

Soumith Batta

Minneapolis, MN (Willing to Relocate)

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Summary

Experienced Machine Learning Engineer with computer vision and AI systems expertise, eager to contribute as a Foundational Models Engineer. Equipped with strong problem-solving skills in evaluation pipelines and production monitoring, with proven ability to develop innovative AI solutions and work directly with customers in startup environments.

Skills

Programming	Python, C/C++, Matlab, HTML, SQL, Java, Rust
ML Tools	PyTorch, TensorFlow, Keras, SciKit-Learn, NLTK, Spring-Boot, Hibernate, NodeJS, Bootstrap
Robotics	Linux, ROS/ROS 2, Gazebo, OpenCV, QGroundControl, PX4, RViz, Meshlab, RoboDK
Hardware	Raspberry PI, Nvidia Jetson, Arduino, Ordroid, PixHawk, Motor Controllers, ESP32

Work Experience

AddiGuru

Minneapolis, MN (Hybrid)

COMPUTER VISION AND AI/ML INTERN

May 2025 - Present

- Developed 3D reconstruction system for additive manufacturing models using layer-by-layer imaging, reducing computational overhead by 41% while enabling real-time defect visualization in manufacturing processes.
- Implemented advanced part detection algorithms utilizing Mask2Former and Swin Transformer models, achieving 96.4% detection accuracy and reducing false positives by 35%.
- Collaborated with clients to analyze requirements and customize software solutions, resulting in satisfaction and tailored features.

ADMiRE Research Center, Carinthia University of Applied Sciences (FH Kärnten)

Villach, Austria

RESEARCH INTERN

May. 2023 - Jul. 2023

- Engineered geometric inverse kinematics solution using ROS/Python, reducing configuration errors by 87% in harvesting motion.
- Designed kinematics-based control system with quaternion interpolation, achieving sub-millimeter positioning accuracy.
- Implemented real-time motion planning in ROS, reducing harvest cycle time by approximately 25%.

Key Projects

Sequential Bayesian Optimization for Multimodal Robot Exploration

COURSE PROJECT, AI FOR SEQUENTIAL DECISION MAKING

Feb 2025

- Outperformed POMCP baselines by 2.3× higher reward and 50% RMSE reduction using belief MDPs with Gaussian process uncertainty modeling.
- Engineered MCTS with Double Progressive Widening, reducing predictive variance by 36% via mutual information rewards.
- Implemented Julia framework for Mars rovers with adaptive cost-aware policies and real-time belief updates.

Enhanced Robotic Arm Trajectory Tracking via MPC and Deep RL

COURSE PROJECT, DEEP LEARNING

Nov. 2024

- Developed GRU-based MPC for 7-DOF KUKA LBR4 manipulator, achieving test MSE of 0.0089 and outperforming baseline DNN by 44%.
- Implemented Linearized MPC strategy balancing computational tractability with tracking precision, reducing position MSE to 0.0753 rad².
- Deployed DDPG and Recurrent DDPG algorithms for Franka Panda robot, achieving exceptional tracking precision with MSE of 0.002 under partial observability.

6D-Gauss: Camera 6D Pose Estimation from a Single RGB Image

COURSE PROJECT, ROBOT VISION

Dec. 2024

- Developed a 6DoF camera pose estimation system using 3D Gaussian Splatting, achieving a 63% reduction in translational error.
- Integrated Radiant Ellicell ray casting with multi-head attention for robust optical center alignment and noise handling.
- Achieved 28.5% improvement in angular error compared to baseline methods on the Barn dataset, showcasing enhanced accuracy.

DRDO's UAV-Guided UGV Navigation Challenge

INTER IIT TECH MEET-10.0, KHARAGPUR

Mar. 2022

- Awarded 2nd place among teams from 23 Indian Institute of Technology (IITs), India's premier engineering institutions, for developing a UAV-guided UGV system optimized for autonomous navigation in snow-covered terrain.
- Implemented FSM architecture with Gazebo plugins, enabling seamless UAV-UGV coordination for terrain mapping.
- Engineered visual odometry system using UAV nadir camera, achieving real-time UGV position tracking.

Education

University of Minnesota-Twin Cities

Minneapolis, MN, US

MASTER OF SCIENCE IN ROBOTICS

Sep. 2024 - Expected May 2026

IIT Kanpur (Indian Institute of Technology Kanpur)

Kanpur, India

BACHELOR OF TECHNOLOGY IN AEROSPACE ENGINEERING

Nov. 2020 - Jul. 2024