Samitha Ranasinghe

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Education

Purdue University – BS in Computer Engineering **Expected:** Dec 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

Professional Experience

KAYA Global, INC. – New York City, NY (Remote)
Technology Intern May 2023 – Present

- Integrating a custom Llama2 model with a Vector DB through LangChain for help and context through a chatbot.
- Setting up CI/CD pipelines with Kubernetes Engine in GCP to publish apps and python services.
- Configured services using Pub-Sub and Cloud Functions to transcribe and extract contexts through public LLMs.
- Created a REST API backend using Express JS to connect a responsive mobile React app and a Firebase NoSQL DB.
- R&D on custom implementation of cloud code editors and wrote Jest unit tests for React coding assessments.
  Full-Stack, React, Python, Google Cloud Platform, Jira, Express, Firebase, LangChain, Llama2

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 for improvement of Vision-based UAV algorithms.
- Generated a synthetic data set for training ML algorithms by designing intelligent dynamic Gazebo worlds.
  ROS, Gazebo, Shell Scripting, Circuit Diagnosing

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 Embedded Software 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

Deep Learning Q&A Chatbot using Python – Machine Learning Dec 2022 – Feb 2023

- Created a story-based Q&A bot based on the BaBi dataset using basic Natural Language Processing theorems.
- Implemented an end-to-end memory based recurrent neural network with multiple layers.
  Python, PANDAS, NLP, TensorFlow

Activities and Achievements

Object Tracking UAVs – Vertically Integrated Projects, Purdue University
Autonomous Team Sub-lead Jan 2022 – Dec 2022

- Implemented and improved path planning and obstacle avoidance algorithms using ROS for 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

Lunarbot - Astronautic Competition Team
Algorithms Lead 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.