David Moeller Sztajnbok

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EDUCATION

University of Southern California — Aug 2022-Dec 2026
Bachelor of Science in Aerospace Engineering — ***GPA: 3.85/4.0***
Viterbi Fellow, Presidential Scholar (Half-Tuition), Rusch Undergraduate Engineering Honors, Dean's List
Relevant Coursework: Strength of Materials, Thermodynamics, Fluid Dynamics, Automotive and Flight Propulsion

WORK EXPERIENCE

Hermeus — **Los Angeles, CA**
Loads & Dynamics Engineering Intern — Sep 2025-Dec 2025
- Aeroelastic analysis in **NASTRAN/FEMAP**, correlating results to CFD-based loads
- Development of structural sizing and model checkout workflows with **pyNastran**
- Stability derivative estimation with various methods, comparison to CFD and literature
- Low-order estimation of fuel CG shift in accelerating tanks with Python

Shield AI — **Frisco, TX**
Aerodynamics & Performance Engineer Intern — Jun 2025-Aug 2025
- Aerodynamic analysis in **StarCCM+** to study miscellaneous aeropropulsive problems
- Scripting StarCCM+ with Java macro scripts to trade parametric **NX** geometries
- Development of Python-based trajectory and design optimization tool using **Dymos** and **OpenMDAO**

REGENT Craft — **North Kingstown, RI**
Performance Engineer Intern — May 2024-Aug 2024
- Modeling turbogenerators for hybridization studies in Excel-based tool
- Creating CAD models of notional, next generation Seaglider for use in external aerodynamics analysis
- Ground effect studies of next generation vehicle using **FlightStream**, validating results with literature
- Improving fidelity of battery models for BD team in **VBA**

CLUB INVOLVEMENT

Human-Powered Flight Research Team of USC — **Los Angeles, CA**
Founder & Aerodynamics/Propulsion Group Lead — May 2024-Present
- Design of aircraft for the 2024 Redbull Flugtag in Tampa, achieving 4th best gliding range overall
- Aero sizing and design of dynamically scaled 2/7th model Flugtag glider
- Design of 10ft avionics testbed to test autonomous sink tests, wrote and presented paper on results

AeroDesign Team of USC — **Los Angeles, CA**
Aerodynamics, Stability & Control Lead — Apr 2023-May 2024
- General member 2022-2023, Aero S&C Lead 2023-2024
- First place report in 2023-2024, leading aero sizing, design, and analysis, as well as control surface hardware
- Development of unified geometry parametrization framework to script AVL, QPROP, and other analyses

HONORS & AWARDS

First Place, **2024 AIAA Undergraduate Individual Aircraft Design Competition** — Jan 2024-Aug 2024
- Awarded first place in individual undergraduate category
- Conceptual design and analysis of hybrid-wing body for solar radiation management (SRM) missions
- Wrote 98-page report covering sizing, trade studies, performance analysis, and cost estimates

Second Place, **2023 AIAA Undergraduate Individual Aircraft Design Competition** — Jan 2023-Aug 2023
- Awarded second place in individual undergraduate category
- Conceptual design and analysis of a STOL amphibian aircraft under a faculty advisor
- Wrote a detailed 95-page report covering sizing, layout, performance, analysis, and cost estimates for aircraft

PUBLICATIONS

- Sztajnbok, D., Lototsky, N., Colagross, J., Palicki, M., and Byahut, S., "Drag Characterization of a Fixed-Wing Unmanned Aerial Vehicle (UAV) with COTS Avionics Through Sink Tests," *2025 Regional Student Conferences*, 2025. https://doi.org/10.2514/6.2025-99578