

Samuel Isaac Baranoff Burns

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EDUCATION

University of Southern California, Viterbi School of Engineering

Los Angeles, CA

Bachelor of Science in Aerospace Engineering

Expected Graduation May 2027

- Cumulative GPA: 3.94/4.0
- Viterbi Dean's List all semesters
- Dean's Research Award (DRA) 2024-2025

RELEVANT COURSEWORK/ACTIVITIES

Calculus I-III, Differential Equations, Mathematical Methods, Mechanics/Thermodynamics, E&M, Statics, Materials Science

Spring 2025 Planned Courses: Mechanics of Materials and Structures, Basic Flight Mechanics, Fluid Dynamics

PROJECTS

Deep Q-Learning Aircraft Landing Control Project and Study

December 2024 - January 2025

- Designed a custom gymnasium environment for aircraft descent simulation with physics-based reward shaping
- Conducted parameter analysis (batch sizes, learning/decay rates, discount factors) to realize stability and performance trade-offs
- Identified an optimal configuration performing 51% above average (398 vs 264) displaying the significance of parameter selection

Bridge Project

November 2024-December 2024

- Modeled bridge in CAD to create a precise 1:1 3D model for structural analysis, construction and demonstration
- Determined forces in each bridge member under 40lbs of applied force using method of joints verified using ANSYS FEA

Team Glider Project

September 2023-December 2023

- Constructed and optimized a glider around the 6412 NACA airfoil; analyzing flight characteristics using MATLAB
- Modeled basic flight performance up to 25 m/s and tested glider up to 12 m/s
- Created a report explaining over 300% divergence from theory; highlighted several potential causes of deviation and likelihoods

RELEVANT EXPERIENCE

Sensing, Learning, and Understanding for Robotic Manipulation Lab at USC (SLURM)

Los Angeles, CA

Undergraduate Research Fellow

August 2024-Present

- Utilize inverse kinematics and train (Python) a Unitree Go2 robot to interact with deformable objects
- The model utilizes a tripod stance model predictive control (stance control), allowing 3 degrees of freedom to perform tasks

USC Rocket Propulsion Lab

Los Angeles, CA

Member

August 2024-Present

- Experience with Finite Element Analysis (ANSYS Structural), applying skills optimizing a retention ring for weight savings
- Gained proficiency in Computational Fluid Dynamics (ANSYS Fluent) for internal/external flow, such as a supersonic fin model

Vuori

Palo Alto, CA

Sales Associate

May 2024-August 2024

- Communicated effectively to identify customer needs, offer tailored solutions/advice, and maintain an organized sales floor

Alayna - CUES Technology

Los Angeles, CA

Intern

May 2023-June 2023

- Pitched product virtually to 15+ educators and successfully proposed 10+ platform features, with multiple implementations

OTHER PAST INVOLVEMENTS

- Friendship Circle Volunteer, Camp JCC Maccabi Counselor, TAMID Member

SKILLS

- Mathematics, MATLAB, Python, Mathematics, Java, CAD, Communication, Leadership,