Jason C. **Wei**

Mechanical Engineer · UCSB

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Fourth-year MechE @ UCSB with extensive hands-on experience in high volume DFM, elastic seal design, snap joints, CAD, and thermal systems modeling.

Skills

Design for Manufacturing	GD& T, Worst-Case & Statistical Tolerance Analysis, Die Casting
CAD, Simulations, & CAM	Catia3DX, Ansys Mechanical, SolidWorks, HSMWorks
Thermal Systems	Matlab Lap Sim-coupled Battery Thermal Modeling, Fusible Link Testing, Battery Cold Plate
EV Powertrain Design	Custom Wire-bonded 538V 2170 Battery Modules, HV Connectors, Ancillaries
CNC Machining	Haas CNC Super Mini Mill, Wazer Water Jet Cutter, Trotec Laser Cutter
3D Printing	Stratasys Objet 30 Pro & F270, Formlabs Form 3, MiiCraft 50, Ultimaker S5, Prusa i3 Mk.3
Programming	Matlab, Python (ScikitLearn & Tensorflow), Arduino

Education

University of California - Santa Barbara — *Santa Barbara, CA*

B.S. in Mechanical Engineering — *Sep. 2021 - Jun. 2025*

- FSAE Electrical Chief Engineer & Powertrain Lead, Dean's List, TFEL Undergraduate Researcher, CNSI Workshop Wizard, Edison Research Scholar, Qualcomm MESA Idea Accelerator, Wind Ensemble Clarinetist, LoL Esports Player
- Relevant Coursework: Heat Transfer, Mechatronics, Materials, Thermodynamics, Circuits, Machine Learning, Statics, & Dynamics

Experience

Tesla — *Palo Alto, CA*

Mechanical Design Engineering Intern — *Jun. 2024 - Sep. 2024*

- Owned the design and DFM of two new die-cast high voltage connector headers
- Designed a new face seal profile, iterated using Ansys hyperelastic simulations, improving contact pressure to reaction force ratio by 52% compared to existing in-use designs
- Designed critical-fastening snap joints, parametrically optimized for low insertion force and high retention force, by linking CAD dimensions as Ansys input parameters and sampling across the entire design space
- Evaluated face seal performance boundaries by simulating worst-case top cover deflections across a full range of thicknesses, materials, and stamping stiffening geometries, reducing header per unit cost by 10% after removing unnecessary fasteners
- Routed harnesses and busbars in CAD to reducing the number of required bends and installation order constraints

Gaucho Racing (UCSB Formula SAE Electric) — *Santa Barbara, CA*

Electrical Chief Engineer & Powertrain Lead — *Nov. 2021 - PRESENT*

- Owned the design and manufacturing of 8 wire-bonded & potted 2170 battery modules, connected to make up a 538 V, 6.2kWh, 81.9 kW battery pack
- Designed external HV distribution and internal ancillaries assemblies, including integration of main contactors, mid-pack main fuse, high voltage disconnect, and battery maintenance plugs
- Designed battery water cooling cold plates, flow simulated in Solidworks Fluids and validated pressure drop curve with water cooling test rig
- Built Matlab thermal models to predict cell-level battery fusible link sizing and pack-level thermal limits

Seek Thermal — *Goleta, CA*

Mechanical Engineering Intern — *Jun. 2023 - Oct. 2023*

- Designed and implemented heat sinking solutions for thermal camera microprocessor; simulated in Solidworks Thermal study and validated in environmental chamber
- Machined go-no-go gauges for quantifying thermal shrinkage defects in injection molded PPSU plastic
- Created Excel script for analyzing worst-case and statistical tolerance stack-ups
- Created 30+ Agile ECOs and GD& T drawings for new products and product revisions
- Designed and manufactured 3 blackbodies with operating temperatures from -40°C to 60°C for infrared sensor calibration

California NanoSystems Institute - CNSI Workshops *Santa Barbara, CA*

Workshop Wizard & 3D Printer Tool Lead *Jun. 2022 - PRESENT*

- Instructed over 200 researchers and grad students in workshop and microfluidic equipment
- Fabricated & delivered over 100 CNC milled, 3D printed, and laser cut custom user orders
- Managed, repaired, and created SOPs for 3D printers and laser cutters (Formlabs Form 3, Ultimaker S5, Stratasys F270, Stratasys Objet 30 Pro, and Rayjet 300)

UCSB Thermofluid Energy Research Laboratory *Santa Barbara, CA*

Undergraduate Researcher *Apr. 2023 - Sep. 2023*

- CNC milled and 3D printed a fluid boiling fixture for a NASA ISS experiment, analyzing the role of surface structures on flow boiling instabilities
- Researched and presented the use of vapor chambers, which utilize liquid-gas phase change, as a heat spreader for EV battery thermal management
- Characterizing heat pipe thermal gradients and thermal conductivities using custom built test bench

Honors & Awards

Academic

2023 **Dean's List,** 3.75 GPA or higher

2021 **AP Scholar with Distinction,** 9 AP tests with a 5 score

2021 **President's Education Award,** Outstanding Academic Achievement - 35 ACT Score

2020 **National Merit Scholarship,** Letter of Commendation

Volunteering & Extracurricular

2023 **MESA Qualcomm Idea Accelerator Second Place,** Awarded for JAM Navigation prototype

2021 **Gold Presidential Volunteer Award,** Over 500 volunteer hours

2018 **VEX EDR Robotics California State Excellence Award,** Most prestigious award for best all-around robot

2017 **VEX EDR Robotics Regional Champion,** Tournament Champion