

KALEB VASQUEZ

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EDUCATION

Bachelor of Science, Mechanical Engineering

August 2021 – Present

The University of Texas at Austin, Cockrell School of Engineering

Relevant Coursework: Machine Elements, Materials Engineering, Fluid Mechanics, Computational Engineering, Dynamics, Thermodynamics, Statics, Solids, Physics 1 & 2, Differential, Integral, Series, Multivariable, and Vector Calculus, Linear Algebra

Skills: MATLAB, SOLIDWORKS, Inventor Pro, Siemens NX, Fusion 360 C, Python, HTML, CSS, Javascript, Excel, Word, PowerPoint, QuickBooks Accounting, Adobe Photoshop, Adobe Premiere Pro, G Suite software, Google Search Console

EXTRACURRICULARS AND ACTIVITIES

EcoCAR EV Challenge – Systems Design and Integration (SDI) Team Member

August 2022 – Present

- Analyzed electric vehicle powertrain and energy storage systems, identifying areas for efficiency optimization within the Cadillac LYRIQ RWD.
- Identified and recommended modifications to the Cadillac LYRIQ CAD designs using Siemens NX. Managed a library of 1000+ files, ensuring accuracy and accessibility for cross-functional teams.
- Navigated complex waiver-modification submission systems, highlighting an ability to work within stringent guidelines and procedural constraints.
- Led initiatives to create new vehicle motor mount parts, ensuring robustness through detailed structural evaluations.
- Devised and engineered a sensor array for real-time data acquisition, utilizing aluminum extrusions and specialized fastening methodologies for optimal positioning and performance.

American Society of Mechanical Engineers (ASME) – Active Member

August 2021 – Present

- Regularly attend ASME meetings, gaining insights into recent advancements and hearing from industry professionals.
- Acquired technical proficiency through hands-on workshops, including CAD modeling, machining techniques, and Python coding.

Society of Hispanic Professional Engineers (SHPE) – Active Member

August 2021 – Present

- Participated in monthly SHPE meetings, connecting with fellow members and staying informed on organization initiatives.
- Broaden skillset through SHPE workshops, emphasizing coding, engineering tools, and effective communication strategies.

PROJECTS

Machine Elements RC Car Project

- Led a team of 5 students to design, prototype, and fabricate a remote-controlled car with the objective of completing three laps in minimal time, ensuring integrity against potential race crashes.
- Directed a CAD modeling team in designing and optimizing car components, resulting in a 5% reduction in CAD assembly errors.
- Managed the integration of subassemblies, ensuring the accurate application of machine elements principles such as gear theory, beam bending theory, mechanism theory, and springs theory.
- Conducted FEA studies to predict and validate stress points, deflection, and structural integrity of RC car design; identified areas for improvement resulting in a 13% decrease in major stress concentrators in the RC car design.
- Machined specific racecar components, ensuring precision in alignment with design specifications and optimum fit during assembly. Utilized lathes, milling machines, and other fabrication equipment along with 3D printers to achieve design goals.
- Managed a \$50 budget, ensuring optimal resource allocation. Kept a detailed record of parts, assembly instructions, and budgetary considerations.

Fidget Spinner Project

- Initiated the design phase with a distinct fidget spinner structure that was able to reach speeds of 1500 rpm.
- Developed intricate CAD assembly files for visualization, paired with finite-element analysis (FEA) studies to ensure a robust design. Identified and addressed potential stress points and improved design to combat potential stresses.
- Created computer-aided manufacturing (CAM) programs tailored for CNC machines, enabling the creation of accurate molds essential for the injection molding process.

Plumbing Stub Out Box Project

- Orchestrated the transformation of a plumbing invention from preliminary hand-drawn sketches to a CAD format.
- Transformed design processes by utilizing Autodesk Inventor Pro and Fusion 360, ensuring detail with exact dimensions, precise component alignments, and material simulations, resulting in a 23% material reduction.