SAI MANIKANTA BADIGA

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Summary

Master's in Robotics with expertise in robotic systems, embedded software, and autonomous navigation. Currently a Software Engineer at Blueflite, focusing on UAV firmware, path planning, and real-time communication. Proficient in C++, Python, ROS, Docker, and experienced in cloud integration and real-time systems. Open to relocation within the USA.

Education

Arizona State University — Tempe, AZ
Master of Science in Robotics and Autonomous Systems — Aug 2022 - May 2024

K L Deemed to Be University — India
Bachelor of Technology in Electronics and Communication Engineering, — Jul 2018 - Mar 2022

Skills

Programming Languages: Python, C, C++, Rust, LabVIEW, HTML, CSS, JavaScript
Tools and Frameworks: TensorFlow, PyTorch, MATLAB, ROS, OpenCV, Git / Bitbucket, JIRA, Mission Planner, ArduPilot, Docker, AWS, FUSION360, KiCad, PLC Programming, Gazebo, PyBullet
Hardware and Protocols: STM32, Raspberry Pi,stereo camera,LiDAR, RADAR, GPS, IMU,TCP/IP, I2C, FDCAN/CAN
Development Practices: Agile, NuttX, RTOS, CLI, root cause analysis,
Certifications: Generative AI, AWS Cloud Practitioner, NI LabVIEW Developer (CLD, CLAD).

Work Experience

Blueflite Inc — United States
Software Development Engineer — Oct 2024 - Present
- Developed firmware for STM32 based embedded systems, enhance navigation, health monitoring, and performance.
- Developed path planning algorithms and optimized systems for autonomous decisions and mission efficiency.
- Integrated software with hardware, ensuring seamless operations, scalability, and CAN/FDCAN communication.

Hylio Inc — United States
R&D UAV Engineer — May 2023 - Aug 2023
- Developed a tool to manage 2,000+ drone parameters across models, streamlining engineering workflows.
- Optimized drone navigation and path planning in C++ using Dijkstra's algorithm, achieving 95% efficiency.
- Integrated Software-In-The-Loop (SITL) simulations to validate updates, reducing real-world testing risks by 30%.

Projects

Adaptive Ball Strike System Development — Jan 2024 - Apr 2024
- Developed ball detection and tracking with EKF for real-time trajectory prediction, improving strike accuracy.
- Implemented pose estimation to enhance object interaction and strategic execution in adaptive systems.

Lying Posture Tracking with Sensor-Agnostic Model — Aug 2023 - Dec 2023
- Developed a real-time posture detection system on Nano 33 BLE Sense using 3-axis sensors for accurate tracking.
- Designed, trained, and deployed a TensorFlow Lite model for real-time predictions, improving monitoring accuracy.

SwarmSync: Autonomous Robotics for Public Health Safety — Aug 2023 - Dec 2023
- Implemented Boids Flocking Algorithm for swarm robotics, improving navigation and obstacle avoidance.
- Developed alignment and cohesion strategies for coordinated movement and teamwork in sanitation tasks.

Self-Driving Car Simulation — Aug 2023 - Dec 2023
- Developed a self-driving car simulation with driving mechanics, sensor functionality, and environmental variables.
- Implemented collision detection and optimized neural networks using genetic algorithms for autonomous control.

Visual Tracking Unmanned Vehicle — Jan 2023 - Apr 2023
- Developed a low-level flight control algorithm with Kalman Filter for stable and precise Mambo Drone navigation.
- Integrated an image processing module to enhance object detection and navigation accuracy in the Mambo Drone.

Autonomous Mobile Robot — Aug 2022 - Dec 2022
- Designed a ROS-based robot with SLAM, DWA, and A* for efficient last-mile delivery and precise navigation.
- Developed real-time object detection and tracking to enhance perception and improve navigation accuracy.

LabVIEW Certification Projects: — Apr 2022
- Developed HVAC, ATM, vending machine, and automobile simulations.
- Utilized State Machine Architecture in NI CLD certification to demonstrate expertise and advanced design skills.

Achievements

Indiaskills AMR Award: Secured first-place in state/regional AMR competitions (2018) and runner-up nationally; won state-level in 2021.