Vishnu Vardhan Badam

vishnuvardhan.badam@gmail.com • (412) 390-9259 • linkedin.com/in/badam-vishnu-vardhan

EDUCATION

Carnegie Mellon University — Pittsburgh, PA
Master of Science in Mechanical Engineering-Research | GPA: 4.0/4.0 — May 2025

- Relevant Coursework: Machine learning and Artificial Intelligence for Engineers, Engineering Computation, Computer Vision, Introduction to Deep Learning

Vellore Institute of Technology — Vellore, India
Bachelor of Technology in Mechanical Engineering | GPA: 8.94/10 — May 2023

- Relevant Coursework: Mechatronics System Design, CAD/CAM, Artificial Intelligence for Beginners, Robotics, Product Design for Manufacturing, Manufacturing Automation

SKILLS

Tools and software: ROS, Python, C/C++, Arduino IDE, MATLAB, Git, SQL, Fusion360, SolidWorks, Ansys
Knowledge Areas: Computer-Aided Design, Computer Vision and Perception, Machine Learning, Machining, Controls

WORK EXPERIENCE

Biorobotics Lab - Apple Project (Carnegie Mellon University) — Pittsburgh, PA
Graduate Research Assistant — August 2023 - Present

- Assisted in developing and implementing a robot with a novel whip-like linkage mechanism for efficient battery removal in end-of-life devices, contributing over a 12-month period
- Optimized control systems and circuit designs, enhancing overall operational efficiency and reliability, resulting in a 40% increase in cycle time
- Enhanced kinematics and built efficient gripping mechanisms for pick-and-place operations leveraging a UR5 arm, and evaluated performance to ensure precision and efficiency

Carnegie Mellon University's College of Engineering — Pittsburgh, PA
Teaching Assistant for Machine Learning and Artificial Intelligence for Engineers — January 2024 - May 2024
Course Assistant for Introduction to CAD/CAM — August 2023 - December 2023

Warar Energy — Vellore, India
Mechanical Design Intern — February 2022 - July 2022

- Collaborated with three engineers as an outer body and chassis designer for a last-mile delivery electric vehicle
- Managed process planning and benchmarking for revamping an electric motorbike outer shell and worked on integrating a delivery box with a 20% increased size
- Yielded more cargo space by optimizing chassis and component layout during a five-month vehicle development internship

ACADEMIC PROJECTS

Multi-functional 3D Printing Computer Vision Assistant — Pittsburgh, PA
Carnegie Mellon University — Fall 2023

- Engineered a Python-based computer vision assistant for 3D printing using OpenCV and Scipy to detect object dimensions and features accurately, increasing 3D print precision
- Designed and implemented algorithms for scale and feature size detection, overhang identification, and STL conversion, improving print reliability and quality

Mitigating Risks in Autonomous Vehicles — Vellore, India
Vellore Institute of Technology — Fall 2022

- Developed an IoT-based vehicle-to-vehicle (V2V) communication system using 3 different modules to improve road safety by enabling real-time accident detection and alert transmission between vehicles
- Cooperated with two members to mimic vehicle interactions and accidents leveraging prototype circuits and assessed results to verify effective accident detection and communication
- Simulated interaction of two vehicles approaching an intersection with scaled prototype circuits, covering a range of accident scenarios with different velocities and impact angles

LEADERSHIP

Head of Department-Design, Team EcoTitans – Student Club VIT — May 2020 - May 2022

- Gained hands-on experience in designing, analyzing, and manufacturing a space frame chassis. Work involved devising a rule-compliant, ergonomic, aerodynamically superior, and highly safe aluminum 6061 chassis
- Led a team of 20 to participate in shell eco marathon and was responsible for conducting several webinars and social media campaigns