

# JAMES TSENG

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## EDUCATION

### UCLA

Sep 2019 - Jun 2023

Cumulative GPA: 3.95 / 4.0

### B.S. Aerospace Engineering • Technical Breadth in Computer Science

**RELEVANT COURSEWORK** Aircraft Flight Mechanics • Intro Orbital Mechanics

- Control Systems Design Lab • Feedback & Controls • Probability & Stochastic Processes
- Intro Computer Vision • Software Construction • Data Structures & Algorithms

## EXPERIENCE

### UCLA ELFIN CubeSat

Student Researcher

Oct 2022 - Present

- Drafted GNC tool API architecture for orbital maneuver generation and satellite constellation operations to support future CubeSat missions currently in proposal stages.
- Verified and optimized ADCS simulation and attitude perturbation models in Julia with statistical analysis using past ELFIN-STAR Mission flight data.

### Lockheed Martin Space

Software Engineering Intern

Jun 2022 - Sep 2022

- Supported full-stack development of 3 internal web tools using Go, SQLite3, JS, and HTML/CSS to replace spreadsheet-based business processes; projected to save >\$100K.
- Designed database schemas, conducted code reviews, held user engagement demos, delivered and updated production code through the Agile Scrum methodology.
- Established CI/CD and unit test framework with GitLab and integrated into active projects.

### UCLA Samueli

School of Engineering

Co-Instructor

Sep 2021 - Jun 2022

- Developed curriculum for *Introduction to Engineering Design: Drones*, a quarter-long hands-on class focused on iterative design, building, and testing of autonomous multirotors.
- Taught 20-student classes on topics including CAD (Onshape), hardware compatibility, PX4 flight stack, control allocation, PID control, Python, and asynchronous programming.

### NASA L'SPACE

Mission Concept Academy

Deputy Project Manager

Jan 2021 - May 2021

- Presented science mission to study Venus' upper atmosphere with budget, volume, and weight constraints in preliminary design review developed virtually with team of 10.
- Led technical integration of science instruments requirements to vehicle system design as responsible engineer for vehicle control, power management, and systems risk mitigation.

## EXTRACURRICULARS

### Uncrewed Aerial Systems at UCLA

AVIATA Project Co-Lead

May 2020 - Jun 2022

- Researched autonomous rigid-swarm drone system in team of 10 with \$10K NASA grant.
- Wrote and tested flight software for drone control logic, swarm leadership transfer, and ground station on PX4 Autopilot through MAVLink/MAVSDK and ROS 2 (C++).
- Derived and optimized new control allocation schemes for multi-drone structure and tested in Python simulation for effectiveness on motor saturation and compared to physical flight data.

### President

May 2022 - Present

- Oversaw full project cycle of a cargo UAV by 40+ students for the SUAS Competition.
- Initiated transition to internal web tools for accessible workflow and documentation.

### Purchasing Officer

May 2020 - May 2021

- Managed spending and budgeting of 2 \$10K+ technical project competitions.
- Revamped purchasing process and expense tracking with order form automation script (Google Apps Script) to email formatted purchase order and update budget ledger.

### IEEE at UCLA

Micromouse Project

Oct 2020 - May 2021

- Applied PID control, IR sensing, distance & angle correction, and flood fill algorithm on STM32 microcontroller (C) and created sensor breakout PCB (Eagle) for a maze-solving robot.
- Placed 3rd among project members in the end-of-year All America Micromouse Competition.

## CERTIFICATIONS

### CSWP-MECHANICAL DESIGN

ID: C-JF9MCPTLAN

DS Solidworks - Dec 2020

## SKILLS

**CODE** Python • MATLAB • Julia • C++ • C • Go • SQL • JS • HTML/CSS • Bash • Git

**ENVIRONMENT** Linux • MacOS • Windows • Microsoft Office

**DESIGN** Simulink • SolidWorks • Onshape • Eagle PCB