Andrew McFarlane

[andrew.mcfarlane52@gmail.com](mailto:andrew.mcfarlane52@gmail.com) | (360) 399-8863 | <https://github.com/am8525/>

**TOP PROJECTS**

***Transition Flying Car Analytics*** *| Terrafugia, Inc.*

*•* Built an analytics tool in Qt for the Transition flying car in C++ to visualize data via CANOpen

• Implemented a two-tier audiovisual system to alert engineers of unusually low or high outputs

• Extended use to receive Simulink model outputs using generated C++ code from Simulink Coder

• Accelerated the SDLC using Jenkins to practice Continuous Integration and Testing

***Self-Driving Car AI*****|** *Artificial Intelligence Course, HWS*

• Designed a Finite State Machine (FSM) to represent the brain of a smart car

• Executed optimal dynamic pathfinding to emulate Los Angeles traffic using A\* in a Java program

• Implemented reactive braking, opportunistic lane changes when safe, and the ability to abort a lane change if danger is detected part-way through

***MySQL Scheduler*** *| Database Theory & Practice Course, HWS*

*•* Programmed a web service in PHP allowing teachers and students to schedule meetings

• Constructed a REST API for registering users, scheduling meetings, accepting invites, and more

• Implemented SQL triggers to check for scheduling conflicts

***Apache Web Server*** *| Computer Networks & Distributed Processing Course, HWS*

*•* Built a multi-threaded web server in Java capable of serving content to a browser

• Implemented GET and LIST, handling bad requests with appropriate responses

• Enabled 24/7 access by running the server as a daemon on a VM with Apache

**EDUCATION**

**Hobart and William Smith Colleges (HWS)** **Geneva, New York**

Bachelor of Science in Computer Science May 2019

Bachelor of Science in Physics GPA: 3.3

Minor in French & Francophone Studies 2019 President’s Civic Leadership Award

**PROFESSIONAL EXPERIENCE**

**Terrafugia, Inc. Woburn, Massachusetts**

*Engineering Internship* | *Hybrid Team* May – August 2018

• Consulted senior engineers on design and development for Transition flying car production

• Designed a commercial-grade 12 Volt to 5 Volt buck converter in Altium

• See here: <https://www2.hws.edu/mcfarlane-19-helps-develop-flying-car/>

**Physics Department,****Hobart and William Smith Colleges Geneva, New York**

*Teaching Fellow* August – May 2019

• Guided students through their most challenging Physics projects and assignments

• Fostered a positive and inclusive learning environment

**RELEVANT MATERIAL**

**Courses** Artificial Intelligence | Computer Architecture | Databases | Data Structures & Algorithms Electricity & Magnetism | Electronics | Embedded Computing | Linear Algebra Networking & Distributed Processing | Quantum Computing | Software Development

**Hardware** Arduino, Raspberry Pi, Digital Multimeters, Optical Arrays, Oscilloscopes, Soldering, Wave Generators

**Languages** AppleScript, ARMv8, Bash, C, CSS, C++, ES6, Java, JavaScript, JSX, LaTeX, MATLAB, PHP, Python, Simulink, SQL

**OS** Linux, OS X, Windows

**Software** AnimeJS, Apache, ARP, AWS, CAN, CANOpen, Docker, Doxygen, Eclipse, Git, I2C, Jenkins, JUnit, OpenMPI, PlantUML, Qt, ReactJS, Redux, SVN, TensorFlow, Wireshark