

Amey Gavale

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EDUCATION

University of Illinois at Urbana-Champaign

Champaign, USA

Master of Engineering in Autonomy & Robotics

Aug 2023 – May 2025

Coursework: Intro to Robotics, Mobile Robotics, Computer Vision, Autonomous Vehicle Systems, Remote Sensing

College of Engineering Pune

Pune, India

Post Graduate Diploma in Data Science and AI

Aug 2021 – Aug 2022

Coursework: Machine Learning, Statistics and Linear Algebra, DBMS, Time Series Analysis, Artificial Intelligence, Deep Learning, Natural Language Processing

SKILLS

Languages & Tools: C++, Python, SQL, MATLAB, Java

Framework/Tools: ROS2, TensorFlow, PyTorch, OpenCV, Docker, Git, gRPC, Linux

Core Competencies: Data Structures & Algorithms, Distributed Systems, Computer Vision, SLAM, Sensor Fusion

EXPERIENCES

NextGen Embodied AI Solutions Lab, UIUC

Champaign, USA

Research Assistant (Robotics Engineer)

Jan 2025 - Current

- Built ROS2/C++ docking stack integrating **LiDAR**, **stereo depth**, and **PID control**, by reduced integration time by 20% and achieved 90% trial success for BlueBoat USV.
- Engineered ROS 2 **perception pipeline** implementing **RANSAC ground segmentation** and voxel filtering to process MultiSense S27 stereo **point clouds** for **real-time 3D** crop mapping on Jetson Orin hardware.
- Built **Gazebo simulation framework** with **URDF/XACRO** robot models and **ROS 2 Control** integration for **autonomous** Amiga agricultural robot testing and validation.

GE Aerospace Research

Champaign, USA

Research Collaboration

May 2024 - Oct 2024

- Built benchmarking pipeline for **ORB-SLAM3** and **OpenVSLAM** on **EuRoC datasets** using evo (APE/RPE), enabling reproducible comparison of localization accuracy.
- Configured **multi-environment deployment** (Ubuntu 22.04, Docker, ROS wrappers), resolved build, dependency, and visualization issues (Iridescence to Pangolin Viewer).
- Analyzed trajectory errors and **optimized SLAM parameters**, improving localization robustness by 8%.
- Prototyped fusion strategies (weighted averaging, **LSTM-based temporal fusion**) to integrate outputs from multiple SLAM frameworks into an optimal trajectory estimate.

Accenture Solutions

Pune, India

Application Development Associate

Feb 2022 – May 2023

- Developed **ERP automation with SQL + PeopleCode**; cut invoice cycle time 30% and reduced manual errors 40%.
- Designed modular OOP components, optimized workflows, and deployed with rollback procedures for enterprise systems.

PROJECTS

Classifying Distracted Driving Behavior using CNN and Pose Estimation

Aug 2024 - Dec 2024

- Trained and **deployed a CNN** achieving **97% accuracy** on grayscale inputs and **99.9% event-detection accuracy** on the State Farm Distracted Driver dataset.
- Benchmarked vs. **pose-estimation pipelines** by demonstrating **15–20% higher accuracy** with **faster inference**, and built reproducible data and training pipelines.

Gem e4 Autonomous Vehicle Development (Lane Adherence & Control)

Aug 2023 - May 2024

- Designed and fine-tuned an MPC **controller** that reduced lateral deviation by up to 0.15 m and jerk by 18%.
- Integrated **pedestrian detection**, **lane following**, and **object detection**, and achieved **~80% detection accuracy** in dynamic urban drives.
- Built **LiDAR-based spatial mapping** for confined-space maneuvering, enabling **>90% obstacle-avoidance** success.