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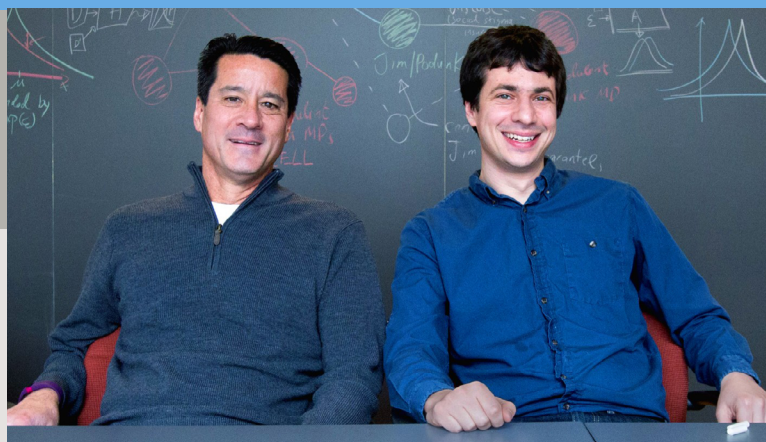
Present

The Ethical Algorithm

December 15, 2020 | 11:00 am–Noon
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Co-Authors "The Ethical Algorithm: The Science of Socially Aware Algorithm Design" (Oxford University Press)

ABSTRACT

In recent years, there has been an explosion of reports of automated systems exhibiting undesirable behavior, often manifesting itself in terms of gross violations of social norms like privacy and fairness. This poses new challenges for regulation and governance, in part because these bad algorithmic behaviors are not the result of mal-intent on the part of their designers, but are instead the unanticipated side effects of applying the standard tools of machine learning. The solution must therefore be in part algorithmic—we need to develop a scientific approach aiming to formalize the kinds of behaviors we want to avoid, and design algorithms that avoid them. We will survey this area, focusing in both the more mature area of private algorithm design, as well as the more nascent area of algorithmic fairness. We will touch on other issues, including how we can think about the larger societal effects of imposing constraints on specific algorithmic parts of larger sociotechnical systems.

BIOS

Dr. Michael Kearns is a professor in the Computer and Information Science department at the University of Pennsylvania, where he holds the National Center Chair and has joint appointments in the Wharton School. He is founder of Penn's Networked and Social Systems Engineering (NETS) program, and director of Penn's Warren Center for Network and Data Sciences. His research interests include topics in machine learning, algorithmic game theory, social networks, and computational finance. He has worked and consulted extensively in the technology and finance industries. He is a fellow of the American Academy of Arts and Sciences, the Association for Computing Machinery, and the Association for the Advancement of Artificial Intelligence. Kearns has consulted widely in the finance and technology industries, including a current role as an Amazon Scholar. With Aaron Roth, he is the co-author of the recent general-audience book "The Ethical Algorithm: The Science of Socially Aware Algorithm Design" (Oxford University Press).

Dr. Aaron Roth is a professor in the Computer and Information Science department at the University of Pennsylvania, affiliated with the Warren Center for Network and Data Science, and co-director of the Networked and Social Systems Engineering (NETS) program. He is also an Amazon Scholar at Amazon AWS. He is the recipient of a Presidential Early Career Award for Scientists and Engineers (PECASE) awarded by President Obama in 2016, an Alfred P. Sloan Research Fellowship, an NSF CAREER award, and research awards from Yahoo, Amazon, and Google. His research focuses on the algorithmic foundations of data privacy, algorithmic fairness, game theory and mechanism design, learning theory, and the intersections of these topics. Together with Cynthia Dwork, he is the author of the book "The Algorithmic Foundations of Differential Privacy." Together with Michael Kearns, he is the author of "The Ethical Algorithm."