Amrit Thapa, EIT

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Professional Summary

Mechanical Engineer (EIT) with industry experience in utility design, mechanical analysis, and CFD simulation, currently serving as Engineer I at Techserv Engineering and Consulting. Skilled in SolidWorks, ANSYS, OpenFOAM, and MATLAB, with a strong foundation in thermal-fluid systems and control integration.

Technical Skills

- **Design & Analysis**: SolidWorks, AutoCAD, ANSYS, Fluent, REVIT, CATIA, OpenStudio, PowerBi, OpenFOAM, HAP, KATAPULT, SPIDA CALC, GIS

- **Programming**: MATLAB, Python, C-programming

Education

Master of Science in Mechanical Engineering   *2022–2024*
The University of Texas at Tyler, TX
GPA: 3.6/4.0

Bachelor of Engineering in Mechanical Engineering   *2019–2021*
Tribhuvan University, Kathmandu, Nepal
GPA: 3.63/4.0

Work Experience

Engineer I – Techserv Engineering and Consulting, TX   *2024–Present*

- Reviewed and validated stress analysis and power make-ready reports from SPIDA Designer, ensuring compliance with NESC standards and project feasibility.

- Designed pole configurations following utility distribution standards to ensure safety and field applicability.

- Created work orders and detailed design prints for field crews, including cost estimation and PE-ready documentation.

- Collaborated cross-functionally to troubleshoot and resolve design issues, enabling seamless handoffs.

- Used Excel for cost analysis and data tracking under tight deadlines.

- Ensured all deliverables complied with safety and regulatory standards, supporting GigaPower's fiber rollout.

Engineering Intern (Volunteer) – InergyX Building Solutions, Tyler, TX   *Feb 2023–Jan 2024*

- Conducted blower door and duct leakage tests to assess building air tightness and HVAC efficiency.

- Analyzed test results and recommended energy-saving improvements; operated drone-based thermography.

- Gained hands-on HVAC diagnostics experience and improved internal workflows.

Graduate Researcher – Entegra Sources Pvt. Ltd., Nepal   *May 2021–Aug 2021*

- Designed and fabricated 5 tons/hr plastic cutter and shredder for recycling using CAD tools.

- Developed precision farming tools to increase agricultural productivity.

Design Engineer Intern – Surya Nepal Pvt. Ltd., Nepal   *Sep 2019–Nov 2019*

- Achieved 6% efficiency gain in packaging through geometric optimization.

- Designed and fabricated a cost-effective hydraulic press for quality maintenance.

Engineering Projects

Finite Element Analysis – Nitsche's Method

Developed a MATLAB-based simulation for FEM analysis of an L-shaped plate, improving stress distribution accuracy using Nitsche's Method to enforce Dirichlet boundary conditions. Focused on improving model stability and convergence near reentrant corners.

Evaporative Cooling Condenser Design

Led a technical feasibility study and simulation of an evaporative condenser for vapor-compression refrigeration. Achieved a 24% reduction in compression work through heat rejection enhancement and optimized heat exchanger geometry.

Machine Learning Automation in HVAC

Integrated a feedforward machine learning controller into a cooling system to automate temperature control. Developed predictive models using Python to forecast room temperature and optimize energy efficiency in real-time HVAC operations.

CFD Wind Tunnel System Design

Designed a subsonic wind tunnel system and performed CFD simulations using ANSYS FLUENT. Co-developed and simulated axial fan design using ANSYS-CFX to ensure laminar flow quality and uniform velocity distribution across test section.

MOSFET Threshold Voltage Reference Circuit

Designed a temperature-compensated voltage reference circuit for agricultural greenhouse applications. Simulated behavior across varying temperatures to ensure consistent switching performance and energy-efficient automation.

Certifications & Training

- **Graduate Certificate: Thermal-Fluid Systems – University of Texas at Tyler (2024)**
  Advanced study of applied CFD, heat transfer, and HVAC, with emphasis on simulation and optimization of energy and thermal systems for mechanical engineering applications.

- **Graduate Certificate: Systems & Controls – University of Texas at Tyler (2024)**
  Focused on process control, MEMS, and biomechanics, with applications in automation, robotics, and advanced system modeling in mechanical engineering.

- **Engineer in Training (EIT) – Texas Board of Professional Engineers (2023)**
  Credential for engineering licensure in Texas, demonstrating technical competency and ethical practice.

- **Semiconductor Packaging Manufacturing – Arizona State University (2024)**
  Gained insight into sort, assembly, testing, and QA using process control systems and statistical tools.

- **Introduction to Programming with MATLAB – Vanderbilt University (2023)**
  Developed foundational programming skills focused on algorithms, data analysis, and visualization.

- **Registered Engineer – Nepal Engineering Council (2020)**
  Licensed to practice engineering in Nepal.

- **CFD Workshop on OpenFOAM – Kathmandu University (2020)**
  Hands-on training in fluid flow simulation using OpenFOAM on a supercomputer, covering fundamentals of CFD modeling and parallel computing.

Extracurricular Activities & Volunteer Work

Principal CAD Designer – Go-kart Racing, Pulchowk Campus, Nepal   *2019*

- Led go-kart design and development using CAD tools; contributed to competition-ready prototype.

Volunteer – Aviation Museum, Kathmandu, Nepal   *2018*

- Assisted in model aircraft assembly and supported educational outreach efforts.