

WEIYU LIU

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RESEARCH INTEREST

My research focuses on semantic reasoning for robotics, including leveraging knowledge extraction, representation, and reasoning to facilitate robotic operations in diverse real-world environments.

EDUCATION

Georgia Institute of Technology, Atlanta, GA <i>Ph.D. in Robotics</i> Advisor: Sonia Chernova	2017 – Present
Georgia Institute of Technology, Atlanta, GA <i>Bachelor of Science, Electrical Engineering with Distinction</i> GPA: 3.96	2012 – 2017

RESEARCH EXPERIENCE

Georgia Institute of Technology, Atlanta, GA <i>Graduate Research Assistant</i>	2017 – Present
Georgia Institute of Technology, Atlanta, GA <i>Undergraduate research with Prof. Sonia Chernova</i>	2016 – 2017
Georgia Institute of Technology, Atlanta, GA <i>Undergraduate research with Prof. Fumin Zhang</i>	2014 – 2016

PUBLICATIONS

Preprints

- A Survey of Semantic Reasoning Frameworks for Robotic Systems
Weiyu Liu, Angel Daruna, and Sonia Chernova.
Under review, Robotics and Autonomous Systems (RAS), 2020
- Same Object, Different Grasps: Data and Semantic Knowledge for Task-Oriented Grasping
Adithya Murali, **Weiyu Liu**, Kenneth Marino, Sonia Chernova, and Abhinav Gupta.
Under review, Conference on Robot Learning (CoRL), 2020
- Leveraging Semantics for Incremental Learning in Multi-Relational Embeddings
Angel Daruna, **Weiyu Liu**, Zsolt Kira, and Sonia Chernova.
arXiv, 2019

Conference and Journal Papers

- CAGE: Context-Aware Grasping Engine
Weiyu Liu, Angel Daruna, and Sonia Chernova.
International Conference on Robotics and Automation (ICRA), 2020.
- Path Ranking with Attention to Type Hierarchies

Weiyu Liu, Angel Daruna, Zsolt Kira, and Sonia Chernova.
Conference on Artificial Intelligence (AAAI), 2020.

- Taking Recoveries to Task: Recovery-Driven Development for Recipe-based Robot Tasks
Siddhartha Banerjee, Angel Daruna, David Kent, **Weiyu Liu**, Jonathan Balloch, Abhinav Jain, Akshay Krishnan, Muhammad Asif Rana, Harish Ravichandar, Binit Shah, Nithin Shrivatsav, and Sonia Chernova.
International Symposium on Robotics Research (ISRR), 2019.
- Autonomous flying blimp interaction with human in an indoor space
Ningshi Yao, Qiuyang Tao, **Weiyu Liu**, Zhen Liu, Ye Tian, Peiyu Wang, Timothy Li, and Fumin Zhang.
Frontiers of Information Technology & Electronic Engineering, 20, 2019.
- RoboCSE: Robot Common Sense Embedding
Angel Daruna, **Weiyu Liu**, Zsolt Kira, and Sonia Chernova.
International Conference on Robotics and Automation (ICRA), 2018.
- SiRoK: Situated Robot Knowledge - Understanding the Balance Between Situated Knowledge and Variability
Sonia Chernova, Vivian Chu, Angel Daruna, Haley Garrison, Meera Hahn, Priyanka Khante, **Weiyu Liu**, and Andrea Thomaz.
AAAI Spring Symposium Series (AAAI-SSS), 2018.
- Situated Bayesian Reasoning Framework for Robots Operating in Diverse Everyday Environments
Sonia Chernova, Vivian Chu, Angel Daruna, Haley Garrison, Meera Hahn, Priyanka Khante, **Weiyu Liu**, and Andrea Thomaz.
International Symposium on Robotics Research (ISRR), 2017.

Teaching Experience

Georgia Institute of Technology, Atlanta, GA <i>Graduate Teaching Assistant</i> CS 3630 Introduction to Robotics and Perception, Instructor: Prof. Sonia Chernova	Spring 2018
Georgia Institute of Technology, Atlanta, GA <i>Peer Tutor</i> Learning Assistance Program, Best Tutor Award	Fall 2014

LEADERSHIP and PROFESSIONAL SERVICE

Georgia Institute of Technology, <i>Vice President Academic, RoboGrads</i> Reviewer: ICRA	2019 – 2020 2019
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AWARDS and HONORS

Fetch it! The Mobile Manipulation Challenge, <i>First Place</i>	2019
Georgia Institute of Technology, <i>Dean's List</i>	2012 – 2017