Samitha Ranasinghe

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Education

Purdue University, College of Engineering – BS, Computer Engineering   **Expected:** May 2024
Artificial Intelligence and Machine Learning Concentration with a Certificate in Entrepreneurship and Innovation
Core GPA**: 3.73**/4.00 | Dean's List and Semester Honors – Fall 2020, Fall 2021, Spring 2022, Fall 2022, Spring 2023

Core Skills

C-Programming | Python | React | OpenCV | TensorFlow | Embedded C | AMR Cortex M | ROS| Angular | EAGLE | Arduino

Professional Experience

Shadow Startup – New York City, NY (Remote)
Technology Summer Intern   May 2023 – Present
- Performed R&D on custom implementation of cloud code editors and wrote Jest unit tests for testing React coding assessments.
- Mastered GraphQL to mutate and query information in PostgreSQL databases through Spring Boot backend applications.
- Implemented Big Query and other GCP services to produce analytics-based reports for all types of end system users.
- Configured python pub-sub services to perform emotion and anomaly detection and write data to Big Query tables.
  React, GraphQL, Python, Google Cloud Platform, Jira, PostgreSQL, Flask

Purdue Nanoelectronics Research Laboratory – West Lafayette, IN
Undergraduate Research Assistant   Aug 2022 – Oct 2022
Summer Undergraduate Research Fellow   May 2022 – Aug 2022
- Integrated event cameras with respective hardware and algorithms for improvement of Vision-based UAV algorithms.
- Generated a synthetic data set for training Machine Learning algorithms by designing intelligent dynamic Gazebo worlds.
- Automated generation of Gazebo worlds using python scripts based on parameters.
  ROS, Gazebo, Shell Scripting

Conference Presentations

"A Self-Adapting Wheel System for Space Exploration Rovers"   October 2021
International Astronautical Congress 2021, World Trade Center, Dubai, UAE
- Co-authored and presented a paper on an efficient wheel system for space exploration rovers that would reduce instances of slipping and sinkage by integrations of continually adjusting grousers.
- Designed and developed the grouser control algorithm leading to further optimization of the wheel.

Personal Projects

Face Tracking and Recognition System – Computer Vision and Arduino   July 2023 – Present
- Implemented an algorithm to track a face across a screen and improving it to recognize the particular face.
- Researching on using an Arduino board to run the OpenCV algorithm to use an external camera to follow a face.
  OpenCV, Arduino, Embedded Programming

Developer Portfolio Website with Angular – Front End project   June 2023 – Present
- Developing my skills in HTML, CSS and JavaScript with Angular to implement a component-based functionality.
- Designing, building, and publishing a fully functioning standalone web application across several platforms.
  HTML, CSS, JavaScript, Angular

Deep Learning Q&A Chatbot using Python – Machine Learning   Dec 2022 – Feb 2023
- Generating a story-based Q&A bot based on the BaBi dataset using basic Natural Language Processing theorems.
- Implementing an end-to-end memory based recurrent neural network with multiple layers.
  Python, PANDAS, NLP

Activities and Achievements

Autonomous Team Sub-lead - Object Tracking UAVs – VIP, Purdue University   Jan 2022 – Dec 2022
- Implemented and improved path planning and obstacle avoidance algorithms using ROS for efficient target following.
- Designed a simulation of the miniature city using Gazebo simulator for pre-testing.
- Organized the 2022 Unmanned Aerial Vehicle Chase Challenge for Low-Power Computer Vision Challenge
  ROS, Gazebo, Fusion 360, 3D-Printing, OpenCV

Algorithms Lead – Lunarbot - Astronautic Competition Team   2019 – 2022
- Collaborated with Nexus Aurora, a US startup, to implement novel wheel system in advanced Mars Rover project.
- In progress patent applications in Sri Lanka for both a wheel and a drill system for lunar rovers.
- Awarded the Distinction Award in Singapore Space Challenge 21' for Innovative Lunar Exploration Rover model.