



JOINT Algorithmic Economics and Intelligence Seminar



Michael Bowling

Professor of Computer Science
University of Alberta

Adversaries, Abstractions, and Algorithms

The Computer Poker Research Group at the University of Alberta has for over a decade developed the strongest poker playing programs in the world. We have tested them in competition against other programs, winning 20 of 33 events since the inauguration of the AAAI Computer Poker Competition in 2006. We have also tested them against top professional players, becoming the first to beat professional poker players in a meaningful competition in 2008. Our success follows the modus operandi of the very pioneers of game theory: when facing an intractably complex game, abstract the game to a smaller one and reason in that game. "It seems to us...," as Von Neumann and Morgenstern wrote, "its decisive properties will be conserved in our simplified form." Recently, this approach has been shown to be on shaky ground, or rather on no ground at all. In this talk, I will be looking down to see what, if anything, the abstraction methodology can stand on; and what this line of research means for real-world applications where abstraction is step one, as well as applications that do not involve an apparent adversary.

BIO: Michael Bowling is a Professor of Computing Science at the University of Alberta. His research focuses on artificial intelligence, machine learning, and game theory; and he is particularly fascinated by the problem of how computers can learn to play games through experience. Michael is the leader of the Computer Poker Research Group, which has built some of the strongest poker playing programs in the world. In 2008, one of these programs, Polaris, defeated a team of top professional poker players in two-player, limit Texas Hold'em, becoming the first program to defeat poker pros in a meaningful competition. He also pioneered the Arcade Learning Environment, a testbed for developing artificial intelligence that can exhibit general competence across a variety of domains. His research has been featured on the television programs Scientific American Frontier and National Geographic Today; in print articles in the New York Times and Wired; and twice in exhibits at the Smithsonian Museums in Washington, D.C.

JOINT SEMINAR

Tuesday, 13 May 2014

Newell-Simon 1507 • 12:00 PM

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