

# Autonomy in the Human World: Developing Robots that Handle the Diversity of Human Lives

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Reliable operation in everyday human environments – homes, offices, and businesses – remains elusive for today’s robotic systems. A key challenge is diversity, as no two homes or businesses are exactly alike. However, despite the innumerable unique aspects of any home, there are many commonalities as well, particularly about how objects are placed and used. These commonalities can be captured in semantic representations, and then used to improve the autonomy of robotic systems by, for example, enabling robots to infer missing information in human instructions, efficiently search for objects, or manipulate objects more effectively. In this talk, I will discuss recent advances in semantic reasoning, particularly focusing on semantics of everyday objects, household environments, and the development of robotic systems that intelligently interact with their world.



Sonia Chernova is an Associate Professor in the College of Computing at Georgia Tech. She directs the Robot Autonomy and Interactive Learning lab, where her research focuses on the development of intelligent and interactive autonomous systems. Chernova’s contributions span robotics and artificial intelligence, including semantic reasoning, adaptive autonomy, human-robot interaction, and explainable AI. She also leads the NSF AI Institute for Collaborative Assistance and Responsive Interaction for Networked Groups (AI-CARING), whose mission is to develop collaborative AI partners-in-care that help support a growing population of older adults, helping them sustain independence, improve quality of life, and increase effectiveness of care coordination across their care network.

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