**Clay Buxton ­­­­­**

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# Experience

**Systems Engineering Intern** at **Lockheed Martin [AEHF] |** King of Prussia, PA Since May 2019

* AEHF Operational Support Element. Supporting mission control development, building machines for customer.
* Implemented DoD Risk Management. Assessing compliance and performing remediation, automated with PowerShell
* Maintaining Unix and Windows environment, VMWare ESXi virtualization, and Cisco networking.

**Software Engineering Intern** at **Lockheed Martin** **[Horizon C&C]** | King of Prussia, PA May 2018 – May 2019

* Created a scalable platform on which C++ based GNU Radio flowgraphs can be deployed rapidly
* Worked on micro-service driven Command and Control application written in Java. Focused on scheduling and cross-process communication.
* Set up GitLab CI/CD for automated builds, testing, and deployments.
* UI Work using TypeScript and JavaFX.
* Worked on an Agile Team

**Computer Engineering and Science TA** at **Elizabethtown College** | Elizabethtown, PA Since May 2018

*For: Computer Science 1, Digital Design I II, Software Engineering, Advanced Computer Engineering.*

* Created new teaching material, lab projects, and documentation for lab hardware and software
* Wrote a manual for the Basys 3 FPGA. Includes a Verilog tutorial, targeted C compilation, RTL Design, verification, and timing analysis.
* 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>

It’s because word sucks and you can’t make lines as tall or short as you want. So, screw you Microsoft I’m smarter.

**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>

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**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>

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**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:** C/C++, Java, PowerShell, Python, Go, Swift, HTML/CSS, Bash, C#, MySQL, Java/TypeScript, MATLAB, and 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.

# Education & Certifications

**Elizabethtown College** | Bachelor of Science | Elizabethtown, Pa 3.42 GPA | May 2020

* Majors: B.S. Computer Engineering, B.S. Computer Science

**Relevant Course Work**

* Engineering: Calculus I,II,III + Differential Equations, Circuits, Electronics, Signals and Systems, Controls Systems, Digital Design I II (Computer Architecture, Interfacing). Advanced Computer Engineering.
* Computing: Data Structures, Systems Programming, Compiler Design, Software Engineering. Database Systems, Networking, Operating Systems, Algorithms

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**Secret Level Department of Defense Security Clearance**