SANDIP GAUTAM

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EDUCATION

Master of Science in Mechanical Engineering Aug 2024 – Aug 2026 (Expected)
University of New Hampshire Durham, NH, USA
Relevant Coursework: Advanced Finite Element Analysis, Analytical Fluid Mechanics, Viscous Flows, Advanced Mathematical Methods, Experimental Fluid Dynamics, Turbulence

Bachelor of Engineering in Aerospace Engineering Nov 2018 – Apr 2023
Tribhuvan University, Institute of Engineering Lalitpur, Nepal
Relevant Coursework: Computer Aided Design & Manufacturing (CAD), CFD, Engineering Drawing (I & II), Applied Thermodynamics & Heat Transfer, Manufacturing Process, Strength of Materials, Continuum Mechanics

SKILLS

SolidWorks | CATIA V5 | GD&T | Mechanical Design | Assemblies & Drawings | BOM & Vendor Coordination | ANSYS Workbench | FEA | CFD | Thermal Analysis | DAQ | Control System Design | LabVIEW | MATLAB | Python | Root Cause Analysis | Manufacturing Skills | Microsoft Office Packages | AutoCAD

EXPERIENCE

Graduate Research Assistant Aug 2024 – Present
University of New Hampshire Durham, NH, USA

- Designed multi-component experimental fluid test systems in SolidWorks for an Air Force Office of Scientific Research-funded project, producing 3D models, detailed drawings, and BOMs, and leading procurement and fabrication of custom and off-the-shelf components.
- Conducted experimental testing and validation of test systems, diagnosing hardware and instrumentation issues to ensure accurate and reliable measurements.
- Executed experiments (flow visualization, free-surface synthetic schlieren, thermal imaging and PIV) to investigate vortex pair interactions with the free surface, developing structured experimental protocols to ensure repeatability.
- Analyzed experimental data using MATLAB to extract flow features such as surface elevation, thermal fields, and velocity fields, translating results into physical insights and engineering conclusions.
- Collaborated with cross-functional teams of engineers and scientists; communicated progress through weekly technical presentations and written reports to the supervisor.

Aerospace Engineering Intern Oct 2022 – Dec 2022
Antarikchya Pratisthan Nepal Kathmandu, Nepal

- Designed a thermal vacuum chamber for CubeSat environmental testing in accordance with ASME Section VIII standards.
- Performed FEA structural analysis to assess stress distribution, validate structural integrity, and guide safe design decisions.
- Designed and analyzed thermal system using ANSYS to achieve target temperature conditions for a CubeSat test specimen.

MECHANICAL ENGINEERING PROJECTS

Low Reynolds Number PIV Facility CAD | Manufacturing | FEA | Experiments | DAQ | CFD

- Manufactured a PIV experimental system, integrating high-speed cameras, laser optics, and a PID-controlled gantry system.
- Conducted PIV experiments to study laminar separation bubbles on a flat plate using velocity and vorticity fields.
- Validated results against CFD; communicated findings through technical reports and presentations.

DAQ-Based Aerodynamic Lift Measurement System Wind tunnel testing | DAQ | Electronics

- Designed and integrated load cell system with NI DAQ hardware for aerodynamic force measurement in wind tunnel testing.
- Validated results against CFD, accurately predicting stall and identifying key error sources.

Subsonic Axial Compressor Stage Design CAD | CATIA | ANSYS | CFD

- Designed single-stage axial compressor using first principles for 8.2 kg/s mass flow rate and ∼1.2 pressure ratio.
- Assessed aerodynamic performance via ANSYS CFX, achieving ∼78% isentropic efficiency and identifying loss mechanisms.

AWARDS

Fully Funded Master's Degree (100% tuition waiver, health insurance, $35,000/year stipend), awarded through a Graduate Research Assistantship