

SUNDAR SRIPADA V S

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OBJECTIVE

An MSE ECE Graduate Student seeking Summer 2023 internships in Machine Learning, Data Science, Software Development, and R&D

EDUCATION

The University of Texas at Austin

Master of Science in Engineering, Electrical and Computer Engineering, GPA: N/A

May 2024

Austin, USA

Anna University

Bachelor of Engineering, Electronics and Communication Engineering, GPA: 8.54/10, First Class with Distinction

Apr 2020

Chennai, India

SKILLS

Languages

Python, C/C++, MATLAB, Julia, Bash

Frameworks

PyTorch, TensorFlow, Keras, Robot Operating System (ROS), CARLA, Gazebo

Libraries

numpy, pandas, matplotlib, seaborn, OpenCV, Pillow, scikit-learn, plotly, networkx

Version Control & OS

git, GitHub, Linux, Windows 10

PUBLICATIONS

Drift Reduced Navigation using Deep Explainable Features

International Conference on Intelligent Robots and Systems (IROS 2022)

Jun 2022

[Link to Paper](#)

LADFN: Learning Actions for Drift-Free Navigation in Highly Dynamic Scenes

American Controls Conference (ACC 2022)

Jan 2022

[Link to Paper](#)

RESEARCH EXPERIENCE

Research Intern, Robotics Research Center

The International Institute of Information Technology - Hyderabad

Oct 2020 - Jun 2022

Hyderabad, India

- Designed classification and regression models to predict the presence and amount of drift accumulated by a self-driving car up to 92% accuracy, given input pose and velocity using CARLA simulator
- Formulated a Reinforcement Learning (RL) model using Proximal Policy Optimization (PPO) that clearly outperformed a vanilla Stanley controller in reducing drift over 1.63 times in autonomous driving (ACC 2022)
- Facilitated a ranking loss function to train a Convolutional Neural Network (CNN) to minimize drift in a variety of autonomous driving scenes, beating previous state-of-the-art by up to 76.76% (IROS 2022)
- Developed API-level functions and automation scripts in Python to collect contrived scenes containing more than 100,000 data points using CARLA simulator for prototyping and testing
- Ported the Lidar Odometry And Mapping (LOAM) SLAM package from C++11 to C++14 to conduct necessary research in the new ROS version (ROS Noetic)

Summer Research Fellow, Medical Image Guidance Lab

Indian Institute of Technology - Madras

May - Jul 2019

Chennai, India

- Tracked the pose of a tooltip found in a drill bit used in Surgical Navigation Systems (SNS) with the aid of fiducial markers, by experimenting on 500 data points obtained from a stereo camera
- Developed MATLAB functions for the transformation of the tooltip from world to image coordinate frames-of-reference using Homogeneous Transformation Matrices and the pseudoinverse function

SELECT PROJECTS

Drift Heatmap Generation

Part of submission to IROS 2022

Nov 2021

- Generated drift heatmaps around a self-driving car using a multimodal CNN with range images and poses as inputs, showing regions of high and low probability of drift accumulation around the car

Monocular SLAM

SSN Internally Funded Research Project 2018 at Anna University

Jan 2019 - Jan 2020

- Simulated, tested and deployed ORB-SLAM2 on a mobile robot using custom data to perform monocular SLAM in indoor settings through a Rs. 20,000 (around \$250) research grant