Amrit Thapa, EIT
Tyler, TX 75701
Phone: (503) 703-0978
Email: athapa.2023@gmail.com

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. Demonstrated ability to optimize project workflows—achieving a 406% throughput increase—and deliver compliant, PE-ready utility design packages using SPIDA and Excel-based cost estimation. Skilled in SolidWorks, ANSYS, OpenFOAM, and MATLAB, with a strong foundation in thermal-fluid systems and control integration. Proven success in research and field collaboration, with a track record of applying data-driven and innovative solutions to real-world engineering challenges.

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.

MEMS Heat Transfer Enhancement
Simulated thermal performance of microelectromechanical systems (MEMS) in ANSYS. Explored design alternatives and microchannel integration to improve heat dissipation and maintain thermal reliability in compact devices.

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

- **Semiconductor Packaging Manufacturing** – Arizona State University (2024)
  Gained comprehensive insight into semiconductor manufacturing, including sort, assembly, testing, and quality assurance using process control systems and statistical tools.
- **Engineer in Training (EIT)** – Texas Board of Professional Engineers (2023)
  Credential for engineering licensure in Texas, demonstrating technical competency and ethical practice.
- **Introduction to Programming with MATLAB** – Vanderbilt University (2023)
  Developed foundational programming skills in MATLAB focused on algorithms, data analysis, and visualization.
- **Registered Engineer** – Nepal Engineering Council (2020)
  Licensed engineering professional with recognized qualifications to practice in Nepal.
- **CFD Workshop on OpenFOAM with Supercomputer Simulation** – Kathmandu University (2020)
  Completed hands-on training in CFD modeling using OpenFOAM and supercomputer simulation for complex fluid systems.

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.