

John M. C. Jackson

john.m.jackson@colorado.edu

612-323-8120

Education

Doctoral Student in Aerospace Systems Engineering

Anticipated Conferral May 2022

University of Colorado Boulder

Advisor: Professor Eric Frew

Coursework: Coordinated Control of Multiagent Systems, sUAS Control and Guidance

Master of Aerospace Engineering and Mechanics

Conferred July 2018

University of Minnesota, Twin Cities

GPA: 3.75/4.00

Thesis: Real-Time, Kinematic Positioning: Background, Assessment and Forecasting

Advisor: Professor Demoz Gebre-Egziabher

Coursework: Optimal Estimation, Nonlinear Optimization, Advanced Dynamics, Robust Control

Bachelor of Aerospace Engineering and Mechanics

Conferred May 2015

University of Minnesota, Twin Cities

GPA: 3.42/4.00

Research Experience

Graduate Research Assistant, Summer 2016 – Spring 2018

University of Minnesota

- Investigated the performance and limitations of low-cost, real time kinematic (RTK) GPS receivers in static and dynamic applications (for the Minnesota Department of Transportation).
- Explored conceptual designs of a robust positioning system using COTS hardware for expedited commercial vehicle border crossings into the United States (for the Department of Homeland Security).

Flight Dynamics Research Assistant, Summer 2015

NASA AFRC

- Repaired and calibrated the hardware on a small, unmanned aerial system (sUAS) in preparation for flight testing to collect aircraft dynamic data for performing parameter estimation.
- Assembled a Simulink simulation using a non-linear aircraft model to simulate the dynamic responses to step and doublet control surface deflections.

Research Assistant, Fall 2013 – Spring 2015

University of Minnesota UAV Lab

- Assisted in porting flight software for the Beaglebone Black microcontroller, originally written for the MPC5200B microcontroller running eCos.
- Wrote software drivers in C to interface the flight computer with sensors including the VectorNav IMU/GPS and an MTS cellular modem.

HASP Team Member, Spring 2012 – Spring 2014

University of Minnesota HASP Team

- Ensured high-energy detector X-ray payload followed hardware and software protocols for the high-altitude student platform (HASP) project.
- Wrote low-level drivers to interface flight computer with the GPS and IMU, perform data logging, and handle communications with the ground control station.

Industry Experience

- Engineering Intern**, Summer 2017 – Summer 2018 Sentera, LLC
- Created aerial-based analytic products related to agriculture and infrastructure assets.
 - Built tools to automate image processing workflows and improve open-source mosaicking software.
- Research Scientist**, Fall 2015 – Spring 2016 ASTER Labs, Inc.
- Wrote and edited proposals for NASA, NIH and other SBIR and STTR funding announcements.
- Aerospace Engineering Intern**, Summer 2014 – Fall 2014 Fourthwing Sensors, LLC
- Performed flight testing of company sUAS prior to shipment in addition to training coworkers.

Tertiary Experience

- Teaching Assistant**, Fall 2018 – Present CU Boulder
- Leading the course assistants for engineering error analysis class of over 200 sophomores.
 - Creating coding challenges and MATLAB workshops for active student learning.
- Student Media Consultant**, Fall 2011 – Fall 2014 University of Minnesota Libraries

Proceedings

- J. Jackson, B. Davis and D. Gebre-Egziabher, “A performance assessment of low-cost RTK GNSS receivers,” 2018 IEEE/ION Position, Location and Navigation Symposium (PLANS), Monterey, CA, 2018, pp. 642-649.
- Layh, Trevor, Larson, Jordan, Jackson, John, Taylor, Brian, Gebre-Egziabher, Demoz, “A Recovery System for SUAV Operations in GPS-Denied Environments Using Timing Advance Measurements,” Proceedings of the 2015 International Technical Meeting of The Institute of Navigation, Dana Point, California, January 2015, pp. 293-303.

Presentations

- Transportation Research Board AFB80 Summer Meeting, Speaker Summer 2017
- NASA AFRC Summer Intern Showcase, Poster Presentation Summer 2015
- National Conferences on Undergraduate Research, Poster Presentation Spring 2015
- Multicultural Summer Research Opportunity Program Symposium, Poster Presentation Summer 2013

Awards

- Albert George Oswald Research Award Fall 2014
- Outstanding Student Group Leader Spring 2014
- Undergraduate Research Opportunity (UROP) Award Fall 2013
- Multicultural Summer Research Opportunity Program Award Summer 2013
- Eagle Scout, Boy Scouts of America – Troop 25, Duluth, MN Spring 2011

Involvement

- Outreach/Education Coordinator, AIAA Twin Cities Section Fall 2016 – Summer 2018
- Classroom Assistant, Minnesota Literacy Council Fall 2016 – Summer 2017