Samuel W. Albert, PhD

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Education

PhD **University of Colorado Boulder**, Aerospace Engineering Sciences — Boulder, CO
Advisor: Dr. Hanspeter Schaub, Dr. Bobby Braun — May 2020 – Sept 2023
- *Aerocapture, Entry, and Co-Delivery in Uncertain Planetary Atmospheres*
- NASA Space Technology Research Fellow
- Five first-author papers in peer-reviewed journals
- John A. Vise Award

MS **University of Colorado Boulder**, Aerospace Engineering Sciences — Boulder, CO
Aug 2018 – May 2020
- Graduate Certificate in Astrodynamics and Satellite Navigation Systems
- Matthew Isakowitz Fellow

BS **Purdue University**, Aeronautical and Astronautical Engineering — West Lafayette, IN
Honors College Graduate — Aug 2014 – May 2018
- Minor: Global Engineering Studies
- Exchange semester at Universidad de Carlos III, Madrid, Spain
- Stamps Scholar (full-ride scholarship)

Experience

Johns Hopkins University Applied Physics Laboratory, Senior Aerospace Engineer — Laurel, MD
Director's Special Achievement Award, Sept. 2025 — Sept 2023 – present
- Flight Performance Analyst on NASA Dragonfly Mobility Team – performs Monte Carlo analyses, sensitivity studies, and flight envelope sweeps for rotorcraft on Titan
- Co-PI of 2-year joint IRAD with UMD – leads team in using neural radiance fields to render high-fidelity multi-spectral dynamic spacecraft scenes
- Applies mission design, orbit estimation, and mission concept development to a variety of national security space missions/projects

NASA, Visiting Technologist/Intern (multiple) — Remote / Pasadena, CA
Research collaboration with NASA Langley and NASA JPL; Summer 2019 intern at JPL — 2019-2022 (various)
- Co-developed novel guidance algorithm for drag-modulated aerocapture and implemented in C++ for use in DSENDS aerocapture simulation
- Performed flight-mechanics analysis and trajectory design for the Small High Impact Energy Landing Device (SHIELD) concept
- Designed aerocapture trajectories for Uranus orbiter "A Team" pre-decadal study

Journal Publications

Dimensionality Reduction for Onboard Modeling of Uncertain Atmospheres — 2025
Samuel W. Albert, Alireza Doostan, Hanspeter Schaub
10.2514/1.A35839 (AIAA Journal of Spacecraft and Rockets)

Energy Reference Guidance for Drag-Modulated Aerocapture — 2023
Samuel W. Albert, Ethan Burnett, Hanspeter Schaub, P. Daniel Burkhart, Alex Austin
10.1016/j.asr.2023.09.034 (Advances in Space Research)

Co-Delivery of a Martian Probe Network — 2023
Samuel W. Albert, Hanspeter Schaub
10.2514/1.A35560 (AIAA Journal of Spacecraft and Rockets)

Relative Motion in the Velocity Frame for Atmospheric Entry Trajectories 2023
Samuel W. Albert, Hanspeter Schaub
10.2514/1.A35753 (AIAA Journal of Spacecraft and Rockets)

Flight Mechanics Feasibility Assessment for Co-Delivery of Direct-Entry Probe and Aerocapture Orbiter 2022
Samuel W. Albert, Hanspeter Schaub, Robert D. Braun
10.2514/1.A34953 (AIAA Journal of Spacecraft and Rockets)