

Srikanth Aravinda Giovanni Schelbert

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EDUCATION

Northwestern University McCormick School of Engineering (Evanston, IL)

Expected Graduation Dec. 2024

Masters of Science in Robotics

GPA: 3.85

Current Coursework: Robotic Navigation and Sensing (SLAM, C++, CMake), Mechatronics (C), Machine Learning (Python)

University of Pittsburgh Swanson School of Engineering (Pittsburgh, PA)

Bachelor of Science in Mechanical Engineering; Minor in Chemical Engineering

RELEVANT PROJECTS

Simultaneous Localization and Mapping (EKF SLAM) from Scratch (C++, CMake, ROS2)

(ongoing)

- Programming a feature-based EKF SLAM pipeline using C++ and ROS 2 for both simulation and real turtlebot3 robot.
- Developing a kinematics control and odometry library for differential drive robots.
- Implementing a landmark detection algorithm through supervised learning and data association.

Autonomous Salt Distribution Robot (Python, C++, ROS 2)

(ongoing)

- Developing a navigation algorithm using Lidar based SLAM and Nav2 packages to distribute salt on campus walkways.
- Writing and upgrading packages for the Clearpath Jackal robot to use ROS2 with real-time appearance based mapping (RTABmap).
- Designed an attachment mechanism for a salt-spreading trailer to allow the robot to easily attach and detach to the spreader.

7-DOF Robot Human-in-the-Loop “Hangman” game player (Python, ROS 2)

Oct. 2023 - Dec. 2023

- Headed a team of 5 to develop Python ROS2 packages for a 7-DOF Franka robot arm to autonomously play “Hangman”.
- Designed a system to read handwriting with Optical Character Recognition (OCR) and write letters and shapes on a whiteboard.
- Created a Python ROS 2 API wrapper to plan and execute trajectories through MoveIt2.

Simulation of Swarm Robotics Foundational Algorithms (Python)

Sep. 2023 - Dec. 2023

- Coded algorithms such as hop-count localization, Reynolds flocking, and the “brazil nut effect” using Python3.
- Deployed algorithms on Pygame simulator and NU Coachbot swarm to display functionality of distributed control systems.

WORK EXPERIENCE

Hitachi Rail STS (Pittsburgh, PA)

Jun. 2022 - Aug. 2023

Associate Hardware Engineer

- Reduced costs by \$10,000 through a root-cause analysis and redesign of LED signal thermal pads.
- Designed multiple hardware components for onboard and ground equipment reducing manufacturing costs by over 10%.
- Spearheaded research effort as Work Package Lead to assess business feasibility for adopting additive manufacturing techniques.

Gather AI (Pittsburgh, PA)

Nov. 2020 - Jun. 2022

Deployment/Field-Ops Engineer

- Utilized ROS, Rviz, and Python to administer QA tests on robot software, autonomy, hardware, and UI to expand scope of product.
- Established optimized processes to deploy an autonomous drone in warehouses leading to more than \$0.75 million committed ARR.
- Interfaced with new pilot customers leading to more than 70% of pilot clients converting to full-time yearly contracts.
- Designed and fabricated multiple hardware components for an autonomous drone charge pad.
- Performed significant electrical testing of smart batteries using benchtop power supplies, multimeters, and load cells.

RELEVANT SKILLS

Programming Languages: Python, C++ , C, bash (shell script), MATLAB, HTML/XML, LaTeX

Robotics: ROS2/ROS, Ignition Gazebo, Robot kinematics, Motion Planning, MoveIt, OpenCV, AprilTags

Manufacturing: SolidWorks, Fusion 360, SolidEdge, OnShape (CAD), 3D printing, laser cutting, ANSYS, Machine Shop Tools

Software: Linux, Git, CMake, Unit test (Pytest, Catch2), Jira, Azure, MATLAB/Simulink, Atmel Studio, DOORS

Machine Learning: Decision Trees (ID3), K-Nearest Neighbor (KNN) Algorithms, Convolutional Neural Networks (CNN)

Leadership: Coaching (6 years experience), Customer Interfacing and Communication, Systems Level Thinking, Long-term Planning