

VRISHABH KENKRE

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EDUCATION

Carnegie Mellon University

Master of Science in Mechanical Engineering – Advanced Study (Robotic and Control Systems)

GPA – 4.0

Pittsburgh, PA

December 2025

Indian Institute of Technology, Bhubaneswar

Bachelor of Technology in Mechanical Engineering, Electives in CS

GPA – 3.64

Bhubaneswar, India

June 2023

SKILLS

Programming & Software: CANalyzer, MATLAB & Simulink, C, C++, Assembly C, PLC, Julia, ROS 2, Python, Onshape, Fusion(PCB), ML

Hardware: Arduino, Fabrication, Soldering, Manual Machining, Wire EDM, CNC Machining, Laser Cutting, Welding.

PROJECTS

STM32-Powered Embedded Car Project – Carnegie Mellon University

January 2025 - Present

- Designing and implementing a custom PCB and embedded software for a small 4WD vehicle using an STM32 microcontroller.
- Developing and optimizing real-time firmware with multi-tasking, scheduling, and communication protocols in C and assembly.
- Integrating and controlling peripherals like motors, servos, keypads, and LCDs to execute a pre-programmed path with precision.
- Learning and applying Programmable Logic Controller (PLC) principles to enhance automation and control system integration.

Wall Outlet Tester – Carnegie Mellon University

January 2025 - Present

- Developing an autonomous robot to navigate and test wall outlets with onboard sensors.
- Designing robotic manipulation mechanisms to enable precise interaction with physical environments.
- Implementing real-time hardware-software integration on Linux with ROS2 on Jetson Nano for vision processing, Teensy-based locomotion control, and stepper motor-driven Marlin firmware actuation for reliable performance.

Golf Ball Collecting and Cleaning Bot – Carnegie Mellon University

September 2024-December 2024

- Led a team of 5 in designing and implementing an autonomous robot to collect and clean golf balls on varied terrains.
- Developed a Hybrid A*/Waypoint path planning algorithm and real-time control systems integrating GPS, encoders, gyroscope, and sensor fusion for efficient and precise navigation.
- Earned "Best Prototype" at the CMU Design Expo 2024 and a top 10 selection for the TechSpark Engineering Exposition.

Hybrid Dynamics Simulation and Analysis for Robotic Systems – Carnegie Mellon University

November 2024-December 2024

- Developed and analyzed hybrid dynamical systems for multi-contact robotic interactions, designing event-based and time-stepping simulations in MATLAB.
- Investigated system transitions, trajectory optimization, and Zeno phenomena, validating it with robotic manipulator use cases.

Missile Guidance and Control System Simulation – IIT Bhubaneswar, 2023

January 2023 – March 2023

- Designed and simulated a missile guidance and control system using state-space modeling, LQR control, and Kalman filtering.
- Implemented obstacle avoidance and target tracking logic with MATLAB/Simulink.
- Validated system stability and robustness under realistic scenarios.

EXPERIENCE

EXL Services

Gurgaon, India

Consultant B1/ Assistant Manager

December 2023 - July 2024

- Worked in a team of 20 to leveraged advanced analytics to identify risk patterns and enhance fraud prevention strategies.
- Created real-time visualizations of complex financial and risk-related data using Tableau and Excel for clear stakeholder insights.
- Utilized SQL for data extraction and analysis, enabling efficient fraud detection and risk assessment.

Cyient Limited

Hyderabad, India

CAE Engineering Intern

May 2022 – July 2022

- Gravity analysis of Gas turbine engine components ; observed force, stress, and strain distributions under gravity, analyzed using Hypermesh preprocessor, Nastran and LS-Dyna solver, and Hyperview postprocessor.

LEADERSHIP

Core Head, Alma Fiesta - Socio-Cultural Fest – Bhubaneswar, India

August 2019-May 2021

- Led a team of 20 members, securing approximately \$18,000 in sponsorships for cultural and technical events.
- Negotiated partnerships with companies and advertisers, ensuring successful execution of sponsorship deliverables.