

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 <i>Senior Flight Controls Systems Engineer</i>	June 2019 – Present <i>Olathe, KS</i>
<ul style="list-style-type: none">• 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 <i>Lab Graduate Student Instructor</i>	September 2018 – May 2019 <i>Ann Arbor, MI</i>
<ul style="list-style-type: none">• 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 <i>Avionics Engineering Intern</i>	May 2018 – August 2018 <i>Centennial, CO</i>
<ul style="list-style-type: none">• 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 <i>Aviation Systems and Programs Intern</i>	May 2017 – August 2017 <i>Olathe, Kansas</i>
<ul style="list-style-type: none">• 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 <i>Student Researcher under Dr. Kolmanovsky and Dr. Girard</i>	September 2017 – June 2019 <i>Ann Arbor, Michigan</i>
<ul style="list-style-type: none">• 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