

UNIVERSITY OF ROCHESTER
G. MILTON WING LECTURE SERIES
SEPTEMBER 2019

DECISION BIAS

GUEST SPEAKER

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DEPARTMENT OF
MANAGEMENT SCIENCE
& ENGINEERING
STANFORD UNIVERSITY

PUBLIC LECTURE

**THE MYTH OF
DOUBLE VOTING IN
U.S. PRESIDENTIAL
ELECTIONS**

**Monday, September 9,
4:50–6:05 p.m.
Sloan Auditorium,
Goergen Hall**

Beliefs about the incidence of voter fraud inform how people view the trade-off between electoral integrity and voter accessibility. To better inform such beliefs about the rate of double voting, which some allege is prevalent in the United States, Goel discusses a method to develop and apply estimates of how many people voted twice in the 2012 presidential election. He estimates that about 1 in 4,000 voters cast two ballots. He finds that one suggested strategy to reduce double voting by removing older registrations could impede approximately 300 legitimate votes for each double vote prevented.

BIAS IN HUMAN AND MACHINE DECISIONS

There is widespread concern that high-stakes decisions—made both by humans and by algorithms—are biased against groups defined by race, gender, and other protected traits. In a series of two talks, Goel will describe several interrelated threads of research that seek to define, detect, and combat bias in human and machine decisions, drawing on new and old ideas from statistics, computer science, law, and economics.

These talks synthesize material developed over the last several years in collaboration with many people, including Sam Corbett-Davies, Avi Feller, Aziz Huq, Jongbin Jung, Emma Pierson, Justin Rao, Ravi Shroff, and Camelia Simoiu. Though there are common underlying themes, each of the two talks is self-contained.

**QUANTIFYING BIAS IN HUMAN
AND MACHINE DECISIONS PART I**

**Tuesday, September 10,
4:50–6:05 p.m.
Sloan Auditorium, Goergen Hall**

Goel will discuss bias in human decisions and demonstrate that the most popular statistical tests for discrimination can, in practice, yield misleading results. To address this issue, he proposes two new methods. The first, he calls the threshold test, which is designed to circumvent the problem of “infra-marginality.” The second, he calls risk-adjusted regression, which mitigates the problem of “included-variable bias.” He will illustrate these techniques on large-scale datasets of police interactions with the public.

**QUANTIFYING BIAS IN HUMAN
AND MACHINE DECISIONS PART II**

**Wednesday, September 11,
2–3 p.m.
Lander Auditorium, Hutchison Hall**

Goel will focus on bias in machine decisions, and similarly show that the most popular measures of algorithmic fairness suffer from deep statistical flaws. He argues that algorithms designed to satisfy those measures can perversely harm the very groups they were designed to protect. To demonstrate these ideas, he will discuss a class of risk-assessment algorithms used by judges nationwide when setting bail.