# Clay Buxton

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## Education & Certifications

**Elizabethtown College** | Bachelor of Science | Elizabethtown, Pa                3.42 GPA | 2020
· Majors: B.S. Computer Engineering, B.S. Computer Science

**Relevant Course Work**
· <u>Engineering:</u>   Calculus I,II,III + Differential Equations, Circuits, Electronics, Signals and Systems, Controls Systems, Digital Design I II. Advanced Computer Engineering.
· <u>Computing:</u>   Data Structures, Systems Programming, Compiler Design, Software Engineering. Database Systems, Networking, Operating Systems, Algorithms

**Secret Level Department of Defense Security Clearance**

## Experience

**Systems Engineering Intern** at **Lockheed Martin [AEHF] |** King of Prussia, PA                Since May 2019
· AEHF Operational Support Element. Supporting mission control development
· Implementing DoD Risk Management Framework. Assessing compliance and performing remediation
· Maintaining environment, standing up new servers, decommissioning old servers

**Software Engineering Intern** at **Lockheed Martin [Horizon C&C]** | King of Prussia, PA      May 2018 – May 2019
· Worked primarily with software defined radios and developing a large-scale command and control java application
· Created a scalable platform on which C++ based GNU Radio flowgraphs can be deployed rapidly
· Developed portions of command and control platform. Focused on scheduling and cross-process communication

**Computer Engineering TA** at **Elizabethtown College** | Elizabethtown, PA                Since May 2018
*Digital Design I II, Advanced Computer Engineering.*
· Created new teaching material, lab projects, and documentation for lab hardware and software
· Wrote a full manual for the Basys 3 FPGA. Includes a Verilog tutorial, and targeted C compilation
· Assisted students with lab activities and projects

## Projects

**Cosmic | Senior Project**                                                Since August 2019
Cosmic is a fully simulated 8-bit computer architecture. The entire architecture and instruction set was created from scratch and works in a rich environment. The environment includes a debugger, a full-fledged GUI and an assembler. Cosmic is hard to explain in words, but better in code: https://github.com/clbx/Cosmic

**Emulators | Personal Projects**                                            Since February 2019
A recent effort to learn more about processor design. I've been working on emulators for older architectures
**Chip8:** A common first emulator implemented using C++ and SDL2. Accurate to original design. Has debugger
**Intel 8051:** A effort to make an educational Assembler and Emulator for 8051 ASM. Made using C++, SDL2, ImGui
Both are available on GitHub: https://github.com/clbx/ChocolateChip  https://github.com/clbx/Better51

**Otis | Elizabethtown College**                                            January 2019 – May 2019
An affectionally named neural networking algorithm, Otis was developed by 5 students on an Agile team where I acted as our scrum master. Otis can learn based on binary data and make reasonably accurate assumptions about the data. Otis' development was fully automated with CI/CD, unit testing, automatic documentation, and code coverage.
All code is available on GitHub: https://github.com/etown-blue-team/Otis

**HomeLab | Personal Project**                                                Since 2016
A continuing project in learning more about networking, security, and systems administration. "JuiceNet" is a home networking setup which is made of 2 Dell PowerEdge Servers. The lab runs off ESXi and supplies a NAS, web server, media server, private git source, game servers, ad blocker, VPN, full windows domain, CTF and Wargame challenges, and more

## Skills & Abilities

**Languages:** <u>C</u>, <u>C++</u>, <u>Java</u>, <u>PowerShell</u>, <u>Python</u>, Go, Swift, HTML, CSS, Bash, C#, MySQL, JavaScript,TypeScript, MATLAB + more
**Platforms:** Windows, Linux, and Unix server environments, Git, Agile, JetBrains IDEs, Eclipse, CI/CD [Gitlab and Travis CI], Hardware Expertise, Embedded Systems, Software Engineering Methodologies, Retro-computing.