

# Shreeram Murali

Updated January 28, 2024

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**GitHub:** [shreeram-murali](https://github.com/shreeram-murali)

**Website:** [shreeram-murali.github.io](https://shreeram-murali.github.io)

**Research interests** I am interested in optimization, reinforcement learning, data-driven, and vision-based control in applications relating to mobile robot autonomy.

**Education** **M.Sc. in Electrical Engineering and Computer Science** Espoo, Finland  
*Aalto University* Aug 2023 – present  
Advisor: Prof. Simo Särkkä  
GPA: 4.5/5  
Major in *Control, Robotics, and Autonomous Systems*, Minor in *Computer Science*

**B.Eng. in Mechanical Engineering** Bangalore, India  
*Ramaiah Institute of Technology* Aug 2017 – July 2021  
Mentors: Prof. Lokesh K, Prof. Nagesh SN  
GPA: 9.37/10

**Honors and scholarships** Aalto University Scholarship (Category A, 100%) 2022  
Best Achiever Award, outgoing class of 2021 2021

**Publications** *Under review*  
**A novel adaptive super-twisting control strategy for leader-follower formation tracking under visibility constraints**  
Saurabh Belgaonkar, Jishnu Keshavan, *Shreeram Murali*  
*Elsevier Mechatronics*, 2023

**Adaptive control of a constrained first order sliding mode for visual formation convergence applications**  
Jishnu Keshavan, Saurabh Belgaonkar, *Shreeram Murali*  
*IEEE Access*, 2023

**Constant optical flow divergence based robust adaptive control strategy for autonomous vertical landing of quadrotors**  
Shubham Singhal, Jishnu Keshavan, *Shreeram Murali*  
*AIAA SciTech Forum*, 2023

**Research experience** **Aalto University** Nov 2023 – present  
*Sensor Informatics Group*  
Advisor: [Prof. Simo Särkkä](#)  
Modelled and simulated the dynamics of a rotary inverted pendulum. Implementing optimal control algorithms such as MPC and model-based RL.

**Indian Institute of Science**

Aug 2021 – July 2023

*Data Augmented Control of Autonomous Systems (DACAS) Lab*Advisor: [Prof. Jishnu Keshavan](#)

My main focus at DACAS was to explore how visual information can enable mobile robots to perform autonomous behaviours. I learned about various control methods that depend on vision, such as nonlinear and data-driven approaches. Some of the projects I participated in were: (a) *coordinating the movements of ground vehicles using vision-based nonlinear control*, (b) *guiding quadrotors to land safely using optical flow*, (c) *identifying the dynamics of complex systems using Koopman autoencoders*.

**Ramaiah Institute of Technology**

Jun 2019 – Apr 2020

*Department of Mechanical Engineering*Advisor: [Prof. Loksha K](#)

Compared path planning and trajectory-tracking algorithms in existing literature and validated their performance in software-in-the-loop simulations.

**Industry experience****Tata Consumer Products**

Bangalore, India

*Software Engineer Intern (IoT)*

Feb 2021 – July 2021

Created code for IoT devices that operate in Starbucks stores and set them up for launch. Built a cloud-based database that stores time-series data and a data visualization tool for the end-users.

**Projects****QTMWrapper**[GitHub link](#) — 2022

A library that allows real-time motion capture data streaming and conversion among different rotation representations, such as Euler angles, quaternions, and rotation matrices.

**crazypaths**[GitHub link](#) — 2022

Modules that enable path planning with the Bitcraze Crazyflie2.X with motion capture systems integrated in the control loop.

**Skills****Programming***Languages:* Python, C, C++, Scala, MATLAB, Git, Linux*Robotics:* ROS, EcoStruxure, SOCs (Pi, Arduino, Jetson, Pixhawk), OpenCV, Gazebo*Software:* HTML, CSS, JavaScript, AWS, SQL, InfluxDB, Grafana, Docker*Others:* Basic life support — certified first-responder**Languages**

English (native), Hindi (fluent)

**Other interests**

Filmmaking, guitar, photography