

## Samuel Isaac Baranoff Burns

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## EDUCATION

University of Southern California, Viterbi School of Engineering

Los Angeles, CA

Bachelor of Science: Aerospace Engineering

Expected Graduation May 2027

GPA: 3.94/4, Fall 2023, Spring 2024 and Fall 2024 Viterbi Dean's List

## RELEVANT COURSEWORK/ACTIVITIES

Java, MATLAB, Calculus I-III, Differential Equations, Linear Algebra - Mathematical Methods in Engineering, Physics

Mechanics/Thermodynamics, and Physics Electricity/Magnetism, Statics, Materials Science

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

## PROJECTS

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
- Performed ANSYS finite element analysis to verify hand calculated forces and analyze stress and deformation

Team Glider Project - [tinyurl.com/AME105-glider-report](https://tinyurl.com/AME105-glider-report)

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

TAMID

Los Angeles, CA

Education Member

August 2024-Present

- Engaged in weekly sessions to develop fundamental skills in business strategy, professional growth, and innovation

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

- Presented and pitched product via Zoom to 15+ prospective teachers/administrators
- Proposed 10+ features, several were subsequently integrated into the platform

## OTHER PAST INVOLVEMENTS

Friendship Circle Volunteer, Camp JCC Maccabi Counselor

## SKILLS

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