

RAHUL RAJU S

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Experience

Research Assistant, Northern Arizona University

Aug 2023 – Present

Experimental Biofluids Lab

- Designed and fabricated structural prototypes using 3D printing and silicone casting, ensuring high precision in modular design.
- Engineered a 6-DOF robotic motion platform, integrating inverse kinematics, automation controls, and motion simulation—skills applicable to smart home automation.
- Developed and optimized a pulsatile flow loop system, showcasing expertise in fluid dynamics and modular component testing.
- Conducted high-precision image processing and motion analysis using MATLAB and Prana software, supporting automation in real-time environments.
- Presented research at the APS Division of Fluid Dynamics Conference, demonstrating an ability to apply innovative problem-solving to real-world challenges.

Graduate Teaching Assistant, Northern Arizona University

Jan 2024 – Dec 2024

Courses: ME495-Thermo Fluids Laboratory, ME440-Fluid Mechanics, ME291-Thermodynamics

- Assisted students in lab experiments, technical report writing, grading exams, and supporting lectures, ensuring precise experimental validation and engineering documentation.

Mechanical Engineer-I, Yasha Limited

Jan 2021 – Dec 2022

Design & Project management

- Led design and optimization of mechanical components for industrial systems using SolidWorks and GD&T principles to ensure precise assembly fit—key for modular home manufacturing.
- Managed end-to-end project execution, including troubleshooting, repair, and preventive maintenance of industrial equipment to enhance operational efficiency.
- Applied lean manufacturing principles and process automation to streamline production workflows, reducing waste and improving efficiency.
- Oversaw the installation, testing, and commissioning of new equipment, ensuring alignment with industry safety and quality standards.

Education

Northern Arizona University

Flagstaff, AZ

Master of Science – Mechanical Engineering

REVA University

Bengaluru, IND

Bachelor of Science – Mechanical Engineering

Projects

6-Degree-of-Freedom Stewart Platform Development | MATLAB, Arduino Due, SolidWorks

- Designed and built a precision motion Stewart Platform, integrating inverse kinematics, sensors, and control systems—experience applicable to smart automation in modular assembly.
- Developed a robotic control system for real-time motion adjustments, optimizing accuracy and stability for dynamic applications.

Biofluid Dynamics Research on Cerebral Aneurysm | SolidWorks, PIV, MATLAB, HPC

- Conducted computational and experimental studies to optimize modular housing airflow, pressure dynamics, and structural integrity under variable conditions.
- Developed data-driven predictive modeling frameworks for improving modular home aerodynamics and ventilation efficiency.

Patient-Specific Aneurysm Models | Meshmixer, Silicone Casting, Flow Loop Setup, LabView

- Designed and fabricated patient-specific aneurysm models using 3D printing and silicone casting, ensuring high-fidelity anatomical replication.
- Developed a pulsatile flow loop system integrating LabVIEW-controlled pressure and flow sensors, closely mimicking real-world physiological conditions.

Technical Skills

Design & Simulation: SolidWorks, CATIA V5, AutoCAD, MATLAB, ANSYS, PIV, Python, LabVIEW, FEA

Manufacturing & Automation: GD&T, 3D Printing, Lean Manufacturing, Six Sigma, Modular Assembly, CNC Coding

Robotics & Control Systems: Inverse Kinematics, Motion Simulation, Automation Processes

Project Management: Microsoft Office Suite, Process Optimization, Technical Documentation

Honors and Recognition

- Terence Hall Excellence in Engineering Design (2023–24): Recognized for innovative design contributions.
- Support for Graduate Students Research Scholarship (2024): Awarded for outstanding research potential.