Sai Rohit Muralikrishnan

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EDUCATION

University of Illinois at Urbana-Champaign| Urbana-Champaign, IL August 2024 - Present

Masters in Autonomy and Robotics

Relevant Coursework: Principles of Safe Autonomy, Computer Vision, Robotics

Vellore Institute of Technology | Chennai, India August 2019 - June 2023

Bachelor of Technology in Mechanical Engineering, GPA 8.4/10.0

Affiliations and Certifications: IEEE Automation, VITEACH, Machine Learning at Atom Robotics; CSWA Certified

PROFESSIONAL EXPERIENCE

CapeStart | Chennai, India | *Associate Software Engineer* November 2023 - May 2024

- Utilized LangChain, Kor and GPT-4-32k model to optimize data collection elements for medical research articles in a GenAI-based systematic literature review tool, boosting accuracy from 71% to 85%.
- Developed a pipeline for generating single-article summaries of case reports and case series medical research articles using RAG and GPT -4 turbo model, implemented with LlamaIndex and FAISS index, achieving an accuracy of 84.14%.
- Analyzed medical research articles and summaries with a research team, identified patterns, and created a prompt template to standardize single-article summary generation.

University of Winnipeg | Winnipeg, Canada | *Mitacs Globalink Research Intern* May 2022 - September 2022

- Optimized a server portal to allow users to download multiple plant datasets simultaneously and organized datasets into separate folders for each plant.
- Updated the server portal's GUI using wxWidgets to enhance user interaction and streamline navigation.
- Experimented with power law analysis to estimate the accuracy of a machine learning model without the need to train on the entire dataset.
- Presented accomplishments at the 17th Annual Randy Kobes Undergraduate Poster Symposium, effectively communicating complex concepts to a diverse audience.

Vellore Institute of Technology| Chennai, India | *Summer Research Intern* June 2021 - August 2021

- Paper on a lane detection system integrating Hough transform and OpenCV, Arduino for speed calculation, with a voice assistant for real-time notifications and lane-keeping, presented at i-PACT'21. *[LINK]*
- Developed a lane line detection model using Hough transform and OpenCV, achieving 96.3% accuracy on straight roads and 90.4% on curved roads.
- Engineered speed sensor modules and integrated them with an automatic alerting system to dynamically adjust vehicle speed based on lane conditions, improving safety and efficiency.

PROJECT EXPERIENCE

Biomechanical Posture Enhancement System| *Vellore Institute of Technology* January 2023 - October 2023

- Paper on wearable assistive technology and its application in managing cervical impairments at Riact'23. *[LINK]*
- Leveraged NI-9236 strain sensors to collect and analyze neck strain data from 4 patients, optimizing the strain values to enhance the device's ability to reduce muscle strain and improve user support.
- Integrated and analyzed MPU6050 sensor data for real-time neck posture monitoring, personalizing support and enhancing rehabilitation through continuous tracking of accelerometer and gyroscope data.

Predictive Water Quality Monitoring | *Vellore Institute of Technology* January 2022-April 2022

- Developed a wireless water quality monitoring system using pH, turbidity, conductivity, color, and DO sensors linked to a NodeMCU controller for real-time household tank monitoring.
- Developed and trained deep learning neural networks to analyze sensor data with 80.6% accuracy, enabling proactive contamination alerts by predicting water quality deterioration in real time.

Smart Caravan | Larsen & Toubro September 2021-March 2022

- Designed an autonomous caravan with dual energy systems, enabling mutual charging capabilities and developed a robust design using SketchUp.
- Engineered sensor, camera, lidar, and radar placement strategies, contributing to finalist recognition in the TECHgium competition among 30,000+ participants.

SKILLS

Python, PyTorch, TensorFlow, C++, Git, Azure, OpenCV, Langchain, Llamaindex, Gazebo, ROS, Keras, Reinforcement learning

ACHIEVEMENTS

Outstanding Presentation Award at Riact'23, Finalist at Techgium'22, Awarded Mitacs Globalink Research Fellowship, Presented at Randy Kobes Symposium'22.