HUMANITY CENTERED ROBOTICS INITIATIVE

BROWN

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"Reinforcement Learning: From Vision to Action and Back"

Monday, April 11, 2016
1-2 pm
CIT Building, Lubrano Room 477

Stemming in part from the great successes of other areas of Machine Learning, in particular the recent success of Deep Learning, there is renewed hope and interest in Reinforcement Learning (RL) from the wider applications communities. Indeed, there is a recent burst of new and exciting progress in both theory and practice of RL. I will describe some results from my own group on a simple new connection between planning horizon and overfitting in RL, as well as some results on combining RL with Deep Learning in Atari games and Minecraft. I will conclude with some lookahead at what we can do, both as theoreticians and those that collect data, to accelerate the impact of RL.

Satinder Singh is a Professor of Computer Science and Engineering as well as the Director of the Artificial Intelligence Laboratory at the University of Michigan, Ann Arbor. He has been the Chief Scientist at Syntek Capital, a venture capital company, a Principal Research Scientist at AT&T Labs, an Assistant Professor of Computer Science at the University of Colorado, Boulder, and a Postdoctoral Fellow at MIT's Brain and Cognitive Science department. His research focus is on developing the theory, algorithms and practice of building artificial agents that can learn from interaction in complex, dynamic, and uncertain environments, including environments with other agents in them. His main contributions have been to the areas of reinforcement learning, multi-agent learning, and more recently to applications in cognitive science and healthcare. He is a Fellow of the AAAI (Association for the Advancement of Artificial Intelligence) and has coauthored more than 150 refereed papers in journals and conferences and has served on many program committees. He is Program-CoChair of AAAI 2017, and in 2013 helped cofound RLDM (Reinforcement Learning and Decision Making), a biennial multidisciplinary meeting that brings together computer scientists, psychologists, neuroscientists, roboticists, control theorists, and others interested in animal and artificial decision making.