Aadith Warrier

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Education

Birla Institute of Technology and Science, B.E in Mechanical Engineering – Pilani Nov 2021 – July 2025
- 8.13/10 CGPA
- **Coursework:** Autonomous Mobile Robotics, Computer Programming, Vibrations and Control
- Mechanical Team Lead at CRISS Robotics
- Member of Association for Computing Machinery, BITS Pilani Chapter

Maharishi Vidya Mandir, Grade XII – Chennai May 2019 – May 2021
- 95.8/100 aggregate
- **Coursework:** Physics, Chemistry, Math, Computer Science

The PSBB Millennium School, Grade X – Chennai May 2015 – May 2019
- 94.8/100 aggregate

Research Experience

Research Intern, Robotics Research Center, IIIT-H – Hyderabad Dec 2024 – present
- Advisor - Prof. Madhava Krishna
- Pursuing my bachelor thesis on extending foundational computer vision models to robotics

Undergraduate Researcher, INSPIRE Lab – Pilani, India Apr 2024 – Dec 2024
- Advisor - Prof. Avinash Gautam
- Implemented autonomous frontier navigation on a ground robot using ROS and Visual SLAM.
- Designed and validated the blueprint for a low-cost fully autonomous drone.
- Developed simulations of the software stack for autonomous flight using PX4, ROS2, and Gazebo.
- Developed a technique to efficiently choose images for VLM inference using ORB and CLIP feature comparisions
- Researching techniques for rendezvous based multi-robot exploration in communication constrained environments

Research Intern, Indira Gandhi Center for Atomic Research – Kalpakkam, India June 2023 – July 2023
- Designed a visual inspection tool for hard-to-reach regions with robotic soft actuators using CAD software.
- Achieved a reduction in size of the actuator, enabling traversal of tighter bends and smaller tubes.

Undergraduate Researcher, MultiCog Lab – Pilani, India Oct 2022 – Apr 2024
- Advisor - Prof. Pratik Narang
- Developed an efficient pipeline using deep learning to detect and enhance low visibility conditions in drone images.
- Implemented object detection methods for distress detection on roads and image segmentation to quantify them.
- Collaborated with a team of civil engineers to develop metrics to help authorities prioritize repair work.

Publications

Attention-Enabled Deep Neural Network for Enhancing UAV-Captured Pavement Imagery in Poor Visibility Aug 2023

C. Kapoor, ***A. Warrier***, M. Singh, P. Narang, H. Puppala, S. Rallapalli, A. Singh

10.1109/MIPR59079.2023.00014

Fast and Lightweight UAV-based Road Image Enhancement Under Multiple Low-Visibility Conditions Mar 2023

C. Kapoor, ***A. Warrier***, M. Singh, P. Narang, H. Puppala, S. Rallapalli, A. Singh

10.1109/PerComWorkshops56833.2023.10150374

Projects

CRISS Robotics (College Robotics Team)

- **Mechanical Systems Lead:** responsible for design and manufacturing of the rover and integration between the mechanical, electrical and software systems
- Designed and fabricated a prototype Mars Rover with four wheel differential drive and a 5DoF Manipulator
- Placed first at the International Rover Design Challenge and eleventh at the International Rover Challenge

ROS2 simulation package for Firebird-VI github

- SDF model for the Firebird-VI with simulation using Gazebo
- RTAB Mapping with a OakD-Lite RGBD sensor
- Autonomous Navigation using Nav2
- Tools Used - ROS2, Gazebo, Nav2, RTAB-Map

Autonomous low-cost Quadcopter

- Custom low-cost autonomous quadcopter built using off-the-shelf components
- Secured a grant of INR 50,000 from the Academic Under Studies Division, BITS Pilani
- Tools Used - ROS, PX4 Autopilot, RTAB-Map

Deep Learning Architectures github

- Implementation of a CNN and UNet
- Tools Used - Python, PyTorch, Matplotlib

Reinforcement Learning Library github

- Implementation of reinforcement learning algorithms like Deep Q-Learning with OpenAI Gym

Simulation of Compressible Supersonic Flow through a RamJet Engine

- Tools Used- SU2, Gmsh

Lazy Profile Manager

- A simple python script that keeps your CV and website updated using data from a .yaml file for profile information and a .bib file for publications

Skills

Languages: C++, C, Python, LaTeX

Frameworks and Libraries: ROS/ROS2 (Nav2 and RTAB-Map), Gazebo, Pytorch, Numpy, Matplotlib, OpenAI Gym

Technologies: 3D Printing, Metal Fabrication, Laser Cutting, CNC Machining