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Department of Computer Science

Learning and Planning for Robotic Manipulation: Bringing Theory to Practice

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Hosted by Ioannis Koutis

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Refreshments: 2:15 PM – 2:30 PM
Time: 2:30 PM – 3:30 PM
Location: GITC 4402 (4th Floor Seminar Lecture Hall)
WebEx Link: https://njit.webex.com/njit/j.php?MTID=m9e8990a07daa3a64602cc666339a6837

https://cs.njit.edu/seminars

Abstract:
Robotics has the capability to enhance human abilities in unparalleled ways. The integration of advanced sensors and precise actuators has established the foundation for robots to attain these capabilities, as evidenced by their presence in factories and, in limited cases, in home settings. Nevertheless, in unpredictable environments, robots struggle to adjust to new scenarios, collaborate with humans, and are unable to plan for complex tasks. In this presentation, I will present recent progress toward bringing robotic manipulation agents into the real world by integrating classical planning techniques with modern learning methods. After a brief introduction to the fundamental concepts of classical motion planning for robotic manipulators, this talk will present (a) recent work on how learning methods can enhance the efficiency of classical motion planners (b) an investigation of robust planning with inaccurate models through learning, and (c) an exploration of learning representations for direct image-based planning algorithms.

Bio:
Constantinos Chamzas is a Ph.D. candidate in the Computer Science Department at Rice University, working under the supervision of Prof. Lydia Kavraki and Prof. Anshumali Shrivastava. He earned his Diploma in Electrical and Computer Engineering from Aristotle University of Thessaloniki in 2017. He is the recipient of the NSF-GRFP fellowship and is currently a Future Faculty Fellow at Rice University. His research interests lie in algorithmic robotics, with a focus on integrating classic robotic planning algorithms with learning-based methods. His work on learning for planning efficiency has been nominated for Best Paper award in Cognitive Robotics at ICRA 2021.