Harsha Vardhan Guda

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📍 Espoo, Finland

EDUCATION

Aalto University, Finland   *September 2022 - May 2024(expected)*
MS in Control, Robotics and Autonomous Systems   GPA: 4.46/5
National Institute of Technology Calicut, India.   *July 2016 - June 2020*
Bachelor of Technology in Electronics and Communication Engineering(ECE)   GPA: 8.42/10

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 exam.

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 downtime of Assay Analyzers 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 Project] Learning-based Dynamic Manipulation of Deformable Objects
October 2023 - May 2024

- Build

[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   *Nov 2022 - May 2023*

- Led a team of four to develop 10:1 miniature autonomous car.

- Developed perception algorithms for lane detection, lane keeping, and road sign detection.

- Our team participated in the Finals held at Cluj-Napoca, Romania.

[Thesis project] Drone-based Surveillance and Disaster Management System 📄 Report
June 2019 - May 2020

- A drone-based surveillance system is developed to aid with search and rescue operations during calamities.
- Jetson Nano mounted on Drone performs object and pose recognition using YOLO and PoseNet optimized using TensorRT, achieved a frame rate of 8 fps.
- The processed information such as pose and location of people is sent to base-station using LoRa which can be used to estimate the assistance required.

RIGGU: A Semi-humanoid Robot 📄 Paper Demo   *June 2018 - February 2020*

- Developed an interactive robot to receive and assist people.
- It uses ROS nodes to integrate face, object, emotion recognition, speech recognition and synthesis on NVIDIA Jetson TX2. A modular approach is used to accommodate integration of new algorithms.

[Mini Project] Sign Language to Text Converter Using CNNs on a RaspberryPi 📄 Report   *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.

EXTRA CURRICULAR

- 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.

COURSES

- Digital and Optimal Control (Grade 4), Reinforcement Learning (Grade 5), Deep Learning (Grade 5)

PROGRAMMING SKILLS

Languages: Python, C, Matlab, SQL

Frameworks: PowerBI, PyTorch, OpenCV

HOBBIES

Cooking, Bouldering, Karate