You are invited to the 62nd edition of the PRAGUE COMPUTER SCIENCE SEMINAR

AMY GREENWALD

Solving Games Forwards and Backwards

March 20, 2025
4:15pm

Auditorium KN:E-107,
FEL CTU, Karlovo nám. 13
Praha 2

The lecture will be followed by a discussion

ABSTRACT

Computing equilibria in games is a problem of great interest in both economics and computer science. We present a min-max formulation of this problem, in which the minimizer seeks an equilibrium solution for the game, while the maximizer seeks to find fault with the proposed solutions. We call this problem the "forward" problem. In the "backwards" problem, we are instead given an equilibrium and a parameterized game, and we are interested in inferring a game from that equilibrium: i.e., identifying the game parameters that induce the observed equilibrium. We consider the backwards problem under weaker and weaker assumptions, ranging from inverse multiagent planning to inverse multiagent learning and beyond, for each of which we present min-max formulations. We apply our backwards method to Spanish electricity market time-series price data, and then push the inferred game forward to predict future prices.

ABOUT THE PRAGUE COMPUTER SCIENCE SEMINAR

The seminar takes place once a month on Thursdays at 4:15pm (except June to September, and December) alternately in the buildings of Faculty of Electrical Engineering, Czech Technical University in Prague, Karlovo nám. 13, Praha 2 and Faculty of Mathematics and Physics, Charles University, Malostranské nám. 25, Praha 1. Its program typically consists of a one-hour lecture followed by a discussion. The lecture is based on an (internationally) exceptional or remarkable achievement of the lecturer, presented in a way which is comprehensible and interesting to a broad computer science community. The lectures are in English.

Amy Greenwald is Professor of Computer Science at Brown University in Providence, Rhode Island, USA. Her research focuses on game-theoretic and economic interactions among computational agents with applications to automated bidding and negotiation in domains ranging from advertising auctions to supply chains. She is also active in promoting diversity in Computer Science, leading multiple initiatives at primary and secondary public schools.

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