

Everyday Algorithmic Decisions and their Consequences

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INTRODUCTION

There is a current uncertainty and disagreement about the appropriateness of algorithms that we encounter everyday. There have generally been two outcomes of this currently, ongoing debate. First, there has been intense criticism [2] about the application and appropriateness of these algorithms in various spheres of life. On the other hand, sometimes, this has also led to a chilling effect where researchers, developers and data scientists have been loath to study certain phenomena [1] due to its potential, future controversy. In this abstract, I briefly summarize the current debate in this area and why it is important for ethicists, at this workshop and elsewhere to study this area.

EVERYDAY ALGORITHMS AND THEIR CONSEQUENCES

Algorithms already govern, curate, manage and inform [4] many of our everyday life decisions. Automated decision-making through algorithms has significant impacts on the everyday lives of people. For instance by recommendations on online social media, pricing goods or services for different target segments of populations and reviewing access to social benefits or bank credit decisions that are all based on a predictive assessment of an individuals behaviour in one way or another.

There are practical, legal and physical ramifications to having such vagaries of everyday life being monitored and managed through algorithms. Indeed in many cases using such data driven approaches can lead to overt or unintentional discrimination against certain segments of the population. For instance, in Wisconsin judges use a mobile app [5] to predict a convicted offender's probability of re-offending. Unsurprisingly, in many instances, this app tends to discriminate against black males as opposed to white males of similar criminal backgrounds.

Another growing debate centers around the potential, upcoming automated, self-driving car debate. What happens when an algorithm decides, in a split second, to protect the passen-

gers of a car [3] versus the unsuspecting pedestrian crossing the road or on the sidewalk? Clearly, given present circumstances, it is not too far fetched to think about a near future where such incidents come to pass. As researchers in this space, it is then, a moral imperative for us to think about ethical frameworks and their relationship to the study and implementation of computing in all its variegated forms.

ETHICS AND COMPUTING: WHAT DO WE DO?

There are obviously, important differences in how social scientists and computer scientists approach research ethics. Of course, it goes without saying that both parties have to work together to curate this particular debate. For social scientists, thinking about ethics is dominated by Institutional Review Boards (IRBs) and the regulations that they are tasked with enforcing. Most empirical social scientists experience ethical debate is through the bureaucratic process of IRB review. On the other hand, computer scientists, have little systematic experience with research ethics because it is not commonly discussed in computer science departments nor indeed is computer ethics a common course in most academic programs in the USA.

Neither of these approaches, that is, the rules of the IRB approach of social scientists or the ad-hoc approach of computer scientists is well suited to study the consequences of implementing algorithms in everyday life. How do we then, as a community make progress in thinking about approaching this tricky problem. Clearly, simple criticism is not enough. Neither is hoping that algorithms are *not* going to march into every nook and cranny of our personal lives. How can researchers make reasonable decisions about research for which rules have not yet been written and then communicate our reasoning with other researchers and the public. This is what I hoping to discuss in this workshop? *How*, as opposed to *what*, do we think about the relationship between ethics and computing?

There are four primary areas of difficulty that I can imagine as we sit, as a community, to discuss this issue. First, is the thorny issue of informed consent in terms of building, testing and deploying these algorithms. Second, how can algorithm developers understand and manage potential, unanticipated consequences and risk. Third, where does privacy come into play? There are many ways to think about privacy. Is there one that is important? Finally, but not least, how can we think about ethical frameworks for algorithms in terms of making decisions in the face of uncertainty?

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BIOGRAPHY

Shion Guha is an assistant professor in the Department of Mathematics, Statistics and Computer Science at Marquette University. His research lies at the intersection of human computer interaction and computational social science particularly asking questions around privacy and self-disclosure in online social networks. He holds a MS degree from the Indian Statistical Institute and a PhD in Information Science from Cornell University.

REFERENCES

1. Amy Wesolowski, Caroline O. Buckee, L. B. E. W. X. L. A. J. T. Commentary: Containing the ebola outbreak - the potential and challenge of mobile network data. *PLoS Currents* 6 (sep 2014).
2. danah boyd, K. C. Critical questions for big data. *Information, Communication & Society* 15, 5 (jun 2012), 662-679.
3. Goodall, N. J. Can you program ethics into a self-driving car?, aug 2016.
4. Kate Crawford, J. S. Big data and due process: Toward a framework to redress predictive privacy harms. *Boston College Law Review* 55 (jun 2014), 93.
5. Smith, M. In wisconsin, a backlash against using data to foretell defendants futures, jun 2016.