

Koa Shen

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EDUCATION

University of California, Santa Barbara

Santa Barbara, CA

Bachelor of Science in Mechanical Engineering (3.97 Major GPA)

June 2028

EXPERIENCE

Mechanical Engineer, Chassis & Ergonomics Sub-Team Lead

September 2024 – Present

UCSB Gaucho Racing FSAE

Santa Barbara, CA

- Led a 15-person team to design and manufacture a 100-tube race car chassis over a 10-month production cycle
- Managed design & manufacture of 5 driver interface subcomponents and various welding fixtures
- Collaborated with leadership team to integrate electronics/wire harness & suspension into full-car assembly

Undergraduate Researcher

September 2025 – Present

Hawkes Lab UCSB

Santa Barbara, CA

- Worked closely with graduate student mentors and P.I. to develop specialized robots in 2 concurrent projects
- Trained 50+ hours in Composites Pre-Preg/Wet Layup, 3D Printing, and Waterjet Cutting
- Trained 50+ hours in firmware for actuation testing with load cells

Exhibit Technician

June 2025 – September 2025

Exploratorium

San Francisco, CA

- Worked closely with exhibit engineers to do small repairs and 4 major overhauls on malfunctioning exhibits
- Updated mechanical and electrical systems in exhibits to eliminate large cyclic repair costs
- Trained 150+ hours in a combination of manual mill & lathe, CNC mill, CNC router table, & TIG welding

Undergraduate Researcher

November 2024 – June 2025

URCA UCSB

Santa Barbara, CA

- Sourced \$2000 from research grant funds for FSAE steering wheel R&D
- Reduced steering wheel assembly weight by 25% and cost by 30% from the previous year's model
- Learned hand calculation and FEA to evaluate materials (CFRP, GFRP, 6061-T6, 7075-T6) for baseplate design
- Trained 60+ hours in Solidworks CAD, FEA, and assembly organization

PROJECTS

FSAE Chassis Welding Fixture | *Solidworks CAD, 3D Printing, Laser Cutting*

November 2024 – March 2025

- Led a 3-person design team to produce a complex welding jig for steel-tube chassis welding under a \$1500 budget
- Constrained 81 chassis tubes accurately to CAD within 50 thou tolerance at nodes for precise welding
- Trained 80+ hours in Solidworks CAD and assembly organization

Flywheel Jumper Robot | *OnShape, 3D Printing, Composites Layup, & Waterjet*

September 2025 - April 2026

- Designed and manufactured an 8020 & Polycarbonate testing enclosure to ensure user safety during jump tests
- Reduced Jumper weight by 2% through redesigning & manufacturing streamlined versions of CFRP components
- Used test data to accurately load test filaments (PETG, TPU, CF-infused) for use in Jumper components

Hyper-Shoe Midsoles | *Solidworks CAD, Composites Layup, 3D Printing*

December 2025 - Present

- Rapid-prototyped 10 iterations of composite midsoles for adjustable air spring performance running shoes
- Utilized 3D-printed molds to quickly & repeatably manufacture both wet layup and pre-preg midsole iterations
- Implemented FEA-guided optimization to reduce weight by 15% while improving axial bending stiffness

Exploratorium Arp Forms Renewal | *AD Inventor, Manual Mill & Lathe*

August 2025 – September 2025

- Redesigned sealing components of a malfunctioning exhibit within a 6-week development schedule
- Implemented FEA-guided solutions for enclosure fracturing, avoiding \$3000+ replacement part costs
- Machined custom lathe tooling to save \$500 in tools/labor for finishing work on outsourced components

SKILLS

Fabrication: Manual Mill & Lathe, CNC Mill & Router Table, TIG Welding, Laser Cutter, 3D Printing, Resin Printing, Waterjet, Drill Press, Bandsaw, Cold Saw, Panel Saw, Miter Saw

CAD & FEA: Solidworks, Autodesk Inventor, Autodesk Fusion 360, OnShape

Programming: MATLAB, Java, HTML/CSS, LaTeX, R.

Soft Skills: Leadership, Collaboration, Problem Solving, Project Management