ANKIT AGGARWAL

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EDUCATION

Carnegie Mellon University — Pittsburgh, PA
Master of Science in Robotic Systems Development (MRSD); GPA: 4.17/4.00 — May 2026
Current Coursework – Manipulation and Control, Autonomy, Reinforcement Learning

Manipal Institute of Technology, MAHE — Manipal, India
Bachelor of Technology (B.Tech) – Mechatronics; GPA: 9.50/10.00 — June 2024
Coursework – Mechatronic Design, Systems Engineering, Manufacturing

SKILLS

Programming Languages: MATLAB, Embedded C/C, Python, C++, Mathematica, SQL
Software: SolidWorks, Ansys Workbench, CATIA, Fusion 360, Simplify3D, CoppeliaSim
Technologies/Frameworks: ROS2, Gazebo, RViz, MoveIt, Simulink, OpenCV, Git, Docker

PROFESSIONAL EXPERIENCE

Amazon — Bangalore, India
Program Manager Intern — Jan 2024 – Jun 2024

- Spearheaded migration of Supply Chain Inbound Forecasting from manual to a Monte Carlo algorithm-based forecasting model. Performed extensive data analysis and led solution-focused project meetings, improving overall forecasting accuracy by 10%.

Continuum Robotics Laboratory, University of Toronto — Toronto, Canada
MITACS Globalink Research Intern — Jun 2023 – Aug 2023

- Fabricated a portable Tendon Driven Continuum Robot (TDCR), as part of the OpenCR Project. Created custom BLDC actuators and optimised tendon routes using Fusion 360 and TI Launchpad.
- Built a fully-actuated segment TDCR-based manual endoscope using tension-based and mechanical logic elements to create reliable control by eliminating digital latency.

Mars Rover Manipal — Manipal, India
Technical Head / Mechanical Design Engineer — Nov 2021 – Jul 2023

- Directed all technical operations of a team of 40 engineering undergraduates from 5 disciplines, involved in over 10 research & development projects and 7 international competitions.
- Engineered a Mars Rover Prototype for extra-terrestrial exploration comprising an on-board 6-DOF Robotic Manipulator with Inverse Kinematic Control, Custom 40:1 Cycloidal 3D-Printed Gearbox, and a novel 5-bar Suspension System to compete in University Rover Challenge (Ranked 1st in Asia).

STMicroelectronics — Noida, India
Application Engineer Intern, System Research and Applications Department — Dec 2021 – Jan 2022

- Designed a 4-wheel drive Mecanum Robot, integrated into a STM BLE P2P and Mesh Network for manual and autonomous control. Initiated multiple new robotics projects in the SRA team.
- Interfaced MEMS Sensors using HAL, LL, and Register Level drivers of the STM32 Microcontroller.

ACADEMIC PROJECTS

Lunar ROADSTER — *Prof. William "Red" Whittaker* | Sep 2024 – Present

- Building an Autonomous Moon-working Mechatronic Rover, capable of finding exploration routes and grooming the lunar surface to develop traversable surface trails using actuated bulldozing mechanism.
- Optimizing Localization, Navigation, Perception and Manipulation systems for precise and reliable autonomous operations using ROS2, Sensor Fusion, Computer Vision and Docker. (Website)

Design and Simulation of 3-RPS, 3-RRS, and 3-UPU Parallel Manipulators — Aug 2022 – Dec 2023

- Performed Kinematic and Dynamic Modelling of Parallel Robots using Screw Theory, implemented in Mathematica, for application in the Biomedical and Aerospace Industry. (Publication)

Smart Auto-Cleaning Cradle System — Mar 2023 – Oct 2023

- Engineered an IoT-based Smart Baby Cradle System employing various sensors, STM32 microcontroller, Raspberry Pi networked using 2.4GHz WiFi, to aid infant care.

COMPETITIONS AND CERTIFICATIONS

Certified SolidWorks Professional – Mechanical Design (Dassault Systèmes, 2021).
INSPIRE Award, DST India – Co-founded a solar-powered drone company (DroFi) to improve cellular network connectivity in off-grid regions (2018).