AKSHAT PANDEY

College Station, TX, akshatpandeyplus41@gmail.com ◇ in/akshat-pandey24 ◇ github.com/akshatowl
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EDUCATION

Master of Science in Computer Engineering, Texas A&M University GPA: 4.0 / 4.0 Aug 2023 - Present
Coursework: Deep Reinforcement Learning, Software Engineering, Distributed Systems and Algorithms, Machine Learning

Bachelors in Electronics and Communication Engineering, Manipal Institute of Technology 2019 - 2023
Minor Specialization in Computational Mathematics Cumulative GPA: 8.69 / 10

SKILLS

Programming	C, C++, Python, Java, MATLAB
Website toolkit	HTML, CSS, Javascript, SQL, Firebase, MongoDB, React JS, Express JS, REST API
Software Stacks	ROS, ROS-2, PX4, Ardupilot, OpenCV, OpenAI, PyTorch
Software	Gazebo, CoppeliaSim, MissionPlanner, QGroundControl, Simulink
OS and other tools	Windows, Linux, Git, Docker, Kubernetes
Hardware & Embedded	Arduino, Raspberry Pi, Pixhawk, Communication Protocols(UART, SPI, I2C, CAN)

EXPERIENCE

Graduate Researcher Nov 2023 - Present
Autonomous Systems Lab, Texas A&M University *College Station, Texas*

- Working on autonomous path planning of agents in the presence of dynamic obstacles using MILP formulations.

Software Engineering Intern Jan 2023 - May 2023
Analog Devices *Bengaluru, India*

- Programmed a ROS package in C++ and Python for simulations using Time-of-Flight sensor data in Gazebo.
- Published images through ROS-2 and OpenCV, reduced the latency by 66.7%.
- Integrated the Moveit! framework and Gazebo to set up robotic arms for robust pick-and-place algorithms.

Undergraduate Research Intern May 2022 - Jul 2022
Ontario Tech University *Oshawa, Canada*

- Simulated an autonomous wheelchair as part of the MITACS Fellowship under Dr. Scott Nokleby.
- Slope detection using OpenCV and Intel D435i depth-cameras in ROS. Got up to 98% accuracy.
- Optimized and achieved collision-free navigation with RRT* and a proportional controller as the local planner.

Embedded Software Intern Aug 2021 - Nov 2021
AEREO *Bengaluru, India*

- Made a Software In Loop testbench using Gazebo-9 and MissionPlanner with the Ardupilot stack for quadcopters, reducing manual testing time by 40%.

PROJECTS

Chatbot for domain-specific queries A chatbot that specifically solves queries related to machine learning and deep learning based on the OpenAI ChatGPT API. This used an Express JS server and multi-modal Javascript and Java clients. Firebase and MongoDB were the databases used to store conversations made by users. Link: https://github.com/akshatowl/MLDL-ChatBot

Neural Architecture Search using Reinforcement Learning Optimized Graph Neural Architecture Search targeted for the CiteSeer dataset with Trust Region Policy Optimization and Proximal Policy Optimization to a trainer RNN model. Used Pytorch to find GNN architectures and got a mean validation accuracy of 73.6 % equivalent to the original method.Link: https://github.com/akshatowl/GraphNAS

KOBU Used space-filling curves for coverage planning in multi-agent systems and simulated the results using C++ and ROS in Gazebo Simulator. Link: https://github.com/raghavthakar/kobu

EXTRA-CURRICULAR ACTIVITIES

- Head of Automation at Project MANAS. Led a team of 50+ undergraduate students in the automation front of a driverless car and an autonomous hexacopter for AUVSI SUAS 2022.
- International Semi-finalist representing India as part of Team Luna in the Mohamed Bin Zayed International Robotics Challenge 2022