Ian O'Rourke

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Education

University of Michigan, Ann Arbor, Michigan **September 2014 – May 2019**
M.S.E. in Aerospace Engineering Completed May 2019 4.0/4.0 GPA
B.S.E. in Aerospace Engineering, Minor in Computer Science Completed April 2018 4.0/4.0 GPA

Work Experience

Garmin **June 2019 – Present**
Flight Controls Systems Engineer *Olathe, KS*

- Provide international short and medium-term on-site support to ongoing flight test campaigns and provide direct diagnosis and suggestions based on flight test results
- Analyze helicopter flight test data to make gain and control law changes to improve flight performance
- Develop Hardware-In-The-Loop benches to support rotorcraft control law and software development
- Create analysis tools to combine flight test data and software models for flight post-processing
- Develop automatic processing and analysis tools to convert flight test data into engineering formats and identify flights in a database, allowing easy searching and batch processing of flight test activities
- Create tools to emulate LRUs to support flexible unit capabilities for customer demos
- Low-level Linux application development to improve simulation real-time capabilities
- In-depth analysis of LRU communication over ethernet packet, CAN, RS-232, and A429 protocols, to develop protocol improvements for increased robustness

University of Michigan – Aerospace **September 2018 – May 2019**
Lab Graduate Student Instructor *Ann Arbor, MI*

- Prepare/facilitate weekly lab sections and assist undergraduate junior and seniors in experiments
- Grade student lab coursework and provide feedback on student lab work and projects

Boom Supersonic **May 2018 – August 2018**
Avionics Engineering Intern *Centennial, CO*

- Develop physics models for fluid systems and landing gear to improve XB-1 flight simulator fidelity
- Integrate hardware and software into the XB-1 simulator to provide control force feedback to pilot
- Program flight path marker, instrument landing system, and other UI elements for embedded pilot display

Garmin **May 2017 – August 2017**
Aviation Systems and Programs Intern *Olathe, Kansas*

- Design system architecture layouts and interconnects to outline system connectivity for avionics
- Investigate and diagnosed numerous issues through bench testing across four distinct airframes

Project Experience

HALE Aircraft Control Research **September 2017 – June 2019**
Student Researcher under Dr. Kolmanovsky and Dr. Girard *Ann Arbor, Michigan*

- Investigate reference governor designs to add constraint control for flexible aircraft maneuvering
- Develop a tracking LQR controller for a nonlinear longitudinal flight model of a flexible HALE aircraft
- Publish two papers summarizing controller research in IFAC NOLCOS and AIAA SciTech conferences

Technical Skills

Software: MATLAB, Simulink, Simscape, LabVIEW, Linux, Zephyr, git, vim, Wireshark, Visual Studio
Languages: C, C++, C#, Rust, Python, MATLAB, LabVIEW, SQL
Protocols: RS-232/UART, CAN, ARINC 429, TCP/UDP, Ethernet, SPI, I2C

Achievements and Awards

- Distinguished Academic Achievement Undergraduate Award, 2018
- James B. Angell Scholar, 2015-2018
- Dean's Honor List, 2014-2018
- Johnson County Sailing Society Champion, 2025
- Ham Radio General License, KF0TYC, 2025
- Private Pilot Certification in August, 2015
- Best eCommerce Hack at MHacks VI, 2015