JULIA SCHATZ

Contact

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juliaschatz

M.S. student with applied experience in software development, autonomous robotics, and hardware design. Focus in controls engineering and robotics.
Experience leading and working in collaborative team environments.

Skills

ROBOTICS
ROS
Computer Vision
Motion and Trajectory Planning
Control Systems

SOFTWARE DEVELOPMENT
C
C++
Python
Matlab

MECHANICAL DESIGN
Solidworks
Onshape

ELECTRONICS
EAGLE
Altium
STM32
KiCAD

Education

University of Southern California
M.S. Computer Science - Intelligent Robotics 2023

University of Minnesota
BS Electrical Engineering 2021

Minor Computer Science 2021

GPA 3.63 - Magna Cum Laude

Publications

Schatz, J., & Caverly, R. J. (2021, August). Passivity-Based Adaptive Control of a 5-DOF Tower Crane
Accepted for publication at 2021 IEEE Conference on Control Technology and Applications (CCTA). IEEE.

Shen, P. Y., Schatz, J., & Caverly, R. J. (2021). Passivity-based adaptive trajectory control of an underactuated 3-DOF overhead crane
Control Engineering Practice, 112, 104834

Employment

SpaceX — Redmond, WA
Flight Software Intern — May 2021 to Aug. 2021

Developed embedded vehicle software for a fleet of satellites. Created hardware test interface for continuous integration.

University of Minnesota OIT
User Support — Aug. 2018 to Oct. 2020

Open Access Technology International
Software Development Intern — June 2016 to Aug. 2016

Worked with a team of OATI employees to assist with device and software testing. Created inventory and issue tracking workflows. Conducted internal user experience surveys to improve documentation.

Projects

NASA Robotic Mining Competition — Sept. 2019 to May 2021
- Worked with a small team to develop autonomous robot for simulated lunar mining mission.
- Used ROS to integrate sensor nodes for SLAM implementation.
- Tested pre-hardware with Gazebo.
- Developed safety critical firm real-time control system using STM32.

Tower Crane Control Research — Aug. 2020 to May 2021
- Developed dynamic model and robust control law for underactuated nonlinear system.
- Use of passivity theorem to prove theoretical stability.
- Simulation in MATLAB, verification on lab hardware using Simulink.

Open Source Stereo Camera — Aug. 2020 to Current
- Developing low-cost stereo camera for robotics applications using consumer parts.

CAD Automation Scripts — Aug. 2019 to Current
- Created custom features for Onshape CAD used by hundreds of high school robotics teams.
- Used computational geometry to automate complex parts.