Sai Lahari Madhusudhan

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SUMMARY

As a recent graduate holding a Master's degree in Robotics and Intelligent Autonomous Systems, my passion lies in exploring the transformative role of robotic and Automation in our world. My focused interests encompass vision, automation, obstacle detection, navigation, control, and motion planning in robotics, honed through academic pursuits and internships. I am actively seeking positions in the field of robotics and vehicle automation to contribute my skills and knowledge.

EDUCATION

Master of Engineering, Robotics, and Intelligent Autonomous Systems. Aug 2022-Aug 2023
University of Cincinnati, Cincinnati, OH GPA: 3.8

- Relevant Coursework: Machine Learning, Artificial Intelligence, Industrial AI, Robot control and Design, Decision Engineering, Deep Learning

Bachelor of Engineering, Mechanical Engineering Aug 2017-Jun 2021
SCSVMV, Kancheepuram, India GPA: 9.31

- Electives : C, OOP with C++, Microprocessors and Microcontrollers, Instrumentation, Responsive Web Development.

SKILLS

Programming: ROS**,** C++, Python, MATLAB, Java, RViz, Gazebo, Git, Docker, Prolog, C, HTML, CSS.
Operating Systems: Windows, Macintosh, Linux, Ubuntu.
Libraries: Pytorch, Tensorflow, OpenCV, nav2.
Other: Sensor Fusion using Filtering Methods(Kalman Filter, Extended Kalman Filter), Bayesian Network Analysis, Problem solving with ML/AI, SLAM, Computer Vision.

EXPERIENCE

Software Intern Robotics May 2023-Aug 2023
Honeywell, Pittsburgh, PA.

- Implemented the integration of three AMRs with In-house Warehouse Automation software, utilizing Java (RESTful, Springboot) and SQL. Optimized lift and move operations for enhanced efficiency in the Warehouse environment.
- Developed and implemented functionalities for Robot Fleet Manager and in-house ROS2-like software to execute tasks with Autonomous Mobile Robots (AMRs).
- Built a Python-based depth detection heuristic using Transformers, showing potential to significantly improve bin picking accuracy.

Assistant System Engineer Jun 2021-Jul 2022
Tata Consultancy Services, Bengaluru, KA, India.

- Executed network analysis and planning with state-of-art tools like BERT and Piper, achieving exceptional outcomes for offshore clients.

CLASS PROJECTS

Implementing SLAM on Turtlebot Burger/ Robot Control and Design Feb 2023-Mar 2023
University of Cincinnati, Cincinnati, OH.

- Applied a SLAM-based algorithm on Turtlebot Burger for obstacle detection, utilizing Python, C++, and ROS1 (Noetic). Successfully mapped the environment using RViz to navigate the robot through a challenging obstacle course.

Prediction of Material Removal in CMP Process for Semiconductor Fabrication Mar 2023-Apr 2023
University of Cincinnati, Cincinnati, OH.

- Developed machine learning models using KNN regression, SVR, and random forest regression to predict Material Removal Rate (MRR) in the CMP process for semiconductor fabrication.
- Utilized experimental data on process parameters and MRR values to analyze and select the most accurate model, aiming to improve material removal control, increase process yield, and optimize decision-making in semiconductor manufacturing.

Fuzzy Bayesian Network "Risk Analysis" on UAV Missions/ Decision Engineering Nov 2022-Dec 2022
University of Cincinnati, Cincinnati, OH.

- Successfully Engineered a Fault Tree Analysis and Constructed a comprehensive Bayesian network to Calculate the potential hazards in unmanned aerial vehicle (UAV) missions.
- Utilized the Bayesian Network toolbox in MATLAB to accurately Calculate the probability of potential hazards.

Autonomous Delivery Robot/ Intro to Robotics Oct 2022-Nov 2022
University of Cincinnati, Cincinnati, OH.

- Collaborated with a team to create a comprehensive decision matrix for sensor selection and thoroughly researched innovative methods for integrating wheels into robots.

PUBLICATIONS

Influence of nanoparticles on the characters of polymeric composites. Sep 2020
IOP Conference Series: Materials Science and Engineering

- Engaged in research investigating the challenges in synthesizing, fabricating, and characterizing nanoparticle-reinforced plastic composites. Published a paper on the topic.