

RUPESH SHRESTHA

Mechanical Engineer | Berkeley, CA

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Portfolio: www.shrestharupesh.com

Professional Summary: Mechanical Design Engineer with experience owning large hardware systems from requirements through CAD, structural analysis, fabrication support, and iterative improvement. Strong background in mechanics of materials, fatigue analysis, load case development, and GD&T-driven drawing packages. Experienced in FEA-based structural optimization, DFM/DFA, and resolving manufacturing and supplier issues. CSWE-certified SolidWorks expert.

SKILLS

Design, CAD/CAM/CAE: Solidworks, CATIA V5, Fusion 360, Siemens NX, AutoCAD, Ansys, Mold Design, Plastic Trim Design, Surface Design, Sheet Metal Design, Weldments Design, Drafting, 3DEXPERIENCE Platform, Product Lifecycle Management (PLM), Fusion 360 CAM, Finite Element Analysis (FEA), tolerance stack-up analysis

Manufacturing: Injection Molding, 3D Printing, Prototyping, machine shop skills, Geometric Dimensioning and Tolerancing (GD&T), Design for Manufacturing (DFM), Design for Assembly (DFA), DFMEA

Miscellaneous: Python, MATLAB, Ms Excel, MS Office, Google Workspace, Project Management, Research

WORK EXPERIENCE

VPE Thermal LLC, Mechanical Engineer | Sacramento, CA

Oct 2024 – Present

- Owned end-to-end mechanical design of **2 large (5–12 metric ton) and 4 small heat exchanger systems**, delivering complete production drawing packages, structural validation, and fabrication support.
- Performed advanced **FEA in ANSYS (ASME Div 2 Part 5)**, including stress linearization (SCL), full-system nozzle load evaluation (3 systems), and **transient thermal fatigue life analysis** for pressure hardware.
- Completed **20+ component-level structural analyses** and validated safety margins for critical hardware under lifting, mounting, transport, and operational load cases.
- Designed and validated **10+ custom structural shipping and mounting frames**; conducted 10+ frame FEAs to verify forklifting, bracket, and transport loads.
- Improved structural efficiency through **mechanics of materials–based bracket redesign**, optimizing load paths and section modulus; achieved **15% weight reduction** while maintaining safety margins.
- Applied **DFM/DFA principles** to redesign brackets and mounting interfaces, reducing weld complexity, improving tolerance alignment, and simplifying fabrication and assembly.
- Produced full **GD&T-compliant SolidWorks drawing packages**; performed tolerance stack analysis to eliminate assembly misalignment and reduce manufacturing rework.
- Executed **2 experimental validation tests** on thermal test rigs; correlated experimental results with simulations to refine structural and thermal assumptions.
- Supported **10+ diffusion bonding furnace runs** and validated bonded assemblies for downstream integration.
- Managed procurement of **\$3M+ in raw materials and fabricated components**, coordinating with **15+ domestic and international vendors** and resolving fabrication nonconformances.
- Improved engineering throughput by **20%** through SolidWorks workflow optimization and shared modeling best practices across the team.

Woosh Logistics Inc., Engineering Project Manager | Lewes, DE

Aug 2024 – May 2025

- Managed and coordinated all aspects of the Pandora's Box Capstone Project, ensuring goals were met on time.
- Collaborated with UC Berkeley and internal departments to align project objectives and resources.
- Conducted research on the product design of Pandora's Box, contributing to the project's technical development.
- Oversaw budget and timelines, delivering project phases within set constraints.
- Identified potential risks and implemented mitigation strategies to avoid project delays.

University of California - Berkeley, Lead Teaching Assistant | Berkeley, CA

07/2023 – 12/2023

- Efficiently managed and guided both undergraduate and master's students through complex robotic concepts and practical applications as the Lead TA for the course 'Robotic Locomotion' under Professor H. Kazerooni.

Berkeley Institute of Design, Student Researcher | Berkeley, CA

Sep 2023 – May 2024

- Employed **Design of Experiment (DOE)** methods to conduct pairwise comparison survey to assess the visual similarity of 50 chair designs, informing design preferences and aiding decision-making in design selection.
- Applied logistic regression models to predict human perspectives on design aesthetics, leveraging survey data to address real-world design challenges.
- Extracted feature importance to determine the most influential parameters affecting human selection in design.
- Collaborated with the Autodesk Design Research team to brainstorm ideas and incorporate their feedback, enhancing the project's relevance and applicability.

Action Nepal, Member of the Executive Board and Board of Directors | Dhading, Nepal

Feb 2022 – July 2023

- Served as a member of the Board of Directors and Executive Board Member for Action Nepal (Non-profit), overseeing organizational operations and policy making.
- Managed projects including SUSAHARA II (USAID funded) in nutrition, EFFORT in livelihood and Disaster Risk Reduction (DRR), and CRISTA, supported by Asian Institute of Technology and the World Bank.

