

Arushi Jain

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EDUCATION

Carnegie Mellon University

Master of Science in Mechanical Engineering - Research

Pittsburgh, PA

May 2025

- Leadership: Mechanical Graduate representative for Spring 2025 at Carnegie Mellon University
- Relevant Courses: Generative AI, Deep Learning, Thermal Design, Mechatronic Design, CFD
- Graduate Teaching Assistant: Applied FEA, Mechanical Modelling guided by Fundamentals, Product Design

Manipal Institute of Technology

Bachelor of Technology in Mechanical Engineering with a minor in Mechanical Design

Manipal, India

Jun 2023

- Relevant Courses: Fatigue and Fracture, Finite Element Methods, Vibrations, Modern Control Theory

SKILLS

Programming Languages: Python, MATLAB, Simulink, R, C++, Minitab

Machine Learning: Deep Neural Networks, Physics informed Neural Networks, Generative AI

CAE software: CATIA, SolidWorks, Fusion 360, Ansys Workbench, NX, Rhinoceros, COMSOL

Engineering: Mechanical Design, Thermal Design, SPC, GD&T, FEA, CFD, AM, DFMEA, Agile, Kaizen Methodology

WORK EXPERIENCE

Apple

Product Design Intern - Battery Pack

Cupertino, United States

May 2024 - Aug 2024

- Led the MacBook program as DRI, conducting technical assessments, optimizing designs, driving improvements via DFMEA and DOE, and drafting detailed vendor drawings
- Reduced flexible PCB connector load by 50.3% by implementing a kirigami-inspired compliance design in the PCB through analysis and simulation; developed design guidelines to ensure optimal performance and reliability
- Designed and Developed the Test Buck Assembly for battery testing in Portable devices

Saint Gobain – Glass Manufacturing

Quality Improvement Engineer

Chennai, India

Sep 2021 - Jul 2023

- Carried out defect analysis through XRF analysis and Petrographic microscopic examination. Implemented data-driven approaches to identify and mitigate defects – knots & stones, resulting in a 2% yield increase
- Monitored and assisted in routine & non-routine quality tests adhering to ISO standards
- Studied industrial robot installation for a manufacturing process involving technical surveying, recommendation of a suitable robot and its configuration, return on investment, and risk assessment. Reduced process cycle time by 42%

Cre-Aid Labs

Product Design Intern

Bengaluru, India

Jan 2021 - Sep 2021

- Designed a cost-effective (<\$50), body-powered, modular, 3D-printed trans-radial prosthetic arm that mimics human hand functionality, enabling users to perform 20 essential grips for daily activities
- Developed a myoelectric trans-radial prosthetic prototype using EMG sensors
- Created 3D-printed, customizable orthopedic arm and foot orthoses currently in use by patients

PROJECTS/RESEARCH

Robotic Biopsy System for Liver Tissue | CMU

- Built an automated, low-cost biopsy robot with real-time feedback to achieve ± 0.5 mm lesion localization
- Exceeded 90% target hit rate for ≥ 5 mm lesions while navigating ribcage constraints

Graph Neural Networks for Surrogate Modeling in Bioprosthetic Heart Valve Design | Project, CMU

- Developed a GNN surrogate model for bioprosthetic heart valve simulation from IGA analysis data, achieving $R^2=0.96$
- Implemented MeshGraphNet, surpassing baseline 3D ConvNet with a 1.5% improvement in predictive accuracy

High-fidelity melt pool modeling in AM using Latent Diffusion Model | Project, CMU

- Developed latent diffusion-based melt pool models for laser powder bed fusion, reducing computational time by 100x
- Enabled precise melt pool and keyhole predictions to improve defect control in additive manufacturing

Modelling immersive thermal management system for Li-ion batteries | CMU

- Wrote MATLAB script to solve Navier Stokes and model coolant flow around batteries in a Battery Pack.
- Designed Experiments and evaluation metrics to determine optimal battery configurations, inlet-outlet position

Design and Manufacturing of Brain Computer Interface (BCI) | Project - Panat Lab, CMU

- Conducted experiments with CMU arrays to study forces and displacements during insertion into biological tissue
- Investigated bed-of-nails effect with different configurations of CMU Arrays by varying pitch and length