Allan Chen

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EDUCATION

University of California, Los Angeles
Expected Graduation June 2026

B.S., Aerospace Engineering

Relevant Coursework: Thermodynamics, Fluid Mechanics, Engineering Materials Science, Dynamic System Modeling, Rigid Body Dynamics, Statics, Electricity & Magnetism, Electronic Circuits

SKILLS

Software: NX, Teamcenter, SOLIDWORKS, REFPROP, Python, MATLAB, Fusion 360, ANSYS FEA, HSMWorks CAM, C++, JavaScript
Manufacturing: GD&T, 3 Axis CNC Machining, TIG Welding, Mill, Lathe, 3D Printing, Laser Cutting, Composite Layups

EXPERIENCE

Stage Fluids Intern | Stoke Space Technologies
Sep 2024 – Present

- **Responsible engineer for flight vehicle cryogenic thermal management systems** development campaign; Defined testing criteria, conducted property characterization testing, arranged procurement with suppliers for scaling production, authored technical documentation and organized company-wide knowledge base regarding development, design, analysis, production processes, inspection criteria, proof and acceptance requirements.
- Conducted design, analysis, and testing of components for engine and stage fluids systems; **authoring work plans** to facilitate the production, assembly, inspection, and testing of components and development articles through **life cycle qualification, proof, and acceptance tests.**
- Led test campaign on flight fastener and secondary structure mounting solutions; Characterized performance across operating modes and **created sizing and analysis tools** in Python with **integration into design workflows and usage guidelines** for flight-like environments.

Lead Engineer - Liquid Propulsion Fluid Systems | Rocket Project at UCLA
July 2023 – May 2024

- Spearheaded design of Ethanol - LOx liquid rocket fluid system **integrating novel propellant flow throttling capabilities**.
- Oversaw the complete lifecycle of pressure vessel development and testing; Ensuring compliance with industry standards, and **adhering to ASME BPVC and AIAA S-080 design standards**.
- Produced MATLAB models for **thermal and fluid system analyses**. Streamlined component level testing with an analytical approach, **reducing required testing cycle iteration by 50%**.

Lead Engineer - Hybrid Propulsion Fluid Systems | Rocket Project at UCLA
Dec 2022 – June 2023

- Guided a cross-functional team of student engineers through the **development of a hybrid rocket fluid system**, integrating Nitrous Oxide liquid oxidizer and solid ABS thermoplastic fuel.
- Consistently achieved target flow rates and pressures **within 5% of calculated targets** in static tests.
- Performed **hand calculations and Finite Element Analysis** to assess system structural requirements. Achieving 15% mass reduction over preceding systems with an adequate margin of safety.
- Carried out **pad operations on multiple static tests**, identifying and addressing system-wide issues, and amending testing procedures to ensure nominal system performance while reducing cycle times.

PROJECTS

Thrust Vectoring Liquid Rocket
Jan 2023 – Present

- Researched and designed a 100 lbf long burn Ethanol - Nitrous Oxide rocket propulsion system for use as a control system testbed, with **engine gimbal and variable propellant flow control capabilities**.
- Prioritized low-cost, efficient designs oriented for manufacturability with an initial **$2000 materials budget constraint**.
- Applied rigorous hand calculations, incorporating **fundamental rocket equations, isentropic relations, and incompressible fluid mechanics** in propulsion system design around target specifications.
- Constructed a **regeneratively cooled rocket engine MATLAB thermal model**, providing a sophisticated simulation of **mechanical and thermal stresses, and approximating effects of chamber film cooling** fed by engine coolant.
- Programmed a comprehensive **fluid system simulation** in Python with Jupyter Notebook enabling rapid design iteration through various plumbing geometries and components, **streamlining calculations and system optimization**.