Soumith Batta

Minneapolis, MN(Willing to Relocate)

(+1) 763-647-4795 | batta083@umn.edu | s0umith.vercel.app | s0umith | s0umith

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 rad^2.
- 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*