ROHIT VARDHAN KAASA

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EDUCATION

Florida Institute of Technology *Melbourne, FL, United States*
Master of Science in Mechanical Engineering – Design & Manufacturing *May 2025*
GPA: 3.00/4.0
Relevant Coursework: Additive Manufacturing, Design Optimization, Design for Manufacturing, Operations and Logistics, Project Engineering, Quality Engineering.

Vidya Jyothi Institute of Technology *Hyderabad, Telangana, India*
Bachelor of Technology in Mechanical Engineering *October 2020*
CGPA: 7.2/10
Relevant Coursework: CAD, SolidWorks, Designing, Manufacturing, Production, Analysis, Ansys, Problem Solving.

WORK EXPERIENCE

Florida Institute of Technology *Melbourne, FL, United States*
Research Assistant – Department of Mechanical Engineering *August 2023- June 2024*
Description:
Engaged in experimental research on High Entropy Metal Organic Frameworks (HEMOFs) aimed at advancing clean energy storage and conversion technologies. Focused on electrochemical testing and voltammetry techniques to study the redox behavior and performance of advanced materials. Contributed to the broader academic objective of enhancing energy efficiency and sustainability through innovative material design. Collaborated with professors and graduate researchers in a cross-functional, research-intensive environment, and maintained accurate documentation to support academic publications and laboratory safety compliance.
Activities Performed:
- Conducted cyclic voltammetry and electrochemical impedance spectroscopy to evaluate material behaviour.
- Synthesized and tested various HEMOF structures, optimizing chemical stability and performance.
- Analysed experimental results using Excel and MATLAB, generating charts and trends for reporting.
- Co-authored technical documentation and research summaries for conferences and internal reviews.
- Assisted in managing lab equipment, sample preparation, and quality assurance for experimental trials.

G. Narayanamma Institute of Technology and Science *Hyderabad, India*
Jr. Testing and Design Engineer-Project Assistant *Jan 2021 – Mar 2023*
Description:
Developed a cost-effective retinal imaging device intended for the early detection of eye diseases in rural and low-resource settings. The project focused on designing a compact, ergonomic, and functional prototype using industry-grade design tools and optimization techniques.
Technologies Used: AutoCAD, SOLIDWORKS, CATIA, ANSYS, MATLAB, 3D Printing (PLA, ABS)
Activities Performed:
- Engineered precision optical and mechanical components using AutoCAD, SOLIDWORKS, and CATIA, including lens mounts, enclosures, and micro-adjustment assemblies, ensuring ergonomic design and portability for non-clinical deployment.
- Conducted finite element analysis (FEA) using ANSYS to evaluate structural integrity and thermal performance under varying load conditions. Leveraged MATLAB for simulation-driven optimization targeting image fidelity, signal-to-noise ratio, and material efficiency.
- Produced functional prototypes utilizing FDM 3D printing with PLA and ABS materials. Executed iterative design validation through mechanical fit testing, optical alignment assessment, and structural stress analysis.
- Collaborated within a multidisciplinary team of biomedical engineers, optometry consultants, and faculty

advisors. Facilitated cross-functional coordination through weekly agile sprints, milestone tracking, and risk management.

- Authored technical documentation, including design specification sheets, validation reports, and end-user manuals. Supported optical quality assurance by testing with synthetic ocular phantoms and incorporating iterative feedback from subject-matter experts.

SKILLS

- **Engineering Tools:** AutoCAD, SolidWorks, CATIA, ANSYS, MATLAB, GD&T
- **3D Printing:** FDM 3D printing, slicing software, material optimization, rapid prototyping
- **Project Management:** Resource allocation, budget tracking, Agile methodology, process improvement
- **Quality Engineering:** Six Sigma, DMAIC, control charts, root cause analysis, process validation
- **Manufacturing Knowledge:** Design for Manufacturing (DFM), lean manufacturing, assembly line optimization

PROJECTS

1. **FDM 3D Printing Process Optimization**
   Tools Used: *MATLAB, NSGA-II, PLA/ABS, Multi-Objective Optimization*
   Developed a mathematical model using NSGA-II in MATLAB to optimize key 3D printing parameters such as layer height, infill density, and print speed. The project balanced multiple objectives: tensile strength, print time, and material usage, to improve the efficiency and quality of consumer-grade FDM printers, and applied data-driven decision-making for low-cost, high-performance additive manufacturing.

2. **Mini Air Circulator – Multi-Functional 3D Printed Device**
   Tools Used: *AutoCAD, SolidWorks, ANSYS, PLA, FDM 3D Printing*
   Designed and developed a compact, portable air circulator integrating multiple utilities like a mini fan, bottle opener, keychain holder, and ruler—all fabricated with PLA using FDM 3D printing. Applied HVAC principles to optimize airflow and conducted thermal simulations in ANSYS to evaluate temperature distribution and ensure structural integrity under usage conditions.

3. **Hydraulic Jack Assembly Optimization (DFA Methodology)**
   Tools Used: *Boothroyd-Dewhurst DFA, AutoCAD, SolidWorks, ANSYS*
   Analysed and redesigned the assembly process of a hydraulic car jack using Design for Assembly (DFA) methodology. Reduced part count and assembly time by over 40% by integrating components, reducing sub-assemblies, and limiting fasteners. Conducted CAD modelling, sequence planning, and mechanical simulation to streamline manufacturing and improve efficiency in mass production.

CERTIFICATIONS

- Certified in AutoCAD by Autodesk with hands-on training in 2D drafting and 3D modelling for mechanical components.
- Completed industrial training at BHEL (Bharat Heavy Electricals Limited), gaining practical experience in turbine blade manufacturing, machining, and quality inspection processes.
- Earned a certification from IIT Hyderabad on IC engine design and manufacturing, with exposure to real-world engine assembly, production workflows, and mechanical system analysis.