

Harsha Vardhan Guda

🏠 📞 (+358)415706996 ✉️ harsha.guda@aalto.fi

EDUCATION

Aalto University, Finland

MS in Control, Robotics and Autonomous Systems

September 2022 - May 2024 (expected)

current GPA: 4.46/5

National Institute of Technology Calicut, India.

Bachelor of Technology in Electronics and Communication Engineering (ECE)

July 2016 - June 2020

GPA: 8.42/10

PUBLICATIONS

- Uday Girish M., Harsha Vardhan G., Sudheer A.P. (2020) RIGGU: A Semi-humanoid Robot Platform for Speech and Image Recognition. In: Thampi S. et al. (eds) Intelligent Systems, Technologies and Applications. Advances in Intelligent Systems and Computing, vol 1148. Springer, Singapore. [📄 Paper Demo](#)

WORK EXPERIENCE

Teaching Assistant, Aalto University

September 2023 - December 2023

- For Digital and Optimal Control course taught by Dominik Baumann.
- Handle homework sessions, assist with exercise sessions, grade assignments, and exams.

Research Assistant, Aalto University

June 2023 - August 2023

- At Intelligent Robotics Lab led by Ville Kyrki.
- Created environments to simulate tote bags in Isaac Sim.

Data Scientist, Siemens Healthineers

Aug 2020 - July 2022

- Developed algorithm to detect abnormalities in quality control of assay analyzers, which in turn is used to predict health of those machines. It reduced the downtime of the test analysers by 40%.
- Worked on data extraction and feature engineering from machine log data of CT machines to predict the health of X-ray tube.

PROJECTS

[Thesis] Learning-based Dynamic Manipulation of Deformable Objects

[📄 Project Page](#)

October 2023 - Present

- Build simulation environments for 3D deformable objects in Isaac Sim.
- Learn to manipulate to open bag and place some objects in the bag.
- Sim-to-real transfer of learning on tote bags.

[Course Project] Human Trajectory Prediction for Navigation of Spot Robot

[📄 Project Page](#)

Jan 2023 - May 2023

- Stitched all the camera images together and implemented YOLO with human tracking using StrongSort.
- LiDAR fusion with camera images to get the distance of people.

[Competition] Bosch Future Mobility Challenge

[Project Page](#)

Nov 2022 - May 2023

- Led a team of four to develop a 10:1 miniature autonomous car.
- Developed perception algorithms for lane detection, lane keeping, and road sign detection, participated in the Finals held in Romania.

[Bachelor Project] Drone-based Surveillance and Disaster Management System

[Project Page](#)

June 2019 - May 2020

- Developed a drone-based surveillance system to assist in search and rescue operations during emergencies.
- Jetson Nano mounted on drone is used to perform object and pose recognition using YOLO and PoseNet optimised using TensorRT, achieved a frame rate of 8 fps.
- The information processed, such as the pose and location of the people, was transmitted using LoRa.

RIGGU: A Semi-humanoid Robot [Project Page](#)

June 2018 - February 2020

- Developed an interactive robot to receive and assist people.
- ROS is used to integrate face, object, emotion recognition, speech recognition, and synthesis on NVIDIA Jetson TX2.

[Mini-Project] Sign Language to Text Conversion using a RaspberryPi

[Project Page](#)

Jan 2019- April 2019

- A stand-alone device using Raspberry Pi to convert Indian Sign Language to text and speech.
- It converts 26 alphabetical signs and some basic actions to text.

EXTRA CURRICULAR

- Volunteer math tutor for Save the Children, Helsinki *Sept 2022 - Present*
- I like to teach, have taught in various workshop settings during my Bachelors, few are “Introduction to CNNs and Deep Learning”(March 2020), “Image Processing using OpenCV-Python”(June 2019)
- Finalist in Young Innovator Programme(YIP) out of thousand participants organized by Kerala State Government. *Feb 2020*
- Represented NIT Calicut in Robocon 2018, an International Robotics competition held in Pune, India. *March 2018*

SCHOLARSHIPS AND GRANTS

Finland Scholarship (Category A) - full tuition fee waiver and relocation grant for master's studies.

Finnish Automation Society - travel grant for Bosch Competition.

PROGRAMMING SKILLS

Languages: Python, C++, Matlab, SQL

Frameworks: PyTorch, OpenCV, ROS, PySpark