Tirth Thakar

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Cross-functional engineer currently pursuing a Master's degree in Mechanical Engineering, with strong academic and professional experience in CAD, materials, manufacturing, and design and development of mechanical and robotic systems. Looking to leverage technical expertise in a challenging role that promotes growth and innovation.

Education

Master of Science in Mechanical Engineering - GPA: 3.7/4.0 Aug 2023 - Present
University of Connecticut, USA

Bachelor of Engineering (Hons) in Engineering Science - GPA: 8.4/9.0 Jan 2017 - Nov 2021
University of Auckland, New Zealand

Exchange Semester - Mechanical Engineering - GPA: 3.5/4.0 Jan 2019 - Jul 2019
University of California, Los Angeles (UCLA), USA

Bachelor of Commerce in Finance and Economics - GPA: 8.0/9.0 Jan 2017 - Nov 2021
University of Auckland, New Zealand

Professional Experience

Research Assistant - *University of Connecticut - CT, USA* Aug 2023 - Present

- Designed and fabricated high-voltage electro-active polymer actuators and ran experiments to quantify their mechanical properties and behavior under various conditions
- Created, manufactured and assembled components for high-altitude balloon payload using SolidWorks and 3-D printing
- Designed high-voltage circuits and custom PCBs to power robotic actuators for earth and space applications

Mechanical Engineer - *Fisher & Paykel Technologies - Auckland, New Zealand* Jan 2022 - Aug 2023

- Oversaw the product life cycle and delivery of projects revolving around firmware, mechanical and electromagnetic design changes across different business streams that projected a 20% increase in company revenue over a 3-year period
- Designed, tested and characterized new electric motors to meet performance requirements while reducing manufacturing costs by 19% and created Python and LabView applications to reduce design process by 10%
- Modified CAD motor designs and produced engineering drawings following geometric dimensioning and tolerancing
- Conducted electromagnetic FEA analysis of 3D motor designs using ANSYS Maxwell

Projects and Publications

Soft Robots in Extreme Environments and Their Applications
Tirth Thakar, Mihai Duduta | IEEE Robotics and Automation Letters (In progress)

- Showcased the behavior and characteristics of dielectric elastomer actuators when exposed to low Earth orbit environmental conditions and highlighting their applicability in space

Undergraduate Senior Capstone Engineering Project

- Quantified spatio-temporal uncertainties of real-world models of the left heart ventricle using machine learning, FEA numerical methods and statistical uncertainty quantification techniques

Analytical and Experimental Modelling of Spin-Coater Fluid Mechanics

- Developed analytical and experimental models to study the fluid mechanics of spin coating processes and conducted a sensitivity analysis to investigate effects of parameter variation on substrate thickness

Small Scale Wind Turbine Design Project

- Designed, constructed, and tested a prototype wind turbine within given criteria and specifications using CAD and FEA to carry out structural analysis for design iteration and prototyping

Tools, Skills, Awards and Extracurricular

Skills: Mechanical Design, Thermo-fluids, Materials, Manufacturing, Hardware, CAD, FEA, Data Analysis and Visualization

Tools: SolidWorks, MATLAB, ANSYS, KiCad, Python, C++, VSCode, Git, Jira, Tableau, Minitab, LabView, Microsoft Office

Pratt & Whitney Fellowship - University of Connecticut 2024 - 2025

Edward Connolly Faculty of Engineering Scholarship - University of Auckland 2017

Engineering Dean's List - University of Auckland 2017 - 2021

Engineering Teaching Assistant - University of Auckland 2020 - 2021

Student Mentor - University of Auckland 2020 - 2021