University at Buffalo
The State University of New York

Department of Computer Science and Engineering

Distinguished Speakers Series Presents

Lance Fortnow, Georgia Institute of Technology

Bounding Rationality by Computational Complexity

Traditional microeconomic theory treats individuals and institutions of completely understanding the consequences of their decisions given the information they have available. These assumptions may not be valid as we might have to solve hard computational problems to optimize our choices. What happens if we restrict the computational power of economic agents?

There has been some work in economics treating computation as a fixed cost or simply considering the size of a program. This talk will explore a new direction bringing the rich tools of computational complexity into economic models, a tricky prospect where even basic concepts like "input size" are not well defined.

We show how to incorporate computational complexity into a number of economic models including game theory, prediction markets, forecast testing, preference revelation and awareness.

This talk will not assume any background in either economics or computational complexity.

Bio: Lance Fortnow is professor and chair of the School of Computer Science of the College of Computing at the Georgia Institute of Technology. His research focuses on computational complexity and its applications to economic theory.

Fortnow received his Ph.D. in Applied Mathematics at MIT in 1989 under the supervision of Michael Sipser. Before he joined Georgia Tech in 2012, Fortnow was a professor at Northwestern University, the University of Chicago, a senior research scientist at the NEC Research Institute and a one-year visitor at CWI and the University of Amsterdam. He has been awarded an ACM Fellow, a Presidential Faculty Fellow and a Fulbright Scholar in the Netherlands. Fortnow's survey The Status of the P versus NP Problem is CACM's most downloaded article. Fortnow has written a popular science book The Golden Ticket: P, NP and the Search for the Impossible loosely based on that article.

Thursday, April 3, 2014

3:30–4:30 PM

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