, I must necessarily express my concerns in terms of already existing practices and emerging trends.

Because it is at the heart of my concerns, I will begin this discussion with an attempt to define the meaning of discrimination in ways that link it to statistical analysis (SA) as a form of information technology (IT) that finds its use in decision support systems (DSS).\(^9\) Next, I will introduce a set of considerations that have been brought to bear in debates about limiting the use of information about members of groups within a DSS. After exploring a subset of these arguments in greater detail, I turn to what I consider to be the most compelling rationale for limiting the use of particular kinds of DSS—the unintended consequences that we are beginning to recognize as cumulative disadvantage (CD). I will conclude with an assessment of the possibility that a regulatory response can be framed within the limits of routine technology assessment.

**Technology assessment and discrimination**

I think of discrimination as the outcome of a technologically enhanced process that begins with identification, proceeds through classification, and gathers momentum at the point of evaluation. Increasingly this evaluation is forward-looking, based on predictions about what some target of interest is likely to do at some point in the future.\(^10\)

The routine, but increasing investment of resources in the identification, classification and evaluation of people, places and things is meant to produce actionable intelligence or guidance about choices that have to be made. These choices often result in the reinforcement or exacerbation of inequality within society.\(^11\) The choice between X and Y, where Y is everything other than X, is to be understood as discrimination. The choice of X generally implies discrimination against Y. Of course, in an ideal case where X and Y are two applicants for a mortgage, the decision to grant the mortgage to X might be based on the flip of a coin, and Y then, would be the victim of bad luck, rather than discrimination.

Although the subprime mortgage crisis in the US seems to indicate that the dominant technology in use was often no more sophisticated than that of a coin flip,\(^12\) a financial decision in favor of X increasingly would have been made on the basis of a rather complex underwriting program. Although the use of this kind of decision support technology may avoid some of the distortions that racial, and other group-centered biases might have played in the past, it remains likely that the inclusion of particular variables within many of the standard underwriting models will still work to produce a disparate effect that many of us see as both unfair and unfortunate.\(^13\)

Because routine decision making systems become normalized quite rapidly, especially when they operate outside our fields of vision, it becomes especially important for us to consider that the discriminatory technologies that will be fully integrated into the ubiquitous networks of AmI should be subject to routine, if not continuous assessment and regulatory control.\(^14\)

Far too often, the regulatory control of technology is motivated by concerns about threats to competitive advantage. Far less often, assessment and control is motivated by a desire to minimize or mitigate the societal harms that flow from its use. Most public technology assessments are retrospective, often initiated in response to a crisis, rather than beginning as an integral component of research and development. Still, public discussion and debate often accompanies the rise and fall of every technology’s star, although regulatory interventions rarely succeed in banning the introduction of an emergent technology.\(^15\) Nevertheless, it is quite common for legislatures to introduce controls over the nature and scope of its application, including the identification of uses and users that should be disallowed.

Initially, at least, regulations based on prospective and retrospective technology assessments may establish limits

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7 Brey (2005).
8 Rouvroy (2008).
10 Gandy (2006a).
12 ACORN Fair Housing (2007).
14 Friedewald et al. (2006).
15 Baumgartner and Jones (1993).