JAMES TSENG

US Citizen • jtseng22@ucla.edu • • •

EDUCATION

UCLA
Sep 2019 - Jun 2023
Cumulative GPA: 3.96 / 4.0

B.S. Aerospace Engineering • *Summa Cum Laude* • Technical Breadth in Computer Science

Relevant Coursework Intro Orbital Mechanics • Aircraft Flight 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 - Jun 2023

- Drafted GNC tool API architecture for orbital maneuver generation and satellite constellation operations to be used on future CubeSat missions currently in proposal stages.
- Optimized and verified ADCS simulation and attitude perturbation models in Julia using past ELFIN-STAR mission flight data with RESTful API and SQL for science and sensor calibration.

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 PX4 Autopilot, control allocation, PID control, Python, asynchronous programming, CAD (Onshape), and hardware compatibility.

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 - Jun 2023

- 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