Tony Nguyen Bui

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Education

Stanford University **Sep 2021 – Aug 2025**

Bachelor of Science in Mechanical Engineering | ABET Accredited | GPA: 3.1/4.0 *Stanford, California*

Skills

Technical Skills/Software: Fusion 360, 3DEXPERIENCE CATIA(3DX), SolidWorks, ANSYS Electronic Desktop(AEDT: Maxwell, Icepak, HFSS), COMSOL Multiphysics, Fishbowl Inventory, Geometric Dimensioning and Tolerancing(GD&T), Rapid Iterative Prototyping, Design for Manufacturing(DfM), Root Cause Analysis(RCA), Machine Shop Fabrication, First Principles Reasoning, Finite Element Analysis(FEA), Failure Mode and Effects Analysis(FMEA), Microsoft Office
Programming Languages: MATLAB, Python, JavaScript

Work Experience

Tesla Motors **Sep 2023 – Dec 2023**

Mechanical Design Engineer Intern, Power Electronics *Palo Alto, CA*

- Successfully carried out proof-of-concept study of PCBA inductive soldering system to replace reflow soldering, including execution of design requirements study, rapid iterative prototyping, fabrication of a working prototype, and testing
- Conducted multiphysics transient simulations in Ansys Electronic Desktop to predict thermo-mechanical/electromagnetic properties of high-frequency power electronic parts which informed material selection and design of parts
- Collaborated with test engineers to design and manufacture 4 fixtures for environmental reliability testing of high voltage power electronics, including optimizing final fixtures design for DfM, reducing the cost of fabrication by 37%
- Designed and published 2 original assemblies that are used across multiple engineering teams, in 3DEXPERIENCE CATIA, employing CAD best practices (Boolean Operations, Parametric Design)
- Prepared written documentation like status reports to record and organize project workflow/progress, industry-standard drawings of parts with appropriate GD&T, experimental plans, and testing write-ups to drive part validation

Trucklabs **Jun 2023 – Sep 2023**

Product Management/Mechanical Engineering Fellow *Santa Clara, CA*

- Assisted Vice President of Engineering in the design of fail-safes for pneumatic actuation systems, including root-cause analysis and drafting of product requirements documentation
- Tracked performance using Fishbowl Inventory Management and documented inefficiencies of the inventory recording and assembly workflow procedures associated with the flagship Truckwing product to develop improvement strategies
- Programmed and deployed an applet using Python and JavaScript in Google Apps Script and Pycharm to automate processing of purchase orders, saving the Vice President of Supply Chain 5-10 hours weekly

Projects

Tilt-in-Space Wheelchair | *Senior Capstone Project* | *Kyaro Assistive Tech* **Sep 2024 – Mar 2025**

- Designed and validated a low-cost, locally manufactured, tilt-in-space wheelchair, working with Kyaro Assistive Tech (a Tanzanian Non-Governmental Organization based in Arusha, Tanzania, making user-specific assistive devices accessible for East Africans) for the use-cases of 3.4 million people with mobility disabilities
- Utilized an iterative approach to technical need-finding to establish user and engineering requirements
- Developed final solution leveraging market research, literature reviews, Pugh chart analysis of 50+ proposed designs of wheelchair frames and tilt-in-space mechanisms, and feedback from engineers in industry across 3 design reviews
- Parametrically modeled, FEA, and drafted technical drawings of the final design using Fusion 360
- Fabricated final prototype for real-world testing of requirements; leading fabrication and testing
- Conducted FMEA to identify failure modes and tested each subsystem for validation of all engineering requirements
- Communicated project work across 4 presentations to 100+ person technical/non-technical audiences, 3 technical board design reviews comprised of industry experts, and a concise, academically published project report

Wind Deflector for Convertible Car | *Personal Project* | *2005 Mazda Miata* **Mar 2024 – Jun 2024**

- Designed, fabricated, and tested a clear wind deflector, which safely attaches to the rear of the seats, to reduce wind noise and hair-blowing from "top-down" driving by minimizing turbulent air and vortex shedding into the car cabin
- Designed assembly using Fusion 360, including structural FEA analysis of all parts and optimization of "holes" geometry in deflector using back-of-the-envelope analysis to minimize pressure differential "fore-of-deflector" vs "aft-of-deflector"
- Fabricated physical model including metal supports, brackets, and acrylic shield using machine-shop tooling including mill, lathe, water-jet, metal laser-cutter, sheet-metal forming, and foundry processes(pattern-making, casting, post-processing)

Extracurriculars

Stanford Solar Car Project (Mechanical Engineering, Aerodynamics, Composites team-member), Stanford Undergraduates in Mechanical Engineering (Professional Development Team Lead), First-Gen/Low-income Success Center (Student Staff)