

AKSHAT PANDEY

College Station, Texas ◇ akshatpandeyplus41@gmail.com ◇ [in/akshat-pandey24](https://www.linkedin.com/in/akshat-pandey24) ◇ github.com/akshatowl

Website: akshatowl.github.io

EDUCATION

Master of Science in Computer Engineering, Texas A&M University GPA: 3.84 / 4.0 Aug 2023 - Present
Coursework: Deep Reinforcement Learning, Software Engineering, Distributed Systems & Algorithms

Bachelor's 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, Express JS, REST APIs
Software Stacks	ROS, ROS-2, PX4, Ardupilot, OpenCV, OpenAI, PyTorch
OS and other tools	Windows, Linux, Shell, Git, Docker, Kubernetes, CMake, Markdown
Hardware & Embedded	Arduino, Raspberry Pi, Pixhawk, Communication Protocols(UART, SPI, I2C, CAN)

EXPERIENCE

Software Engineering Intern May 2024 - Aug 2024
Applied Materials *Sunnyvale, California*

- Built the real-time control flow of a multi-setpoint generator for Endura PVD in C++ 20.
- Optimized the system architecture to reduce the size of compiled binaries by 25%.
- Implemented interlocks to restrict unwanted behaviors in hardware based on simulated sensing data.
- Integrated hardware IOs through XML config files with an OnChange service in C++, reducing latency by 95%.

Graduate Researcher Oct 2023 - Jan 2024
Autonomous Systems Lab, Texas A&M University *College Station, Texas*

- Implemented a path-planning algorithm in the presence of dynamic obstacles using MILP formulations and solved using GurobiPy. Built a simulation for the same using Matplotlib and Python3.

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

- Programmed a simulation in C++ and Python for a skid-steer robot using Time-of-Flight sensor data in Gazebo.
- Published images on ROS-2 Humble using OpenCV C++, 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.
- Implemented collision-free navigation with RRT* and a PD controller as the local planner.

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 user conversations.

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](#)