

RYAN ROSSMANGO

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Education

University of California, Los Angeles (UCLA) • B.S. Mechanical Engineering • GPA 3.886 Sept 2019 - Jun 2023

Coursework: Kinematics of Robotics, Astronautics, Modeling Dynamic Systems, Feedback Control Systems, Compliant Mechanisms, Manufacturing Processes, Heat Transfer, Fluid Mechanics, Thermodynamics, Strength of Materials, Electric Circuits, Materials Science

Technical Skills

CAD/CAM/3D-Modeling: SolidWorks (CSWA), AutoCAD, Autodesk Inventor, Autodesk Fusion360, Catia, SolidCAM, very adaptive

Engineering: Mechanical design, hardware assembly, project development, DFM, technical docs, data analysis, engineering drawings

FEA/CAE: SolidWorks Thermal, SolidWorks Simulation and ANSYS Mechanical for Nonlinear/Linear FEA

Manufacturing: Rapid prototyping (3D-printer, laser cutter, Waterjet), composites manufacturing (wet layup, resin infusion, prepreg), G-code generation with CAM for CNCs, machining (mill, lathe, drill press, bandsaw, grinding machine), hand tools, sheet-metalworking

Software/Programming: MATLAB, Simulink, Python, Arduino, Julia, C++, Microsoft Windows, Excel, PowerPoint, Word, Command line

Work Experience

Teledyne Relays • Mechanical Engineering Intern Jun 2022 - Sept 2022

- Conducted **root cause analysis** with Pareto, scatter, and Weibull charts to lower reject rates of magnetic latching relays **by 16%**.
- Ran component tests with **oscilloscopes**, collected electronics data such as coil resistance, set voltage, bounce time, and overtravel.
- **Redesigned a relay spring mechanism** which was overstressed at solder reflow temperatures. Executed an iterative CAD design process involving **100 simulation studies** to lower max stress by **factor of 5.5** and achieve contact force targets (**1-2 gram-force**).
- Developed **testing equipment** and test procedure for **magnet quality validation**, with Helmholtz coil, fluxmeter, and 3D-prints.
- Conceptualized, 3D-designed a **high-volume relay manufacturing procedure** involving an overhead camera and rotating fixture.

Pyro-E • Engineering Intern Sept 2021 - Jan 2022

- **Won 3rd place** in DoE Ocean Observing BUILD Contest with mechanical eel that renews energy through vibrational wave harvesting.
- Fabricated the waterproof exterior out of **20 fiberglass-epoxy composite pieces**, using vacuum-bagged wet layup and Dremel.
- Built crude **eel prototype** out of **sheet metal, stepper motors, and 3D-prints**, using press brake and machining tools (**CNC, mill**).
- Constructed a **propulsion test with strain gauge load cell** and **spring-loaded force gauge** to measure prototype's thrust.

UCLA Engineering Transfer Center • Undergraduate Mentor Jun 2021 - Sept 2021

- **Led technical team of 6** to create transfer bridge program. **Made, led 8 workshops** on CAD, FEA, circuits, 3D-printing, and MATLAB.
- Spearheaded **project development of a successful 10-team, 30-person hackathon** under accelerated 5-week timeline.
- Built, wired, and programmed the **proof of concept** (an Arduino-scripted car driven by Bluetooth pySerial, an IR emitter controller, and autonomously), troubleshooted problems, procured **list of 50 parts**, designed 3 new parts, and 3D-printed/laser-cut 150 parts.

Projects and Clubs

UCLA Bruin Spacecraft Group • Thermal and Structures Engineer Sept 2022 - present

- Performing **trade studies** and crafting **component lists**; interfacing with other teams to construct and cool a **3U CubeSat system**.
- Studying heat transfer and **doing thermal analyses** on CubeSat system with Excel, MATLAB, and SolidWorks Thermal.

UCLA E96: Building a Go-Kart Feb 2022 - Mar 2022

- **Guided team of 5 as project manager** to build a **battery-powered, winning vehicle** while minimizing 3D-printed part remakes.
- Oversaw team meetings, **cross-checked all part designs**, and carried out mechanical assembly and **electrical wiring** of go-kart.
- **Orchestrated design and fabrication** of drivetrain, chassis, steering, and power systems. **Improved robustness of braking system**.

UCLA AIAA Design Build Fly • New Member Training Lead & CAD Engineer Dec 2019 - Dec 2021

- **Wrote 40-page manuals** and **produced training presentations** on aircraft manufacturing processes, CAD, and structural analysis.
- 3D-drafted many features for competition airplanes, such as 2020-21's tail section using an **imported NACA 0100 airfoil**.

1966 Volkswagen Restoration Jul 2020 - Dec 2020

- **Compiled parts list** from vendors. Fixed **transmission** and **master cylinder**, replaced windshields, disc pads, lights, steering wheel.
- Removed rust and adhesive with rotary wire brushes, **installed insulation and carpet**, revamped seating, and hammered out dents.