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## Experience

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### 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

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## Projects

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### 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

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## Skills & Abilities

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**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.

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## Education & Certifications

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### 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

### Secret Level Department of Defense Security Clearance

