HIMANSHU SAHNI

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Passionate AI, Robotics, and Data Science professional with a proven track record of developing innovative solutions to complex problems. Adept at collaborating in team environments, leveraging strong communication, adaptability, and technical expertise. Open to opportunities that drive impactful and meaningful work.

SKILLS

Languages	Python, MATLAB, C++, GO, SQL, Linux scripting
Tools/Frameworks	ROS, ROS2, Gazebo, GIT, Docker, Tensorflow, Keras, Pytorch, Scikit-Learn, AWS, Kubernetes, JIRA
Soft Skills	Communication, Team Player, Problem-solving, Adaptability, Critical thinking, Creativity, Leadership

EXPERIENCE

VOLVO Group, *Master Thesis Worker* | Göteborg, Sweden — Jan, 2024 - Present

- Developed and implemented agent-based architectures using open-source LLMs for analyzing industrial logged data, focusing on automating data analysis processes and enabling intuitive natural language interactions.
- Crafted and implemented advanced prompt engineering methodologies for complex data interpretation, reasoning, code synthesis, and visualization tasks.
- Collaborated with the team on the development and evaluation of the tool, using standardized and custom metrics to ensure accuracy, reliability, and effectiveness.

Chalmers University of Technology, *Teaching Assistant - Robotics Lab* | Göteborg, Sweden — Feb 2023 - Jul 2023

- Guided and instructed 6 bachelor students as a Teaching Assistant under Dr. Elad Schillar, focusing on ROS and indoor autonomous robot architecture, emphasizing motion planning algorithms.
- Implemented advanced algorithms (TAG Slam, Orb Slam3, Gmapping) on Wifibot for trajectory and map generation; integrated system with Gulliview local positioning system for comparative trajectory analysis.

Jetbrain Robotics, *Robotics Software Engineer* | Gurugram, India — Sep 2020 - Jun 2022

- Developed SLAM and motion planning algorithms for mobile robot autonomy, interfacing with sensors such as sonars, LIDAR, IMU, and wheel encoders.
- Upgraded robot systems by porting navigation stack to ROS2, integrating Slam toolbox and NAV2, and developing automation solutions for our robots leveraging Docker and shell scripts for operational efficiency.

GreyNodes, *Data Scientist Freelancer* | India — Jan 2021- Feb 2022

- Conducted A/B testing to optimize digital advertising strategies, analyzing user engagement metrics. Implemented data-driven improvements that significantly enhanced user engagement and campaign performance.
- Utilized ARIMA models to accurately forecast demand spikes, optimizing inventory for peak periods like back-to-school and holidays, effectively minimizing overstock and stockouts.

EDUCATION

Chalmers University of Technology, *MS in Complex Adaptive Systems* | Göteborg, Sweden — Present

RV College of Engineering, *Bachelor of Engineering in Mechanical Engineering* | Bangalore, India — 2016 - 2020

PROJECTS

Time-Constrained Scheduling and Collision-Free Control for A Fleet of Mobile Robots — Oct 2023 - Jan 2024

- Developed an automated pipeline that integrates scheduler outputs with Model Predictive Control (MPC) for optimized task scheduling and trajectory planning.
- Created a dynamic online scheduler prototype that enables real-time task scheduling and trajectory adjustments within MPC, significantly improving planning responsiveness and resource management.

Image-to-Image Translations Using GANs — Mar 2023 - May 2023

- Implemented Generative Adversarial Networks (GANs), including Conditional GANs (Pix2Pix) and CycleGANs, for cross-domain image translation.

Intelligent Navigation for Kiwi Cars — Mar 2023 - May 2023

- Developed a YOLOv5 Nano model for cone detection, integrating an adaptive steering algorithm to enhance autonomous vehicle control in the Kiwi car.
- Implemented a color-based object detection system using OpenCV for specific targets, and established a dynamic wandering system that adjusts navigation priorities based on battery levels for effective autonomous operations.

Cooperative Path Finding with Time-Delay Communication — Nov 2022 - Dec 2022

- Developed an agent-based simulation using bacteria-inspired algorithms to demonstrate autonomous cooperation and communication among agents, applicable to drone-based search-and-rescue operations, enhancing real-world pathfinding and timing in communication-critical scenarios.