Matthew O'Connor

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OBJECTIVE STATEMENT

Aerospace Engineering undergraduate seeking a Summer 2021 engineering internship related to national defense and space exploration

EDUCATION

Purdue University, West Lafayette, IN — May 2022
Bachelor of Science in Aeronautical and Astronautical Engineering
GPA: 3.34 / 4.00

Coursework:
Aerospace Design, Aerodynamics, Thermodynamics, Signal Analysis, Control Systems, Electricity/Optics/Magnetism
Technical Skills:
CATIA/SolidWorks, MATLAB/C++/Python, Written/Oral Communication, Collaboration on Complex Systems

AFFILIATIONS

Students for the Exploration and Development of Space (SEDS), *Hybrids Team* — September 2019 – Present

- Coordinated in an interdisciplinary Avionics team developing mission-critical recovery systems for the Purdue Space Program Hybrid Propulsion Rocket
- Managed the creation and implementation of a microcontroller-based inertial navigation system (INS) to promote iterative improvement through flight trajectory analysis
- Utilized the MATLAB Sensor Fusion and Tracking Toolbox to estimate orientation and position using an inertial measurement unit, GPS, and extended Kalman Filter algorithm
- Cooperated with the Ground Systems team in integrating a scientific-grade pressure sensor in the liquid oxygen tank to validate simulated in-flight pressure values

DESIGN PROJECTS

NASA Jet-Trainer Aircraft Analysis and Design, Purdue University — January – May 2020

- Collaborated in a small team to identify customer needs, requirements, and stakeholders for a cost-effective supersonic NASA jet-trainer aircraft
- Performed a qualitative risk assessment, using risk matrices, to identify key system risks, ensure adequate system reliability, and develop mitigation plans for top risks
- Generated design concept selection through in-depth computational and graphical optimization methods in MATLAB for sizing, range, and thrust calculations
- Thoroughly documented design process in a team-coordinated comprehensive technical report and oral presentation of aircraft development and final design

Attitude and Heading Reference System (AHRS), Personal Project — June – August 2019

- Utilized an ARM architecture microcontroller to obtain and filter real-time measurements from MARG sensors (accelerometer, gyroscope, and magnetometer)
- Derived orientation and acceleration in Earth-based North East Up reference frame using AHRS Sensor Fusion algorithms and rotational quaternions
- Calibrated and troubleshooted sensors using large data sets from data acquisition to increase algorithm accuracy and significantly reduce position deviation

WORK EXPERIENCE

Fresh Market, *Seasonal Produce Clerk* — June 2019 – Current

- Provided quality customer service for pricing, produce, and store products through effective oral communication skills
- Cooperated and communicated with department team to efficiently organize, stock, and rotate displays to ensure freshness of produce and satisfactory floor presentation
- Managed department to maintain store safety and policy during closing hours and directly assisted in providing mentorship to new team members