SAGNIK GHATAK

AI and Robotics researcher with a strong grasp of control, reinforcement learning, and real-world systems - ready to build intelligent systems that learn and adapt.

CONTACT

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- 🌐 LinkedIn

SKILLS

- Robotics Control and Navigation
- ROS2, MoveIT2
- Reinforcement Learning, Deep Learning, Federated Learning
- IsaacSim, Gazebo
- Python, C++, Git, Linux, Docker, CAN

LANGUAGES

- English - C1
- German - A2
- Bengali - C1
- Hindi - C1

CERTIFICATIONS

- DeepLearning.AI - Advanced Learning Algorithms

EDUCATION

Masters in AI Engineering of Autonomous System
Technische Hochschule Ingolstadt
Thesis: *Federated Deep Reinforcement Learning for Mutli-Agent Robotic System in IsaacSim with Sim-2-Real deployment.*

Bachelor of Technology in Electrical Engineering| 2017 - 2021
Maulana Abul Kalam Azad University of Technology
Thesis: Speed Control of DC Motor using Fuzzy Logic

WORK EXPERIENCE

Master Thesis   Jul'25 - Mar'26
AI Motion Bavaria

- Created and integrated custom USD scenes into IsaacSim to simulate diverse navigation environments.
- Implemented baseline PPO, MAPPO, and IPPO algorithms in IsaacSim using the IsaacLab framework and SKRL library for benchmarking.
- Design a Federated Deep Reinforcement Learning architecture for multi-agent navigation in constrained environments.
- Deploy the best-performing model on TurtleBot 4 Lite by wrapping it into a ROS2 node for real-world validation.
- Conduct performance evaluation across simulation and real-world settings, analyzing transferability and robustness of learned policies.

AI Motion Bavaria - THI   Mar'25 - Present
Student Research Assistant

- Simulated and implemented pick-and-place operations on a Braccio robotic arm in Gazebo and on the physical robot using MoveIt2.
- Integrated and deployed real-time navigation and control modules on TurtleBot 4 Lite robots using Nav2 for autonomous sensing and motion.
- Researched and developed Sim-to-Real strategies for implementing a reinforcement learning–based navigation module on TurtleBot 4 Lite robots.

UniCredit SpA   Sep'24 - Present
Working Student - Data Science and AI

- Monitored, maintained, and optimized production data pipelines to ensure reliability and scalability in real-time workflows.
- Developed and deployed machine learning models for credit card customer analytics, improving personalization and risk assessment.
- Leveraged PySpark and distributed computing frameworks to process large-scale datasets and accelerate model training and deployment.

Team Member - Driverless   Oct'23 - Aug'24
Schanzer Racing Electric e.V

- Developed a dual EKF-based sensor fusion system for accurate vehicle state estimation.
- Designed a path planning algorithm for adaptive, high-precision autonomous navigation.
- Simulated and validated the system in a ROS2 workspace with real-time, multi-node communication.

Cognizant Technology Solutions India Pvt. Ltd   Oct'21 - Sep'23
Data Engineer

- Engineered ETL workflows using Informatica PowerCenter and automated tasks with UNIX and Python scripts, reducing data processing time by 30% and manual intervention by 60%