ROBOTICS & IOT SEMINAR

Power Women of Robotics Series

Nancy Amato

Computer Science, Department Head
University of Illinois at Urbana-Champaign

Sampling-Based Task and Motion Planning: From Robotic Manipulators to Intelligent CAD to Protein Folding

Friday, Apr 15, 2022, 3:30pm, Zoom

Abstract: Task and motion planning has application in robotics, animation, virtual prototyping and training, and even for seemingly unrelated tasks such as evaluating architectural plans or simulating protein folding. Surprisingly, sampling-based methods have proven effective on problems from all these domains. In this talk, we provide an overview of sampling-based planning and describe some methods developed in our group, including strategies suited for collaborative task planning, multi-agent systems, and for user interaction. To sum up, we describe our application of sampling-based motion planners to simulate molecular motions, such as protein folding.
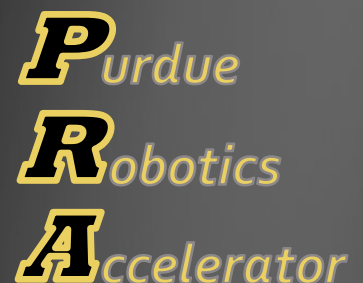
Bio: Nancy Amato received her BS in Mathematical Sciences and Economics from Stanford University, an M.S. in Computer Science from UC Berkeley, and a Ph.D. in Computer Science from the University of Illinois. She is the Abel Bliss Professor of Engineering, Professor and Head of the Computer Science Department. Amato received the 2014 CRA Habermann Award, the inaugural NCWIT Harrold/Notkin Research and Graduate Mentoring Award in 2014, the 2013 IEEE HP/Harriet Rigas Award, and a Texas A&M AFS university-level teaching award in 2011 and a university-level research award in 2018. She received an NSF CAREER Award and is a Fellow of AAAI, AAAS, ACM and IEEE. Her main areas of research focus are motion planning and robotics, computational biology and geometry.

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