David Klunder

Dklunder3762@gmail.com | 510-813-3762 | linkedin.com/in/david-klunder

EDUCATION

San Diego State University, San Diego, CA — May 2026
Bachelor of Science, Mechanical Engineering — GPA: 3.9
Activities: Formula SAE (Aztec Electric Racing), Baja SAE (Aztec Baja), Tau Beta Pi Honor Society, Tau Kappa Epsilon

ENGINEERING EXPERIENCE

SpaceX — Engineering Intern, Hawthorne, CA — May 2025 – Present

- Owned design, line integration, and build of an automated high-voltage test system to validate all Starship flight batteries.
- Designed and built developmental batteries, running tests to prove flight readiness and enable production improvements.
- Engineered enclosed test chambers and custom fixtures using NX, optimizing safety, automation, and repeatability.
- Designed pneumatic schematics and actuator-driven automation, reducing technician setup overall time by 55%.
- Executed several Design of Experiments (DoE), validating 100% detection of fails and enhancing production quality.
- Collaborated with software engineers to refine detection algorithms, improving detection precision by over 90%.
- Performed Root Cause Analysis (RCA) on battery faults and implemented corrective actions, improving reliability.
- Created detailed Bill of Materials (BOM) enabling efficient procurement, successfully duplicating a test system.

Lawrence Berkeley National Laboratory — Mechanical Engineering Intern, Berkeley, CA — May 2024 – Aug 2024

- Led research and development of an automated testing system to quantify ice adhesion strength across 40,000+ samples.
- Implemented XYZ motor control with load cells and thermocouples in a closed-loop feedback system.
- Developed automation and data analysis scripts using LabVIEW and MATLAB, reducing cycle times by roughly 40%.
- Applied heat transfer and fluids principles to achieve controlled test temperatures down to -40℃ using a Peltier cooler.
- Designed mechanical components in SOLIDWORKS and performed validation using Finite Element Analysis (FEA).
- Operated a Class IV femtosecond laser to fabricate precise surface microstructures based on adjustable parameters.
- Created a Python application integrated with Raspberry Pi and Sony Exmor IMX219 sensor to measure laser reflectance.

SDSU Advanced Materials Processing Lab — Research Assistant, San Diego, CA — Jan 2024 – May 2025

- Fabricated Al-TiH_2-SiC composite foams via advanced powder metallurgy techniques.
- Characterized composite materials through controlled thermal processes, ball milling, and PCA adjustments.
- Conducted detailed metrology ensuring precise characterization of material properties.

ENGINEERING PROJECTS

Aztec Electric Racing (FSAE) — Data Acquisition & Vehicle Dynamics, San Diego, CA — Jan 2024 – Present

- Gathered, analyzed, and plotted FSAE car sensor data through controlled tests to assess vehicle performance.
- Optimized sensor logging rates and applied mathematical models to interpret and validate vehicle dynamics.
- Led a team in designing, manufacturing, and integrating a waterproof CANBUS enclosure using SOLIDWORKS.

Aztec Baja SAE — Engine & CVT Dynamometer, San Diego, CA — Jan 2025 – Present

- Developing a full-stack data acquisition system using Raspberry Pi and Python to collect RPM and power data.
- Integrating Hall effect sensors and load cells to create a DAQ system, with a custom GUI for visualization.

2014 Scion FR-S Adjustable Pedal Spacer, Oakland, CA — Jul–Aug 2024

- Designed and validated a 25 mm adjustable throttle spacer in SOLIDWORKS with Finite Element Analysis (FEA).
- Applied fundamentals of design and rapid prototyping, iterating with PLA 3D printing to refine the final part.
- Improved ergonomics by raising the throttle housing and enabling lateral adjustability with stock hardware.

Python Live Telemetry Display (Racing Simulator), Oakland, CA — May – Jul 2024

- Created a Python script that takes direct input from any controller and displays live throttle and brake telemetry.
- Developed a graphing and scrolling function that automatically scrolls the data over a 10-second time interval.
- Automated post-session analysis using matplotlib, generating full telemetry reports for performance evaluation.

TECHNICAL SKILLS

Engineering & CAD: Siemens NX, SOLIDWORKS, Finite Element Analysis (FEA)
Programming & DAQ: MATLAB, Python, LabVIEW, Raspberry Pi, Arduino
Manufacturing: CNC Machining, Additive Manufacturing (3D Printing), MIG Welding, GD&T, Ball Milling
Materials & Analysis: Powder Metallurgy, Metrology, Materials Characterization, Root Cause Analysis, Lean Manufacturing