

# Parker Roberts

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## EDUCATION

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### San José State University

Bachelor of Science in Aerospace Engineering, Minor in Asian American Studies

San Jose, CA

Aug. 2024 – Jun. 2028

## EXPERIENCE

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### JET Project

Research Team Co-Lead

San Jose, CA

Aug. 2025 – Present

Research Team Member

Aug. 2024 – Aug. 2025

- Completed turbine mass-flow sizing by importing turbine CAD in Ansys DesignModeler, generating blades with BladeModeler, running an Ansys CFX turbomachinery CFD simulation, and extracting values in CFD-Post to produce a turbine performance map (pressure ratio vs. mass flow)
- Executed an end-to-end CFD analysis workflow for the current turbine design, translating CAD geometry into blade definitions and post-processing key results in CFD-Post for performance-map plotting
- Performed a baseline structural response assessment on an initial compressor stator by applying a 101,325 N load case in Ansys Mechanical and SpaceClaim to evaluate structural behavior under atmospheric-pressure loading

### SJSU Propulsion Club

Secretary

San Jose, CA

Aug. 2025 – Present

- Maintained consistent executive-team meeting documentation, capturing notes every 2 weeks for a 6-person admin group in a standardized Google Drive document
- Provided club-wide operational visibility across two funded propulsion projects covering approximately 30 active members by tracking leadership meeting discussion points and maintaining a standardized fundraising template

### TechEdSat AE20 Project

Team Member

San Jose, CA

Aug. 2024 – Dec. 2024

- Modeled a GoPro Hero Max payload in SolidWorks using manufacturer-published dimensions with ABS plastic and multiple glass tints, then transferred the model to Autodesk Inventor for CubeSat assembly integration
- Collaborated with the senior design TechEdSat team to deliver a complete CubeSat CAD model featuring a functioning lid and solar panels on opposing sides

### Stanford-Summit Tahoma Expeditions (SSTEP) Program

Intern

Palo Alto, CA

Oct. 2023 – May 2024

- Constructed a Proton Exchange Membrane (PEM) electrolyzer prototype to estimate electricity requirements for chlorine production
- Synthesized graduate-student shadowing observations into structured research presentations and won “best-looking” in an engineering egg-drop design challenge

## PROJECTS

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### Automated CFD Post-Processing Toolkit | Python, Pandas, Matplotlib

Mar. 2026

- Developed a Python toolkit that parses Tecplot-format CFD solver outputs (CFL3D, Ansys CFX/Fluent) into structured Pandas DataFrames, replacing manual Excel-based post-processing workflows
- Validated computational results against NASA Turbulence Modeling Resource experimental data for the NACA 0012 airfoil at multiple angles of attack
- Built automated plot generation for convergence histories, surface pressure distributions, and force monitors with multi-zone Tecplot ASCII parsing supporting Fortran scientific notation

### Parametric Airfoil Analysis Pipeline | Python, AeroSandbox, NeuralFoil

Mar. 2026

- Built a CLI tool automating airfoil aerodynamic analysis across angle-of-attack sweeps, multi-airfoil comparisons, and Reynolds number sensitivity studies
- Designed a modular architecture with dataclass-based result containers, enabling programmatic access to  $C_l$ ,  $C_d$ ,  $C_m$  arrays and derived performance metrics (max L/D, optimal AoA)
- Generated four-panel polar plots with automated CSV export; demonstrated NACA 0012 vs 2412 vs 4412 trade study and  $Re = 10^5 - 5 \times 10^6$  sweep in a single command

### Engineering Unit Conversion Toolkit | Python

Mar. 2026

- Created a Python CLI tool and importable module supporting 60+ engineering unit conversions across pressure, temperature, length, velocity, force, and mass categories
- Implemented a base-unit conversion architecture with separate affine handling for non-linear temperature scales and domain-specific units (knots, slugs, psf, Rankine, inHg, mmHg)

## TECHNICAL SKILLS

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**CFD/FEA:** Ansys Fluent, Ansys CFX, Ansys Mechanical, Ansys DesignModeler, Ansys CFD-Post

**CAD:** SolidWorks, Ansys SpaceClaim, Autodesk Inventor

**Programming:** Python (Pandas, NumPy, Matplotlib)