MATTHEW D. HANLEY

Boulder, CO 80303 (231) 286-3037 Matthew.D.Hanley@colorado.edu

EDUCATION

University of Colorado Boulder

- B.S./M.S. in Mechanical Engineering, minor in Computer Science | 3.7 GPA — Boulder, Colorado
  - Focus in Robotics and Controls — August 2014 – May 2019
- Dean's List **(**Spring 2015 – Fall 2017)

RELEVANT EXPERIENCE

Space Flight Operations Team Member — May 2016 – May 2019

Laboratory for Atmospheric and Space Physics (LASP)

- Created and controlled CSTOL procedures being executed on multiple different NASA spacecraft
- Developed tools in IDL and Python to analyze spacecraft telemetry for anomalous trending, science experiment success, and performance of off-nominal activities such as orbit maintenance burns
- Created and presented reports on spacecraft and payload status on a weekly, monthly, and quarterly cadence
- Trained new employees in many coding languages and taught best practices for programming
- Was promoted to the Graduate Student Lead of LASP's 19-year-old QuikSCAT mission
  - Scheduled, organized, and led meetings with spacecraft subsystem teams and industry professionals
  - Played key role in the decommissioning and passivation process of the spacecraft
  - Managed teams of undergraduate students to ensure tasks were completed on time and to expected quality
- Led effort to prepare CSIM Flight Demonstration cubesat mission for post-launch operation
  - Wrote data processing tools to retrieve, decode, and store large amounts of telemetry data
  - Transferred operations team from outdated revision control software (RCS/CVS) to Git
  - Configured ground command and control software to interface with Blue Canyon XB1 bus and CSIM payload
  - Wrote and tested post-launch commissioning scripts on flight hardware
  - Helped interface CSIM ground software systems with pre-existing ground station hardware

Master's Thesis in GPU Computing — January 2018 – May 2019

University of Colorado Boulder

- Studied NVIDIA's parallel computing platform CUDA in conjunction with multiple different GPUs
- Investigated application of parallel computing with GPUs to the engineering field (numerical computation/computer vision)
- Gained deep understanding of computer systems and code optimization techniques

NASA Robotic Mining Challenge — January 2016 – May 2019

- Worked alongside interdisciplinary students to build competition ready autonomous mining robot
- Lead the software subsystem to develop embedded systems and implement teleoperations on ROS
- Lead design and fabrication of multiple mechanical systems of the robot
- Taught incoming students the intricacies of both the software and hardware of the robot

Mechanical Engineering Senior Design Project — August 2017 – May 2018

University of Colorado Boulder in conjunction with Los Alamos National Labs (LANL)

- Created functional device to protect IoT devices from malicious cyber-attacks by physically locking out users in the event of an incorrect input sequence
- Acted as lead CAD, Manufacturing, and Electrical engineer on a team of six members
- Designed, created proper drawings for, and manufactured many small mechanical components
- Developed, produced, tested, and interfaced custom logic printed circuit boards with mechanical sensors and actuators

TECHNICAL SKILLS

Certified SOLIDWORKS Associate

- Proficient in key SOLIDWORKS topics
- Able to create aesthetic, life-like, presentation-ready renderings of products

Computer Programming

- Experience to many languages and operating systems
  - Proficient in IDL, Python, Matlab, NVIDIA CUDA, UNIX/Linux
  - Comfortable with Git, C/C++, Perl, Bash, Javascript/HTML, SQL, PHP, ROS

Manufacturing Process

- Knowledgeable with machines in machine shop used to fabricate custom components
- Well versed in rapid prototyping techniques including 3D printing and laser cutting

Additional Skills

- STK, Microsoft Office, Adobe Creative Suite, Web Development, LaTeX