Anthony Primeau

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Summary

An aerospace engineer who has a broad knowledge of programming concepts and a basic understanding of Linux architecture. Interested in real-time modeling of complex systems, especially the integration of computer vision into autonomous systems. Has a bachelors from Penn State University and has passed the FE exam.

Software and Programming Languages

- C++
- Python
- MATLAB
- Bash
- Javascript
- CAD
- Linux
- Lua
- Cmake
- Java
- Git
- Microsoft Office (e.g. Word, Excel, etc.)

Relevant Coursework

Autonomy Capstone

- Completed a senior-level course emulating the real-life design process of a mission-oriented craft. Built a drone from scratch with a team.
- Played a leading role in creating and debugging both simulation code and onboard systems.
- Debugged dynamic model of the drone.
- Created sensor model of all sensors, specifically lidar, camera, and inertial measurement unit (IMU).
- Developed state estimation algorithm, accounting for noise using an Extended Kalman Filter.
- Debugged control function and determining motor gains.
- Developed path and guidance algorithm.
- Developed interface for manual control via PS4 controller and visual detection system using DepthAI.
- Configured Raspberry Pi to work through serial ports and wrote daemon to automatically perform startup.

Computational Fluid Dynamics

- Modeled various scenarios using MATLAB, including waves and pipe flow deterrents.

Design Optimization

- Used Python modules including numpy, SciPy, and cvxpy to find optimum solutions.
- Worked with both deterministic and stochastic models.

Other Applications

- Programmed a python-based GUI for a command line tool that renames files. Allowed for change preview and error messages relevant to name collisions or syntax errors in wildcard captures.
- Used python to create a music visualizer. The program breaks a music file into samples, performs Fourier analysis, and plays the file alongside a time-dependant representation of the frequencies.
- Currently working on a home automation system that controls LEDs via DMX protocol. The system allows for user-defined sequencing, and interrupts like motion sensing can trigger a color scheme.

Hobbies

I am the administrator of my home network, performing maintenance on our various devices. On the router, I have set static IP addresses, forwarded ports, flashed to DD-WRT, and applied a custom firewall. I have mapped our NAS to mounted directories using NFS. I installed a headless version of Linux on a computer to be used as a game server and configured a local DNS to simplify connection. I frequently program using C++ for fun, especially working with OpenGL to create applications. I have self studied Japanese to an elementary level.