Adam D. Boylston

adam@adamboylston.com | 303.720.9755 | linkedin.com/in/adamboylston

EDUCATION

Master of Science, Aerospace Engineering **May 2021**
University of Colorado Boulder *GPA: 3.7/4.0*
- Focus: Astrodynamics and Satellite Navigation
- Certificate: Satellite System Design

Bachelor of Science, Aerospace Engineering **May 2020**
University of Colorado Boulder *GPA: 3.4/4.0*

PROFESSIONAL EXPERIENCE

Advanced Projects Intern **May 2020 – Present**
Analytical Mechanics Associates *Denver, CO*
- Oversaw software testing of a nuclear space system analysis tool being developed
- Wrote object-oriented unit and integration tests in Python to ensure integrity and continuity of code
- Conducted literature reviews of fission surface power, nuclear electric propulsion, and hybrid propulsion mission design
- Aided in Python development of an Open Data Cube project that analyzed the environmental effects of Riparian Buffers

Space Communications and Navigation Intern **June 2019 – August 2019**
NASA Goddard Space Flight Center *Greenbelt, MD*
- Built an interactive mission model of all current and future NASA missions using STK and MATLAB
- Used a generative adversarial network to predict orbital elements and communication parameters for various use cases
- Missions could be filtered by date, planetary body, and network (NEN, SN, DSN) to aid in network loading analysis
- Model commissioned by NASA HQ to assist in ground station placement and planning of future missions

Image Processing Research Assistant **May 2018 – January 2019**
Colorado Center for Astrodynamics Research *Boulder, CO*
- Developed innovative MATLAB code to extract the trajectories of CubeSats using any uncalibrated camera
- Deployment footage can be analyzed after downlink to greatly increase the speed of early orbit determination
- Authored and presented on a paper titled *Extracting CubeSat Relative Motion Using In Situ Deployment Imagery* at an American Astronautical Society Conference and won second place in the Student Innovations in GNC category

RELEVANT EXPERIENCE

Software Development Lead **August 2019 – March 2020**
Visual In-situ Sensing for Inertial Orbits of NanoSats (VISION) *Boulder, CO*
- Designed and built a modular CubeSat tracking system to improve space situational awareness
- Kalman filter used to estimate CubeSats' relative positions and velocities with optical and time of flight footage
- Known position of deployer allowed calculation of inertial orbits which were turned into TLEs and downlinked
- VISION was able to mount to various satellite deployers and provide early orbit estimates for ground radar tracking

Science Team Lead **September 2016 – October 2018**
Colorado Space Grant Consortium *Boulder, CO*
- Headed the science team for two RockSat-X payloads that launched on sounding rockets from NASA Wallops
- RocketSat 11 partnered with Roccor to analyze the deployment of a composite boom using MATLAB image processing
- RocketSat 12 collaborated with Lockheed Martin to develop a passive RF antenna to characterize signals coming from the NEXRAD Doppler Radar Network

SKILLS & INTERESTS

Programming Languages: MATLAB, Python, JavaScript, R, Arduino, HTML/CSS, LaTEX
Software: GMAT, STK, Advanced Aircraft Analysis (AAA), Solidworks, Inventor, GitHub, OpenCV, Blender/BlenSor, Cinema 4D, Cura, Microsoft Office
Interests: Skiing, personal investing, PC building, concerts, Wii sports

RELEVANT COURSEWORK

Astronautical: Orbital Mechanics, Analytical Astrodynamics, Interplanetary Mission Design, Attitude Dynamics/Control, Global Navigation Satellite System, Spacecraft Design, Space Habitat Design
Aeronautical: Aircraft Design, Aircraft Dynamics, Aerodynamics, Thermodynamics, Propulsion
Other: Systems Engineering, Human Factors Engineering, Medicine in Space