HUMANITY CENTERED ROBOTICS INITIATIVE

BROWN

Kyle Wray

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Tech Talk: "POMDPs for Robots with Applications to Autonomous Vehicles"

Wednesday, February 14, 2018
12:00-1:00
CIT 368

Abstract: Partially observable Markov decision processes (POMDPs) are a powerful decision-making model that enables intelligent simultaneous reasoning about multiple forms of uncertainty. For robotic applications, this includes the highly effective modeling of noisy sensors, imperfect actuators, and dynamic environmental changes. In practice, however, POMDPs are notoriously difficult to apply and scale to solve real world robotic problems. This talk will discuss the applications of POMDPs for robots that incorporate multi-objective path/route planning, employ hierarchical semi-autonomy, and decompose large problems into multiple decision-components which are instantiated during online execution, namely for autonomous vehicles.

Kyle Wray is a fifth year Ph.D. Candidate at the University of Massachusetts Amherst advised by Professor Shlomo Zilberstein. He designs large-scale automated planning and learning models to solve real world decision-making problems in partially observable stochastic systems, with applications to humanoid service robots and autonomous vehicles. He recently completed a second internship at the Nissan Research Center in Silicon Valley.

Host: Michael Littman/HCRI