# YI YANG

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GitHub | github.com/2042third
Portfolio | https://pdm.pw

## Education

**Carnegie Mellon University**                                                        Pittsburgh, Pennsylvania
Master of Science - MS, Information Security Policy and Management                                        August 2023 - May 2025


**Rensselaer Polytechnic Institute**                                                             Troy, New York
Bachelor of Science in Computer Science                                                  September 2018 - May 2023
Bachelor of Science in Physics


**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

## Skills

- **Programming Languages:** C, C++, Java, JavaScript, TypeScript, Python, SQL, Go
- **Server:** PostgreSQL, MySQL, Tomcat, Spring, Spring boot, Spring Security, AWS ECS, EC2, AWS EventBridge, Linux, TLS, Self-hosted, low-level server programming
- **Application:** QT C++, WebAssembly, React Native, Angular, NUXT 3

## Work Experiences

**Network Tree | Lead Software Engineer (Remote, part-time)**                                              New York, NY
August 2024 - Present
- Led end-to-end engineering for a mobile-first startup, launched on the App Store achieving over 1,000 pre-downloads within one week.
- Strategically managed engineering tasks for a team of five engineers, including determining team workflows and task prioritization to meet aggressive deadlines while maintaining high-quality standards.
- Conducted rigorous technical interviews, hiring top talent to strengthen the engineering team and ensure alignment with company goals.
- Architected and optimized a robust, scalable app infrastructure, leveraging React Native for cross-platform development, ExpressJS for backend services, and AWS ECS/EventBridge for seamless cloud operations.
- Led performance tuning efforts, improving app efficiency and reducing latency by 30% through innovative code optimizations.

**Network Tree | Full-Stack Software Engineer Intern (Remote)**                                             New York, NY
June 2024 - August 2024
- Personally developed 12+ new features using React Native and ExpressJS to enhance app offerings, prioritizing maintainability and straightforward code design to streamline future development.
- Identified and implemented performance optimizations for MongoDB, reducing operational costs by $1050/month and accelerating development timelines by over two weeks.
- Provided mentorship and technical guidance to interns and team members, translating complex technical concepts into actionable insights.
- Rewrote over 5,000 lines of Redux code to Redux Toolkit, improving application performance, maintainability, and user experience.

**Rensselaer Polytechnic Institute, IBM Research | Researcher& Software Engineer (Full-time, non-intern)**           Troy, NY
Jan 2022 - May 2022
- Designed and developed advanced data mining software using C++, Python, and SQL, efficiently analyzing over 20,000 Python GitHub repositories to extract meaningful insights.
- Engineered a high-performance database to analyze 2.8 million deconstructed source code files, optimizing query efficiency.
- Built and trained machine learning models that achieved 92% accuracy in predicting dynamic feature usage in Python projects.

## Project and Research Experiences

**End-to-end encrypted server -- Personal Data Manager Notebook (PDM) | Software Engineer**                   Aug 2019 – Jan 2024
- Enhanced the performance of the multithreaded 256-bit encryption library in C++ by 180%, with deep knowledge of parallel programming.
- Spent over **12,000 hours**; worked 35 hours every 2 weeks in the first 4 years, on average.
- Single-handedly contributed **3300+ 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 clients.


**QT Cross-platform Desktop Application ( GitHub, GitHub) | Software Engineer**                               Aug 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.
- Developed a mobile application for iOS and Android, incorporating Swift, Java, TypeScript, and custom encrypted local persistent data stores.
- Implemented the encryption library and compiled binaries for each platform.

**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).

## 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