Allan Chen

Los Angeles, CA | 415-769-8653 | allanchen053@gmail.com | linkedin.com/in/allanjchen

EDUCATION

University of California, Los Angeles
Sept 2022 – June 2026

- B.S., Aerospace Engineering

Relevant Coursework: Particle & Rigid Body Dynamics, Statics & Mechanics of Materials, Differential Equations, Linear Algebra, Multivariable Calculus, Chemical Energetics, Electricity & Magnetism

SKILLS

- Fluid feed system design, manufacturing, testing, and analysis
- 3 axis CNC machining, manual mill and lathe machining, 3D printing, laser cutting
- SOLIDWORKS, MATLAB, ANSYS, C++, Python

EXPERIENCE

Rocket Project at UCLA

Liquid Propulsion Feed System Lead — July 2023 – Present

- Led redesign of Ethanol - LOx liquid rocket feed system; **integrating flow throttling capabilities** and packaging optimization
- Designed and tested novel throttling valve actuation mechanism with preset flow throttling range. **Achieving 10% weight reduction** over previous design while implementing **new throttling functionality**.
- Designed, manufactured, and proof-tested pressure vessels, used in multiple cold flow and static fire tests.
- Conducted **thermal and fluids analysis using MATLAB models** for system optimization.

Hybrid Propulsion Feed System Lead — Jan 2023 – June 2023

- Led a team of 5+ student engineers, **designing, manufacturing, and testing a hybrid propulsion feed system** utilizing Nitrous Oxide liquid oxidizer and solid ABS thermoplastic fuel.
- Successfully conducted numerous cold flow and static fire tests, alongside extensive proof testing, validating the design of the feed system and its operation within the whole hybrid propulsion system.

PROJECTS

Liquid Rocket Feed System Simulation

Self Guided Research Project — Oct 2023 – Present

- Programmed comprehensive liquid rocket feed system simulation in **Python with Jupyter Notebook**.
- Incorporated **pressure drop and flow rate** computation capability for various combinations of tube geometries and fittings, different material properties, and a wide range of fluids utilizing CoolProp Fluid Properties Library.
- Designed to enable rapid design iteration through various plumbing geometries and components.

6 Degree of Freedom Robotic Arm

Self Guided Research Project — May 2023 – Present

- Developed a 6 Degree of Freedom robotic arm, with integrated planetary gearboxes driven by NEMA 17 stepper motors.
- Designed 6 revolute joint manipulator with 3 linkages in **SOLIDWORKS CAD**, with 270 degrees of rotation on each joint and an articulated work envelope.
- Programmed control software with forward and inverse kinematics, utilizing quaternions to drive 360 degree movements using an Arduino mega microcontroller.
- Utilized **low cost iterative development methodologies on subscale prototypes** to assess control software performance and manipulator dexterity.