

Jake Stollman

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Education

University of Michigan

Ann Arbor, MI

MEng, Space Engineering, Concentration in Astrodynamics—GPA 4.000/4.000

August 2024-May 2025

BSE, Aerospace Engineering—GPA 3.396/4.000

August 2020-May 2024

Aerospace Classes: Orbital Dynamics, Aerodynamics, Model Based Systems Engineering, Aerospace Computing, Gas Dynamics, Dynamics and Vibrations, Integral/Differential Calculus, Data Structures, Propulsion, Lab Experience, Space System Design

Skills

- **General:** Timelines/GANTT Charts, Technical Documentation, Systems Requirements Models/Diagrams, ConOps design, SRR/PDR
- Presentations, STEM communication, Writing, Graphic Design, Mission Patches/Branding, Website Design, >3,200 hrs on Kerbal
- **Programming Languages:** C, C++, Python, MATLAB, Overleaf/LaTeX
- **Software:** STK, GMAT, SolidWorks, Siemens suite, ANSYS, Simulink, Microsoft/Google suites, Capella for MBSE, Redmine, JMARS

Science and Engineering Experience

Cislunar Trajectory Research

University of Michigan, Ann Arbor, MI/United States Space Force

Temporary Researcher under Dr. Ilya Kolmanovsky

June 2025-Present

- Designed & implemented novel Equinoctial element Gauss variational equation controller—writing of conference paper in process
- Participant in xRADAR research program doing xGEO astrodynamics and trajectory optimization for transfers between common cislunar orbits (Halo, Lyapunov, DRO, etc) using shape-based methods and invariant manifolds on Poincaré sections
- Contributed to CU Boulder's CiMERA orbital visualization software by correcting errors in the python CR3BP to ECI transition function

Northrop Grumman Space Systems Project

University of Michigan, Ann Arbor, MI/Remote

Trajectory Design Lead

August 2024-May 2025

- Class project for SPACE 582/583 working with Northrop Grumman to develop PNT for a lunar GPS architecture for communications
- Used STK Astrogator and GMAT to design translunar injections, ballistic lunar transfers, associated capture maneuvers, and final elliptical lunar frozen orbits while ensuring sufficient coverage over the lunar south pole
- Produced Conference Paper awaiting finalization, to be presented at for SciTech 2026: *Conceptual Single Launch Lunar PNT Architecture with Sub-Meter Accuracy and Continuous South Pole Coverage for Lunar and Cis-Lunar Operations*

Michigan eXploration Lab (MXL)/CubeSat Flight Lab (CFL)

University of Michigan, Ann Arbor, MI

Engineer/Researcher

August 2022-August 2024

- Managed on-orbit satellite data storage, temperature, battery voltage telemetry using downlink data histograms
- Helped develop Python-based deorbit prediction algorithm by incorporating NRLMSISE-00 algorithm outputs for atmospheric density
- Completed PDR for FTU chaired by three professors to confirm design and begin development
- Operated thermal chamber and characterized resistor rope burn at 100,000-foot altitude conditions for the FTU
- Lead effort to test/evaluate a boomless magnetometer for a spacecraft by integrating and flying it on a high-altitude balloon mission
- Oversaw hardware and software development and integration with other payload subteams and working with planetary science researchers to evaluate the capabilities of Python-based noise removal algorithms using the instrument's four magnetometers

NASA SCan Internship Program

NASA Glenn Research Center, Cleveland, OH

Researcher, LunarLiTES program

June-August 2023

- Developed an interface between Systems Toolkit (STK) and MATLAB ray-tracing algorithm for calculating effect of multipath RF LTE signals off the lunar surface between the IM-2 lunar lander and the Nokia rover in order to generate a simulated link budget
- Designed a program in MATLAB utilizing Dijkstra's Algorithm to generate an optimized trajectory for a simulation of the Nokia rover

NASA L'SPACE Mission Concept Academy

Virtual

Science Team Lead

August 2021-December 2021

- Lead a 9-person team of undergraduates in using JMARS to select a landing site, develop scientific instrumentation, and perform trade-studies on legacy instruments for a hypothetical Mars lander, resulting in a 53-page PDR

Teaching Experience

- **AERO 483:** (Jan-May 2025) Mentor for senior capstone class with focus on orbital dynamics. Gave an STK tutorial for 200+ students
- **SPACE 310:** (Jan-May 2025) Created STK class tutorial in collaboration with university faculty, explaining basics, SEET, Astrogator, etc.
- **Cranbrook Summer Camps:** (Jun-Aug 2021/22) Summer camp counselor for science-themed K-12 summer day camps at a museum

Extracurriculars

Michigan Writers' Community

University of Michigan, Ann Arbor, MI

President

- Managing weekly club of more than 40 people in which writers bring stories to read and workshop with other members
- Organizing social and writing-related events including club fairs, bookstore trips, bowling, and editor workshops

Science Fiction/Fantasy Novel: Vision of the Veil

Spring 2020-Present

- Completed and self-published ~110,000-word hard science fiction-fantasy novel edited by *The Martian* editor Bryan Thomas Schmidt
- Includes realistic science concepts like comms systems jamming, space vehicle tracking, genetic engineering, colony ships, etc.
- Self-publishing experience included learning the publishing business, marketing campaigns, leveraging search engine optimization