Shreeram Murali

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Education

Master of Science (M.Sc.) Electrical Engineering and Computer Science Espoo, Finland Aalto University Aug 2023 - present Major: Control, Robotics, and Autonomous Systems, Minor: Computer Science **GPA**: 4.5/5 Received the Aalto University Category A Scholarship (100%) Bachelor of Engineering (B.Eng.), Mechanical Engineering Bangalore, India Aug 2017 - July 2021 Ramaiah Institute of Technology GPA: 9.37/10, Graduated First Class (1st) with Distinction ٠ Best Achiever Award (outgoing class of 2021) EXPERIENCE November 2023 – present Graduate Research Assistant (part-time)

Aalto University Sensor Informatics and Medical Technology Group

- Simulated the dynamics and control of a rotary inverted pendulum using JAX
- Skills: Python, JAX, JIT-compilation, MATLAB, Simulink

Junior Research Fellow

Indian Institute of Science Data Augmented Control of Autonomous Systems (DACAS) Lab

- Wrote ROS subscriber-publishers for implementing an experimental control strategy for mobile robot navigation using Python and C++ to run at 30-60 Hz
- Implemented a computationally lightweight vision-based feature tracking method using fiducial markers and colour thresholding using OpenCV with computation time less than 0.002 seconds for navigating warehouse robots
- Collected experimental data of quad-rotor flight over several randomised trajectories for system identification
- Contributions led to multiple publications in nonlinear control
- Skills: Python, ROS, MATLAB, C++, Jetson, Numba/JIT, Pandas, OpenCV, Threading

Software Engineer Intern (IoT)

Tata Consumer Products

- Wrote python scripts to run automatically on Raspberry-Pi based IoT devices to read café parameters and push to a time-series database
- Deployed an InfluxDB time-series database on AWS cloud and created dashboards for multiple user-cases using Grafana
- Configured multiple IoT devices with detailed documentation to be deployed to cafés for remote monitoring
- Skills: Python, InfluxDB, AWS, Grafana, Raspberry Pi (SoC)

Projects

AGV Sensor Fusion: $Python \mid \underline{code}, \underline{report}$

• Calibrates the IMUs, cameras, and the motor controller of an autonomous ground vehicle for localisation Shawshank Redemption Text Adventure: $Scala \mid \underline{code}$

- A text-based game written in Scala; incorporates functions, classes, inheritance, and many programming concepts **QTM Wrapper**: *Python (asyncio, threading, matrix operations)* \mid <u>code</u>
- Allows a synchronous streaming of motion capture positioning data with rotation transformations included **2DOF Antenna Vectoring**: *Python (pymavlink, socket), MAVLink, GNSS* | <u>code</u>

• Provides live GNSS data transmission and adjusts a directional antenna to track the UAV

Edhitha UAS | $\underline{\text{technical paper}}$

Led a competitive student group to develop an autonomous UAV capable of imagery, air delivery, and obstacle avoidance — complete with real-time data acquisition and transmission of GNSS data, imagery, and interoperability.

Skills

Programming: Python, C, C++, Scala, MATLAB, Git, Linux, WSL, PyTorch
Software: HTML, CSS, JavaScript, AWS, SQL (sqlite and PostgreSQL), InfluxDB, Grafana, Docker
Systems: ROS, EcoStruxure Automation Expert, SOCs (Pi, Arduino, Jetson), ArduPilot, OpenCV, Gazebo, GNSS
Languages: English (bilingual native, professionally fluent)

Feb 2021 – July 2021 Bangalore, India

Espoo, Finland

Bangalore, India

August 2021 – July 2023