Department of Computer Science, The University of Hong Kong

CS Seminar

Zoom Research Seminar

Robust Decision Making in a Partially Observable World

Hanna Kurniawati
Australian National University

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Friday
2:00 pm (HK Time) (GMT+8)

Zoom meeting link:
https://hku.zoom.us/j/94650715947
Meeting ID: 946 5071 5947

Abstract:

Robust robot operation must answer: What to do now, to receive good long-term returns, despite not knowing the exact effect of its actions, despite various errors in sensors and sensing, and despite limited information about the environment and itself. This problem is not new. Mathematically principled concepts --called Partially Observable Markov Decision Processes (POMDPs)-- have been developed more than five decades ago to address the problem mentioned above. However, such concepts are notorious for their computational complexity, that they have often been considered impractical. I will present some of our effort in addressing the computational complexity issues of solving POMDPs, and demonstrate that this decision making concept has now become practical (to some extent) for solving various problems in robotics. I will end with a discussion on what this technology could mean in bridging the gap between sensing and acting in robotics, and between planning and learning in general.

About the Speaker:

Hanna Kurniawati is a Senior Lecturer with ANU and CS Futures Fellowship at the Research School of Computer Science, Australian National University (ANU). Prior to ANU, she was an academic at the University of Queensland and a Research Scientist at the Singapore-MIT Alliance for Research and Technology. She earned a PhD in Computer Science from National University of Singapore for work on robot motion planning. Her current research focuses on the design and development of algorithms that enable mathematically principled concepts for robust decision making to become practical tools in robotics. Along with colleagues and students, she won a best paper award at ICAPS'15 and was a finalist of the best paper award at ICRA'15. She was also a keynote speaker at IROS'18.

All are welcome!
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