

# Kristof Balasanian

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## Education

### San Diego State University

May 2026

Bachelor of Science in Mechanical Engineering

## Experience

### Kunin - Chattanooga, TN

Aug 2025 - Present

Mechanical Engineer (Contract)

- Building a fully parametric SolidWorks model of nanofiber based, spiral wound ion exchange modules with CFD ready internal flow volumes. Linked to an Excel BOM/cost model for rapid sensitivity analysis and design trades.

### Amidon Heavy Industries - El Segundo, CA

Feb 2025 - Aug 2025

Mechanical Engineer Intern

- Designed and built a hot swappable, 6s6p 18650 battery pack (21.6 V, 40 A continuous). Delivered assembly procedures, 1.6x volumetric energy density and -36% cost vs. off the shelf solutions.
- Owned architecture and preliminary design of a AUV deployment/recovery system from a USV. Responsibilities included frame, linear actuated trap doors, custom chase pulley, and winch integration.
- Developed a propeller thrust stand with a load cell, V/I sensors, and Arduino to solve for efficiency.
- Designed and built a linear actuator testbed with moment isolated rotary encoders for rudder PID tuning.
- Designed a modular 3D printed electronics tray via multi body modeling in SolidWorks. Integrated ethernet switch, 24/5 V blocks, DCDC, ESC, leak sensor, Pixhawk, Raspberry Pi, GPS, and camera.

### Tesla - Fremont, CA

Mechanical Design Engineer Intern, Vehicle Integration

May 2024 - Aug 2024

- Owned front-end integration on Robotaxi. Responsible for architecture, preliminary design, maintaining CAD maturity, documentation, prototype design, and fitment trials.
- Designed a blow-molded washer bottle using CATIA 3DX surface modeling. Reduced cost of life by 25 million dollars by creating a service vs volume model to solve for an optimal 11% fluid volume increase over the baseline.
- Resolved structural body component durability trade-offs (tire sweeps, pedestrian protection, modal) via 2D sections and 3D concepts. Led a cross functional review with exteriors, body, dimensional, and manufacturing.
- Benchmarked antenna array (GPS, Radio, Phone, Wi-Fi, BLE, TCU) of 8 competitor vehicles. Flagged TCU thermal underperformance risk prompting further controls investigation.
- Integrated jump post and tow eye access. Removed an inline connection, drastically improved service ergonomics validated through trials on the prototype buck, reduced total harness length by 0.7 m, and saved ~\$7 in BOM cost.

## Projects

### Aztec Electric Racing FSAE EV - San Diego, CA

Senior Engineer

Aug 2022 - May 2025

- Built a lumped capacitance HV battery thermal/energy model in MATLAB and Excel with a +9.3% error. Used to select pack architecture and define cooling system requirements across drive cycles.
- Led battery system packaging and materials optimization, cut 22 lbs. of weight and reduced volume by 23%.
- Designed and fabricated a HV maintenance plug using SolidWorks, 3D Printing, and a 3-Axis mill. Reduced plug count from 2 to 1 and increased ease of use with PPE.
- Verified tab survivability for several load cases using hand calculations and static structural FEA in Ansys.

## Skills

**Tools:** SolidWorks, CATIA 3DX, CATIA V5, Ansys Mechanical, SimScale, Excel, MATLAB, R, Orca Slicer, Git

**Rapid Prototyping:** 3D Printing (FDM, SLS, SLA), 3-Axis Mill, Lathe, Waterjet, Laser Cutting, Sheet Metal, Composites, Adhesives, Spot Welding, Wiring, Soldering, Shop Tools