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US Work Authorized — OPT (STEM Extension Eligible)

SUMMARY

M.S. Computer Engineering graduate (2026) specializing in Robotics, Motion Planning, Path Planning, and Computer Vision. Proven track record of building real-time state estimation pipelines and production-deployed embedded systems. Creator of open-source tooling with 130+ GitHub stars.

EDUCATION

New York University — M.S. Computer Engineering · Scholarship Recipient New York, NY | 2026
Courses: Real-Time Embedded Systems, Reinforcement Learning for Robotics, Computer Vision, Computer Networking, Computer Architecture, Operating Systems

Acharya Institute of Technology — B.E. Mechatronics Bangalore, India | 2022

TECHNICAL SKILLS

Languages: Python, C, C++, Java, JavaScript, SQL, CMake

ML / Computer Vision: YOLOv8, Object Detection, Multi-Object Tracking, ByteTrack, 3D Gaussian Splatting, Depth & Pose Estimation, Structure-from-Motion (SfM), Camera Calibration, PyTorch, OpenCV, NumPy

Robotics & Autonomy: SLAM, Motion Planning, Path Planning, Sensor Fusion, State Estimation (Kalman Filter, EKF, Particle Filter), Open3D, Point Cloud Processing, Reinforcement Learning (Stable-Baselines3), Gymnasium

Control Systems: PID, MPC, LQR, Closed-Loop Control, Real-Time Systems

Embedded & Hardware: ESP32, Raspberry Pi, Arduino, IMU, CAD, 3D Printing, Rapid Prototyping

Systems & Tools: Git, Docker, CI/CD, Linux, AWS (EC2, S3, Lambda), TCP/IP, WebSockets, SPI, I2C

APPLIED RESEARCH & TECHNICAL PROJECTS

Mobile Robot State Estimation · Python · C++ · UDP · RPLIDAR · ArUco Mar 2026

- Developed robust localization stack for a differential drive robot by fusing UDP-broadcasted wheel encoder odometry (10Hz) with ArUco visual pose measurements via an EKF, reducing positional RMSE to 4.14 cm
- Engineered a custom 3,000-particle Particle Filter for global localization, achieving 0.27 cm spread and 0.90° heading σ ; successfully recovered from a severe 1 m / 90° uniform un-modeled error in 0.63 s

3D Line-of-Sight Audit System for Intersections · Python · Gaussian Splatting · OpenCV Dec 2025

- Owned the 3D reconstruction pipeline within a team-built intersection audit system, replacing manual checks with an 8-camera SfM and Gaussian Splatting pipeline (30 FPS); generated a 1.34M-point cloud to evaluate pedestrian visibility
- Contributed to deployment of YOLOv8 + ByteTrack for real-time multi-object tracking (20–40 tracks/camera); multi-camera fusion achieved >90% precision, >85% recall, and detected vehicles ~12.2s earlier than a single-camera 2D baseline

RL Locomotion & Trajectory Optimization · Python · Stable-Baselines3 · Gymnasium Dec 2024

- Trained PPO agent for continuous planar robot control in a custom Gymnasium sim; benchmarked against SQP trajectory optimization to evaluate sample efficiency and constraint-handling tradeoffs.

Smart Switch · JavaScript · YAML · ESP32 · CAD · 3D Printing Aug 2023

- Built a local-first ESP32 smart switch with auto-generated firmware and YAML config tooling; eliminated cloud round-trip latency (sub-ms LAN vs. 80–200 ms cloud), 5 units deployed and operational.

Blendit (★ 130 GitHub Stars) · Python · Git · Blender Sep 2022

- Git-based version control extension for Blender; reduced project file size by 83% via function-call delta logging instead of full binary snapshots