David Allen

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Objective

Seeking a software engineering co-op that requires strong skills in C, C++, Rust, Java, and Python in both general and embedded systems. Available May 2021 to December 2021.

Education

Rochester Institute of Technology (RIT), Rochester, NY — Expected May 2024
Bachelor of Science, Software Engineering — **GPA: 3.76**
Related courses: Engineering of Subsystems, Programming Language Concepts, University Physics 1 and 2

Skills

Programming Languages: C++, Rust, Java, C, Python, Javascript, HTML, GLSL, HLSL
Embedded Systems: Hardware abstraction layers for NXP i.MX RT106x MCUs, interfacing with components using I^2C and SPI, basic circuit design

Projects *(more details are available at the website listed at the top)*

***Amateur Liquid Fueled Rocket Engine*, Personal Project** — **January 2020 - Present**

- Designed, fabricated, and test fired a prototype torch igniter
- Building a custom CNC mill using a Grizzly G0781, controlled using a Teensy 4.1 microcontroller
- Utilized CAD, CAM, ECAD, and analysis software such as Fusion 360, Autodesk Inventor, and KiCAD
- Learned to operate metal fabrication and circuit board equipment

***Webcheckers*, Academic Team Project** — **September - December 2020**

- Collaborated with a team of 5 using agile development practices including daily standups and storyboarding
- Developed a checkers website using Java and the Spark Web Framework with 90% unit test coverage and code documentation

***Robotics Competition*, Academic Team Project** — **January - May 2019**

- Collaborated with a team of 4 to design 2 drones to complete tasks in a simulated sea and land environment
- Developed control software in C++ for a Raspberry Pi that interfaced with motors, sensors, and control input

***Home-brew Video Game Engine(s),* Personal Project** — **2015 - 2018**

- Designed and built from scratch in C++ with a tiled deferred renderer, world system with physics, post-processing effects, and volumetric cloud rendering
- Developed a render-graph based rendering abstraction with Vulkan and D3D12 backends

Other personal projects: Breadboard processor using 74LSxx ICs, shell taping machine for fireworks

Work Experience

Course Assistant for Software Construction (RIT SWEN-609) — **August - December 2020**

- Review and grade assignments while providing constructive feedback
- Communicate effectively with students about problems with coursework and help them reach a solution
- Balance a full academic course load with >=8 hours per week of work

Field Assistant at Elizabeth M. Allen Land Surveying — **June 2017 - August 2020**

- Operate high precision optical equipment and record geometric field data
- Communicate effectively with clients to ensure quality boundary surveys
- Develop routines and procedures to ensure high quality field data for use in CAD, drawings, and maps

Working Assistant at Swanson's Fabrication (Bradford, PA) — **June 2016 - August 2016**

- Operate power tools and fabricate aluminum railings for a customer while ensuring quality
- Be aware of safety protocols around heavy machinery (lathes, mills, forklifts, welding equipment, etc.)