ERIK OLAF GUSTAFSON

505 East Seneca Street
Ithaca, NY, 14850
eog5@cornell.edu
(607)-749-0508

Guidance Navigation & Control | Mission Planning & Trajectory Design | Spacecraft Systems Architecture

Education

M.Eng Cornell University College of Engineering, *Cornell University*, Ithaca, NY **Expected May 2019**

- Master of Engineering in Aerospace Engineering
- GPA: 3.96 (Cumulative)
- Teaching Assistant: Aeronautics, Spacecraft Technology & Systems
- Master of Engineering Committee Fellowship, Graduate Teaching Specialist Fall 2018, Spring 2019
- Coursework: Spacecraft Exploration Engineering, Experimental Astronomy, Advanced Dynamics, Intermediate Dynamics, Computing with C++, Entrepreneurship for Scientists and Engineers, Computer Vision

B.S. Cornell University College of Engineering, *Cornell University*, Ithaca, NY **May 2018**

- Bachelor of Science in Mechanical Engineering, Minor in Aerospace Engineering
- GPA: 3.97 (Cumulative)
- magna cum laude, Dean's List: Fall 2014-Spring 2018
- Coursework: Celestial Mechanics, Spacecraft Dynamics Estimation & Control, Spacecraft Technology & Systems, Spaceflight Mechanics, Aerospace Propulsion, Multivariable Control Theory, Feedback Controls

Experience

SIOS Lab, GNC Research, Cornell University, Ithaca, NY **Fall 2018 - Present**

- Worked on a NIAC Phase I team assessing the feasibility of a modular self-assembling telescope.
- Developed rendezvous and docking scheme for satellites with solar sails about the L2 point.
- Implemented collocation and multiple shooting algorithms to find the minimum time trajectory for rendezvous.

SpaceX, Aerodynamics, *Benjamin Bettis,* Hawthorne, CA **Summer 2018**

- Compared pressure and heat flux sensor data from Falcon 9 Full Thrust flights to CFD predictions.
- Scaled CFD data to ambient flight conditions and used statistical analysis to update uncertainty margins for pressure and heat flux.
- Generated boundaries on load conditions for new features on Falcon Heavy with simplified CFD models.

NASA Armstrong, Controls and Dynamics, Lancaster, CA **Summer 2017**

- Automated aircraft panel model generation for vortex lattice analysis and aeroelastic simulation.
- Reduced time to generate panel model by 80% with a GUI implemented with MATLAB GUIDE.
- Researched applications and implementation of model predictive control to rotorcraft and aircraft.

Design\Build\Fly, Team Lead, Cornell University, Ithaca, NY **Fall 2014 - Spring 2018**

- Full team lead for the Fall 2017-Spring 2018. Stability and controls team member Fall 2014-Spring 2017.
- Led the design, manufacture, and testing of a small (< 5 lb) RC aircraft for the AIAA DBF Competition.
- Ran full team meetings and subteam planning meetings. Established schedule and budget for the year.
- Performed design space analysis with MATLAB to size the aircraft and optimize competition score.

CisLunar Explorers, Mechanical Design, *Dr. Mason Peck,* Cornell University, NY **Fall 2016-Fall 2017**

- Designed and Analyzed two 3U satellites to orbit the moon after launch on SLS-EM1.
- Designed electronics rack and EMI shielding. Performed modal analysis on satellite bus in ANSYS, and redesigned structure in SolidWorks to comply with dynamic requirements for launch.

Moog Inc, Systems Engineering, Aircraft Group, East Aurora, NY **Summer 2016, Summer 2015**

- Automated failure modes & effects testing and safety of flight testing with dSpace AutomationDesk to increase testing speed and mitigate wear on tiltrotor swashplate actuators.
- Assembled and tested electro-hydraulic actuators and actuator components.

Cornell University, Lab Assistant, *Dr. David Schneider,* Cornell University, NY **Summer 2013**

- Performed wind tunnel flow visualization tests with smoke wire.
- Collected data to compared turbulent boundary layer in wind tunnel tests to CFD models of buildings.
- Designed programming challenges for Cornell University's systems engineering 5100 course.

Skills

MATLAB, Python, C++, Java
Simulink, Stateflow, MATLAB GUIDE, STK
Solidworks, ANSYS, ANSYS Fluent, Athena Vortex Lattice, XFOIL

Extra-Curricular Activities and Interests

Men's Glee Club | The Hangovers a Cappella | Coffee Brewing Methods | Cross Country Road Trips