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
- Received the Aalto University Category A Scholarship (100%)

Bachelor of Engineering (B.Eng.), Mechanical Engineering — Bangalore, India
Ramaiah Institute of Technology — *Aug 2017 – July 2021*

- **GPA**: 9.37/10, Graduated First Class (1st) with Distinction
- **Award**: Best Achiever Award class of 2021

EXPERIENCE

Research Engineer — August 2021 – *present*
Indian Institute of Science — *Bangalore, India*
Data Augmented Control of Autonomous Systems (DACAS) Lab

- Wrote ROS subscriber-publishers for implementing an experimental control strategy 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
- Collected experimental data of drone flight over several randomised trajectories for system identification (learning the model through an auto-encoder)
- **Skills**: *Python, ROS, MATLAB, C++, Jetson, Numba/JIT, Pandas, OpenCV, Threading*

Software Engineer Intern (IoT) — Feb 2021 – July 2021
Tata Consumer Products — *Bangalore, India*

- Wrote scripts to run automatically on Raspberry-Pi based IoT devices to compute 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
- **Skills**: *Python, InfluxDB, AWS, Grafana, Raspberry Pi (SoC), technical documentation*

PROJECTS

QTM Wrapper | *Python (asyncio, threading, matrix operations)* — [GitHub]

- This package enables the asynchronous event-based streaming (>300 Hz) of real-time positioning data from a motion capture system. Contains a `Pose` class with easy conversions from rotation matrices to Euler angles and quaternions. It's a handy robotics toolkit to enable the easy integration of control algorithms with positioning data from motion capture.

PUBLICATIONS

1. Singhal, S., Keshavan, J. and **Murali, S.** (2023) 'Constant optical flow divergence based robust adaptive control strategy for autonomous vertical landing of quadrotors', AIAA SCITECH 2023 Forum doi:10.2514/6.2023-1150
2. J. Keshavan, S. Belgaonkar and **S. Murali**, "Adaptive Control of a Constrained First Order Sliding Mode for Visual Formation Convergence Applications," in IEEE Access, vol. 11, pp. 112263-112275, 2023, doi: 10.1109/ACCESS.2023.3323896

SKILLS

Software: Python, C, C++, Scala, MATLAB, SQL, InfluxDB, AWS, HTML, CSS, JavaScript
Robotics: ROS, EcoStrxcture, SOCs (Pi, Arduino, Jetson), ArduPilot, OpenCV, Gazebo
Languages: English (bilingual native, professionally fluent)