Ethan Schneider

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Summary

I'm a 2nd-year Robotics Ph.D. student at the Georgia Institute of Technology, advised by Prof. Sonia Chernova as a part of the RAIL Lab. I am working on developing algorithms for large scale multi-agent Task and Motion Planning (TAMP) for environments such as warehouses and search-and-rescue scenarios. Additionally, my research includes enabling users to query a multi-agent system's decision making using Explainable AI (XAI) techniques, so that users better understand a system's decision or diagnose failures or suboptimal behaviors.

Education

Ph.D in Robotics *Atlanta, GA*
Georgia Institute of Technology · GPA: 3.9/4.0 *Aug 2022 - Present*

B.S in Mechatronics Engineering *Marietta, GA*
Kennesaw State University · GPA: 4.0/4.0 *Aug 2018 - Aug 2022*

Experience

Graduate Research Assistant *Atlanta, GA*
Georgia Institute of Technology *Jan 2023 - Present*

- Developing Explainable AI (XAI) techniques for explaining multi-agent system decision making for end-users.
- Developing interleaved task and motion planning (TAMP) algorithms for large scale structured environments.

Undergraduate Research Assistant *Marietta, GA*
Kennesaw State University *Sep 2021 - Aug 2022*

- Developed a 3 DOF Soft Delta Robot using open-loop control with a MATLAB Simulink model to generate motion paths.
- Developed a Python front and back-end for variable power supply control, sensor reading, and Scan Conversion algorithm for Intravascular Ultrasound (IVUS) medical imaging technology in collaboration with researchers at Georgia Tech.

Co-Op Software Engineer *Smyrna, GA*
Georgia Tech Research Institute *Jan 2021 - Aug 2022*

- Developed C# .NET 6.0 Framework radar and aircraft system simulator applications for customers and learned both WPF and MVVM architecture for developing graphical user interfaces.
- Developed and maintained Minikube Docker containers for working and building with Latex documentation.

Electrical Engineering Intern *Kennesaw, GA*
Freedom Electronics *Sep 2020 – Dec 2020*

- Wrote several test-procedure documents for workers to analyze PCBs, which allowed new types of boards to be worked on.
- Fixed several test apparatuses involving electronics and embedded systems.

Publications

- **Schneider, E.**, Wu, D., Das, D. and Chernova, S., 2024. CE-MRS: Contrastive Explanations for Multi-Robot Systems. IEEE Robotics and Automation Letters.
- Garcia, M., Esquen, A.C., Sabbagh, M., Grace, D., **Schneider, E.**, Ashuri, T., Voicu, R.C., Tekes, A. and Amiri Moghadam, A.A., 2024. Soft Robots: Computational Design, Fabrication, and Position Control of a Novel 3-DOF Soft Robot. Machines, 12(8), p.539.

Teaching Experience

- **BridgeUP STEM Program 2024**: Volunteered and taught in the Bridge-up STEM program to introduce basic AI concepts to select female high-school students from various schools across Atlanta.

Professional Service

- Reviewer for: AAAI 2024 Fall Symposium on AI for Aging in Place

Leadership and Team Roles

Vice President — *Marietta, GA*
KSU Solar Vehicle Team — *2021 - 2022*

Computer Science Team Lead — *Marietta, GA*
KSU Solar Vehicle Team — *2019-2022*

Academic Achievements

- Outstanding Undergraduate Research Award from Kennesaw State University

Skills

Languages: Python · C++ · Latex
Platforms/Tools: ROS · ROS2 · PyTorch · Docker