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## Education

### CARNEGIE MELLON UNIVERSITY

Master of Science - MS, Computer and Information Systems Security/Information Assurance

Pittsburgh, Pennsylvania

August 2023 - May 2025

### RENSSELAER POLYTECHNIC INSTITUTE

Bachelor of Science in Computer Science

Bachelor of Science in Physics

Troy, New York

September 2018 - May 2023

**Relevant CS Courses:** 15-213 Computer System, Cryptography and Network Security, Database Systems, Principle of Program Analysis, Application Programming Using Java, Operating Systems, Numerical Computing, Data Structures, Network Science

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## Skills

- **Programming Languages:** Proficient in C, C++, Java, JavaScript, TypeScript, Python, SQL, Objective-C, among others.
- **Server/Client Interaction:** Extensive knowledge and hands-on experience in developing, running, and maintaining servers, with a focus on live database and Linux system interactions. Design interactions on production AWS ECS server and AWS tools.
- **Application Development:** Comprehensive experience in building client applications from scratch, specializing in QT, React Native, Angular, and more

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## Work Experiences

### Network Tree | Software Engineer Lead (Remote)

New York, NY

August 2024 - Present

- Plan and lead the software engineering team of a startup company and releasing the app on Apple App store on iOS.
- Assess software engineering tasks and allocate personnel for these tasks; communicate effectively on technical topics.
- Conduct technical interview for new software engineers.
- Spend most time on developing and improving the frontend and back end of the app, in React Native, ExpressJS, AWS ECS, AWS EventBridge.

### Network Tree | Full-Stack Software Engineer Intern (Remote)

New York, NY

June 2024 - August 2024

- Personally developed more than 12 new features in React Native and ExpressJS that are straight forward to understand and ease to maintain.
- Found performance solution on MangoDB that saved the company thousands of dollars per month and more than 2 weeks of development time.
- Provide help to other interns and staff on coding tasks and communicate on abstract technical terms that are easy-to-understand.
- Single-handedly rewritten legacy Redux to Redux Toolkit on a code base with more than 5 thousand lines of legacy Redux code, improving over-all performance and the feel of the app.

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## Project and Research Experiences

### Personal Data Manager Notebook (PDM) | Software Engineer

Fall 2019 - Present

- Enhanced the performance of the multithreaded 256-bit encryption library in C++ by 180%.
- Single-handedly contributed **2200+ GitHub commits** (all commits) to this open-source project, released under GPL 3 on GitHub.
- Develop Spring server and custom Spring security for one server, while maintaining another self-developed end-to-end encryption server.

### QT Cross-platform Desktop Application ( [GitHub](#) ) | Software Engineer

Fall 2019 – May 2023

- Developed the QT desktop application for PDM notes using C++ that communicates with the same servers.
- Implemented custom encrypted SQLite for end-to-end encryption services, enhancing application security.

### React Native Cross-platform Mobile Application ( [GitHub](#) ) | Software Engineer

Fall 2019 – Nov 2023

- Developed a React Native mobile application for iOS and Android, incorporating Swift, Java, TypeScript, and encrypted local persistent data stores.
- Implemented the encryption library and compiled binaries for each platform.

### Research, Rensselaer Polytechnic Institute | Researcher & First Author

June 2021- May 2022

- Authored a paper and won an award at the 2022 IEEE 19th International Conference on Mining Software Repositories (MSR).
- Developed data mining software using C++, Python, and SQL, analyzing over 20,000 Python GitHub repositories.
- Built machine learning models to predict Python project's dynamic feature usages with 92% accuracy.
- Constructed a database to efficiently analyze over 2.8 million deconstructed source code files.

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## Publication

Yi Yang, Ana Milanova, Martin Hirzel. "Complex Python Features in the Wild." 2022 IEEE/ACM 19th International Conference on Mining Software Repositories (MSR), Page 282, May 2022