

Thomas Ibrahim

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EDUCATION

University of California, Irvine

B.S. Aerospace Engineering

GPA: 3.87

06/2027 | Irvine, CA

EXPERIENCE

Engineering Camp Mentor

06/2025 – 11/2025 | Irvine CA

UC Irvine Office of Access and Inclusion

- Taught CAD, fabrication, and Raspberry Pi coding to middle school students; guided high school students on AI-enabled soccer robots using OpenCV.
- Mentored community college students in Level 1 NAR rocket design, testing, and certification.
- Developed leadership and technical instruction skills while fostering STEM engagement.

PROJECTS

Vehicle Efficiency Modeling

01/2025 – 02/2025

MATLAB Course

- Led a 4-person team to acquire real-time vehicle performance data via OBD-II across acceleration, cruising, and braking regimes; processed and analyzed 1,800+ data points in MATLAB to model and predict fuel efficiency under varying driving conditions.
- Developed MATLAB-based acceleration and steady-state fuel efficiency models using curve fitting and predictive analysis, evaluating model accuracy across multiple operating regimes.

Custom Payload Quadcopter

08/2025 – 12/2025

Independent Project

- Designed and fabricated 3D-printed airframe; integrated electronics and performed PID tuning to improve flight stability and payload handling.
- Added a servo-actuated claw for aerial payload pickup and release.

6-Axis Robot Arm

08/2025 – 10/2025

Independent Project

- Engineered a 6-DOF robotic claw with custom Arduino firmware in C++, integrating mechanical design, servo actuation, and inverse kinematics for precise multi-axis motion.

Spacecraft Thermal Management Systems | E-Ink

09/2025 – Present

UC Irvine Senior Design

- Designed and programmed an ESP32-based experiment to automate thermal vacuum testing of electrochromic/E-ink variable emissivity devices for CubeSat thermal regulation.
- Conducted testing to evaluate temperature control performance and the feasibility of E-ink as a VED alternative.

Flapping Wing Micro Air Vehicle | Novel Mechanism

09/2025 – Present

UC Irvine Senior Design

- Led redesign and prototyping of dual-servo X-frame flapper, including CAD modeling, laser-cut fabrication, and preliminary flight tests.
- Optimized mechanical actuation and wing motion using unsteady aerodynamics principles to prepare for full flapper integration.

Level 1 NAR High-Power Rocket

08/2025 – 11/2025

Independent Project

- Designed, built, and launched a Level 1 NAR-certified rocket; performed CG/CP analysis, aerodynamic modeling, and full-flight simulation in OpenRocket.
- Validated simulations with flight tests, achieving safe and repeatable recovery.

SKILLS

Solidworks | Fusion360 | MATLAB | ANSYS | C++ | Microcontrollers | Level 1 NAR Certified