- Volunteered for the organization in Summer 2022 to lead four leadership and volunteering camps as a camp leader, through which projects on livelihood and DRR were conducted over 8 different villages in Dhading with the help of international volunteers.
- Worked on the procurement of construction materials for plastic tunnels, walls, and fences, as well as stationery materials for schools, ensuring project success and sustainability.
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- Constructed 10 plastic tunnels with metallic structure for vegetables, multiplying the production of vegetables by 3 times and increasing the harvesting season.
- Built 2 retention walls and 3 fences to protect community buildings and schools in 3 villages prone to animal intrusion and natural disasters like landslides.
- Distributed stationery materials to primary schools in five villages, enhancing children's learning experiences.
- Demonstrated project management capability by managing project logistics, including administration, stakeholder liaison, drafting MoUs, volunteer and construction worker coordination, work assignment, inspection, facilitation of meetings, conflict resolution, event management, and reporting.

National Innovation Center (NIC), Mechanical Engineer | Kathmandu, Nepal Jan 2022 – Mar 2022

- Worked on the research, design, and manufacturing phases of Nepal's first Bike Ambulance project, to develop a solution for emergency medical transportation in narrow street communities, increasing the response time by **45%**.
- Designed the Bike Ambulance with foldable bed and oxygen cylinder mount using **SolidWorks**, and conducted iterative FEA simulations on **Ansys** to ensure structural integrity and performance.
- Gained hardware experience and mastered fabrication techniques such as **cutting, welding, grinding, sheet metal work, riveting, heat treatment, laser cutting, and 3D printing**, adhering to safety protocol.

Entegra Sources, Mechanical Design Engineer | Kathmandu, Nepal June 2021 – Dec 2021

- Designed **over 600** mechanical components using **SolidWorks** and **CATIA V5**, adhering to design specifications.
- Conducted comprehensive Finite Element Analyses (**FEA**) of those designs in **Ansys** to evaluate structural integrity, thermal behavior, and fluid dynamics, ensuring higher Factor of Safety (FOS).
- Collaborated with **cross-functional teams** to seamlessly integrate design and analysis results into technical writing.
- Developed standardized design procedures and best practices leading to **accelerated project timelines by 50%**.

Princeton Smart Engineers, HVAC Design Engineer Intern | Bangalore, India Jul 2020 – Aug 2020

- Mastered heat load calculation techniques, utilizing both manual **E20 forms** and **HAP 4.9** software to accurately determine cooling and heating requirements for a School project, ensuring optimal HVAC system design.
- Applied advanced duct sizing methodologies, employing HAP, **Duct Sizer** software, and **AutoCAD** drafting to optimize airflow distribution and system performance, contributing to the efficient operation of the HVAC system.
- Assisted in the creation of detailed project estimates and submittal documentation, gaining exposure to project management processes and client communication protocols within the **MEP design industry**.

LEADERSHIP EXPERIENCE

UC Berkeley, Inclusive Technology Affinity Group Leader | Berkeley, CA Feb 2022 – May 2024

- Conducted tech events to support underrepresented groups and communities, connecting **120+ students**.
- Organized mentorship and networking events to help students develop their careers in the tech industry.

US Embassy Youth Council, Council Member | Kathmandu, Nepal Jan 2023 – Dec 2023

- Collaborated in a Civic Engagement Project on business law, digital finance literacy, and entrepreneurship, empowering **60+ women** in small and cottage industries in Kanchanpur.
- Led USYC Nepal's strategic initiatives, organizing community engagements, panel discussions, and development programs, empowering youth and increasing their leadership interests.

Aspire Institute, Harvard University, Finalist and Alumni | Online 03/2022 – 08/2022

- Participated in Aspire Leaders Program 2022 cohort making it out to the top 200 out of 7500+ applicants from 104 countries, engaged in immersive learning and leadership opportunities with other leaders, and won a mini-grant.
- Conducted outreach programs as an ambassador for Nepal, reaching over 1500 first-generation students in Nepal.

Team Askra, Vice Captain | Bangalore, India 12/2017 – 07/2021

- Demonstrated leadership by organizing industrial visit programs and college events, fostering students' exposure to industry practices and leadership experiences through collaborative teamwork.
- Led two Go-Kart design and manufacturing projects, utilizing CATIA for design and coordinating machine shop manufacturing efforts.
- Engineered chassis layout, including engine mounting, seating, brakes, tires, and transmission, conducting Finite Element Analysis using Ansys to ensure structural integrity.
- Successfully repaired an old engine and installed it onto the Go-Kart, showcasing technical proficiency and problem-solving skills.
- Calculated gear ratios and designed transmission systems iteratively to optimize engine power utilization.
- Implemented a disc brake system on the Kart and integrated a brake light using proper wire harness design.

- Showcased technical expertise by advancing beyond the technical inspection round in India's top Go-Kart competition, BFKCT Season 2.

EDUCATION

University of California, Berkeley - Master of Engineering, Mechanical (Product Design)	May 2024
Dr. Ambedkar Institute of Technology, India - Bachelor of Engineering, Mechanical	Sept 2021

CERTIFICATIONS

Understanding Research Methods - Coursera	Jun 2022
Certified SolidWorks Expert (CSWE) - SolidWorks - Mechanical Design	July 2021
Post Graduate Program in CAD - Skill-Lync	Nov 2020
CAD and Digital Manufacturing Specialization - Coursera	Nov 2020