William Cohen

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Objective

Developer and project manager with 3 years of experience in enterprise-level infrastructure and model-creation looking for roles where I can apply my development and controls expertise, such as perception aware control or sensor fusion. I am obtaining my Master's degree in Aerospace Engineering in order to pivot my career into a more technical domain. My experience in control research and sensor fusion makes me an excellent candidate for controls positions in and outside of the aerospace industry.

Education

Masters of Science in Engineering in Aerospace Engineering
University of Michigan, Ann Arbor, MI (Sep 2021 - Dec 2022 expected)
GPA: 3.9; **Graduate Student Instructor:** Physics Mechanics Labs (PHYSICS 141)
Relevant Coursework: Model Predictive Control; Avionics, Guidance, and Navigation; Data Science and Machine Learning

Bachelors of Science in Engineering in Aerospace Engineering
University of Michigan, Ann Arbor, MI (Sep 2014 - Apr 2018)
GPA in Major: 3.65/4.00, **Overall:** 3.37/4.00
Minor: Physics; **Deans List:** Fall 2015, Fall 2016, Winter 2018; **Honor Society:** Sigma Gamma Tau

Research and Projects

Intelligent Robotics and Autonomy Lab
Researcher/Member (May 2021 - Present)
- Researched and configured simulation environment for research using Microsoft's open-source AirSim simulator
- Wrote C++ code to retrieve RGB, depth, and segmentation image data from simulator for a reinforcement learning algorithm
- Designed experiments for gathering ground effect data of a moving quadrotor in a landing configuration, with a focus on relative velocities of aircraft and landing platform
- Implemented a nonlinear model predictive controller for a quadrotor to track and land on a moving cart providing noisy GPS data, resulting in offset-free tracking and convergence of 0.5 m/s in some applications

Drone Simulation and Build
Lead (August 2020 - Present)
- Integrated a LIDAR sensor and inertial measurement unit using I2C communication protocol, and a GPS sensor using generic TX/RX protocols to provide height and location data to the drone
- Wrote basic drone operating system in C++, Bash, and Python to interface a headless Raspberry Pi unit with the Arduino controller, utilizing communication over USB to receive sensor data to and send motor commands for autonomous flight

AEROSP 483: Spacecraft Design
Orbit and Control Design (January 2018 - April 2018)
- Wrote MATLAB simulations to capture the Moon's umbra, as well as control simulations to predict spacecraft location and pointing during orbital transfers
- Calculate maneuvers for Lagrangian parking orbits at L4 and L5 to minimize required ΔV, increasing the mission length by more than 100% when compared to other orbits

Employment

BlackRock (June 2017 - July 2021)
Analytics and Quantitative Solutions Associate (Jan 2021 - July 2021), Analyst (July 2018 - December 2020)
- Developed an application to report regulatory risk based capital charges based on client portfolios, and developed an optimizer to provide recommended trades, ultimately automating an existing process and deepening client engagements
- Served as a project manager for an infrastructure team, leading 15 developers and assisting in developing a new relational algebra system to simplify the existing architecture of the Aladdin product, culminating in a product rollout after 8 months
- Designed and built a containerized Python app to generate presentations for our client engagement team, utilizing powerpoint libraries and calling upon multiple internal APIs to gather risk and analytical data, resulting in positive C-suite feedback
- Verified and back-tested results of an internal mean-variance optimizer, demonstrating that tracking error minimization and cumulative performance regularly outperformed a competitor's engine in tracking a variety of indices
- Created a web server to host internally developed tools with simple front ends to drive engagement with less technical employees on our team's suite of database and command line tools

Additional Information

Volunteering: University of Michigan College of Engineering Interviewer (November 2020-Present)
Platforms/OS: Linux (Ubuntu), Mac OS, Microsoft Windows
Software: Git (proficient), Macintosh Office Suite (proficient), Microsoft Office Suite (proficient), LaTeX (intermediate)
Languages: Matlab (proficient), Python (proficient), SQL (proficient), Bash (intermediate), C++ (intermediate), Julia (intermediate), ROS-Python (intermediate), Cassandra (basic), JavaScript (basic)
Python Libraries: NumPy (proficient), Pandas (proficient), SciPy (proficient), CVXPy (intermediate), Flask (intermediate), MatPlotLib (intermediate), OpenCV (intermediate), ROS (intermediate), TensorFlow (basic)