

Jacob Heglund

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Education

University of Illinois Urbana-Champaign

Urbana, IL

Candidate for Master of Science, Aerospace Engineering; GPA: 3.55 / 4.0

Expected May 2020

Bachelor of Science, Engineering Physics; GPA: 3.42 / 4.0

May 2018

Relevant Courses

Linear Control Theory, Robust Control, Autonomous Decision-Making Systems, Deep Learning, Reinforcement Learning, Classical Robotics, Field Robotics, Optimization, GPS and Modern Navigation Systems

Experience

University of Illinois – Aerospace Engineering Department

Urbana, IL

Graduate Research Assistant – Tran Research Group

August 2018 - Present

- Implemented deep reinforcement learning algorithms in simulation to research military planning applications
- Developed data pipelines to analyze the use of social media data to improve disaster recovery

Undergraduate Research Assistant – Ghosh Research Group

January 2018 – May 2018

- Designed a neural network (LSTM) for star tracking for satellite attitude determination
- Simulated satellite dynamics, star-tracker visibility, and closed loop satellite control using Simulink

Undergraduate Research Assistant – Hybrid Rocket Team

August 2015 – May 2017

- Researched and developed techniques for producing paraffin wax fuel grains
- Tested a hybrid rocket's performance by conducting hot-fire tests and collecting thrust data

Collins Aerospace

Sterling, VA

Systems Engineering Intern

May 2019 – August 2019

- Developed a framework for the design of Aruco-marker landing zones for vision-based UAS
- Implemented embedded-code Simulink models as part of the navigation system for a UAV

Laboratory for Advanced Space Systems at Illinois (LASSI)

Urbana, IL

Hardware Engineer for CubeSat Science Payload (SASA)

May 2018 – August 2018

- Verified and modified payload design for integration in a CubeSat satellite
- Designed 2 flight-hardware tests to characterize payload piezoelectric motors and strain gauges

Attitude Determination and Control System Team Lead

August 2016 – May 2018

- Lead a team of 5 undergraduates in developing hardware and software for a satellite attitude control system
- Developed 6 procedures to characterize satellite sensor response and satellite moment of inertia to 5% error

Argonne National Laboratory

Lemont, IL

Research and Development Intern

May 2017 – August 2017

- Designed a section of a particle accelerator to efficiently produce high energy lead ions
- Saved an estimated \$150,000 per year in accelerator operating costs through development of efficient designs

Technical Skills

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- Proficient Programming Languages: Python, MATLAB, Simulink, C++, R
 - Other Proficient Software: Linux, V-Rep, ROS, Git, SVN, Visual Studio