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AMEY JOSHI

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A highly motivated undergraduate, who is passionate about making new technologies work and eager to learn new things, looking for opportunities in a really intriguing problem statement involving collaborative robotics, navigation, and perception of autonomous systems, human-robot intelligence, and aerial vehicle prospects using multimodality. I am ideally suited to work as a robotics software developer in the fields of robotics and computer vision. While I have experience in reinforcement learning and Artificial Generative Intelligence. Experience working with microcontrollers, and software such as docker, Keil, ROS2, MatLab, and real-time operating systems with a good understanding of embedded software design to support IoT initiative applications for UAVs, and UGVs.

Skills

Technical Skills: Python and Bash scripting, CLI in Linux and Windows, OOP concepts in C/C++, Git and Docker, ROS and GAZEBO, Computer vision, Applied Pytorch-Tensorflow, computer networks

People Skills: Leadership skills, Critical thinking, Time management, Decision-making ability, Teamwork ability, Conflict management

Experience

PMS robotics | ***IoT research Intern*** **06/2021 – 08/2021 (Pune, India)**

- Project Course: Development of advanced quality control inspection system for Guava Fruit to improve by-product quality in food processing industries
- Objective 1: Wrote code to collect and analyse data from sensors
- Objective 2: Conducted research on new IoT technology
- Objective 3:Developed algorithms to optimize sensor data collection

FlytBase Labs Inc| ***Robotics Intern*** **01/2023 – 06/2023 (Pune, India)**

- Objective 1:responsible for the development, testing, and maintenance of robotics algorithms and applications
- Objective 2:Worked on communication protocols between devices such as Mavlink, MQTT, and UART. etc. Moreover, Implemented in docker and onboard computing systems.

Symbiosis Centre for Applied Artificial Intelligence (SCAAI)| ***AI intern*** **07/2022 – present (Pune, India)**

- (DST Indo-Italy Joint Research Grant)
- Objective 1:Multimodal Explainability for Object Detection in Drone Imagery
- Objective 2:Worked upon fusion of multiple modalities such as sensory data with imagery aspect.
- Objective 3:Implemented an ensemble learning for each modality.

Projects

Perform SLAM using 3D lidar point cloud processing algorithms and pose graph optimisation **June 2021**
Identified the robot's trajectory to create a 3-D occupancy map of the environment from the 3-D lidar point clouds with the help of odometry analysis. Therefore, it reduces the drift using pose graph optimization whenever a robot revisits a place.

Demand side management for EVs using heuristic optimisation **Dec 2021**
The day ahead load shifting is proposed using reinforcement learning and probabilistic model, the gaussian distribution process is used to achieve substantial savings, while reducing the peak load demand of the smart grid.

Omnidirectional hexacopter optimal time flight control and latency perception in highly dynamic environment **Jan 2022**
Leverage the deep reinforcement learning and classical topological path planning to train robust neural-network controllers for minimum-time hexa-copter flight in cluttered environments.

Video Object segmentation using self-supervision for autonomous vehicle | Computer vision **Jan 2022- Aug 2022**
Processing on unlabelled data, form clusters of individual entities and discriminating the foreground and background through self-supervised learning framework [Publication in IET 6th conference].

Unsupervised Disparity Estimation in stereo vision **July 2023**
Primary objective is to present a comprehensive framework for unsupervised depth estimation from stereo image pairs, leveraging the utilisation of a photometric loss..

Certificate

AI for everyone|Coursera [deeplearning.AI] 06/2020 – 08/2020 (No expiry)
Deep-Learning specialization|Coursera [deeplearning.AI] 06/2020 – 08/2021 (No expiry)
Motion Planning for self-driving cars course|Coursera [University of Toronto] 12/2021 – 02/2022 (No expiry)

Education

Symbiosis Institute of Technology, ***Bachelor of Electronics and Telecommunication*** **JUNE 2019 — 2023**
Honors(majors): Mechatronics and Automation

- GPA: 8.5/10
- Vice-President, Rotonity robotics Club
- Simulation head, Robocon International Competition
- Volunteer, IgiftLife organ donation NGO