

## Christopher Jeong

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### EDUCATION

#### Brown University

Sep. 2022 – May 2026

*Computer Science (BS/MS), Mathematics (BA)*

*Providence, RI*

- **GPA: 4.0**
- Computer Science Coursework: **Data Structures and Algorithms, Operating Systems (Graduate), Computer Networks, Computer Systems Security (Graduate), Cryptography, Machine Learning, Compilers**, Advanced Probabilistic Algorithms (Graduate), Design and Analysis of Algorithms, Object-Oriented Programming
- Mathematics Coursework: **Statistics, Linear Algebra, Optimization**, Real Analysis I/II, Algebraic Number Theory, Galois Theory, Abstract Algebra, Multivariable Calculus

### EXPERIENCE

#### JPMorgan Chase & Co.

Jun. 2024 – Aug. 2024

*Software Engineer Intern*

*Wilmington, DE*

- Developing an internal **React/Java/Spring** project management tool tracking status of product teams in all lines of business as well as project status, version control, and internal mobility opportunities for **1,100 teams** and **35,000** employees. Utilizing **AWS** for scaling and deployment of the application.
- Engineering and maintaining **RESTful APIs** in order to better coordinate API calls between in-house microservices within a **Java** environment. Reworking API calls to coordinate with the team's shift from **Angular** and a private cloud environment to **React** and **AWS**, ensuring consistency in the back-end during the transition of front-end frameworks.
- Creating a **data pipeline** aggregating data from Jira to derive story progress and making API calls to an internal virtual assistant that automatically notifies employees of story progress. Developing a **Small-Language Model** that allows for real-time analysis of Jira stories.

#### Brown University Department of Computer Science

Jun. 2024 – Aug. 2024

*Course Development Assistant*

*Remote*

- Debugging and stress testing multithreaded **C/x86\_64** programs with **10,000+** lines of code, ensuring a seamless fit between file system, virtual memory, threads, and processes, and ensuring that the operating system can handle high-stress situations such as forkbomb attacks and full consumption of disk space.
- Handling the implementation of a **B+Tree** file system to introduce students to more realistic versions of modern file systems.

#### Pokémon Showdown

Mar. 2023 – Mar. 2024

*Software Developer*

*Remote*

- Initiated a shift from deprecated chatrooms to a new, modernized forum built on **TypeScript, Python, and SQL**, increasing tournament participation by **30%** and forum visits to **150,000** users yearly.
- Elevated security of user information through **PyCryptoDome**, including password hashing and randomized salting, zero-knowledge proofs to ensure user identity.

#### Brown University Department of Computer Science

May 2023 – Aug. 2023

*Undergraduate Research Assistant*

*Providence, RI*

- Evaluated the intersection of **Natural Language Processing** and **Formal Logic** with application to robotics. Researched Partially Observable Markov Decision Processes and their applications to reinforcement learning
- Restructured existing **React/CSS/Node/MongoDB** web demonstration of the project by integrating leaflet.js, allowing users to give instructions to a robot and demonstrating how the instructions translated to linear temporal logic.

### PROJECTS

#### Lenstra's Elliptic Curve Factorization Algorithm | *Python, Cryptography, Algorithms*

Apr 2024 – May 2024

- Meshed principles of multiprocessor synchronization, algebraic number theory, and elliptic curves to implement a factorization algorithm of **RSA** moduli in sub-exponential time. Factors **128-bit** moduli in 61 seconds.

#### Multiple Candidate Voting Protocol | *C++, CryptoPP, Cryptography, SQL*

Apr 2024 – May 2024

- Formulated a heavily mathematical protocol in **C++** that allows voters to anonymously vote for candidates using zero-knowledge proofs, ensuring votes and user information remain secure during network communication.
- Utilized **SQL** to store and query encrypted user information and implemented custom serialize/deserialize functions for user information.

#### Weenix | *C, x86\_64, Unix, Python*

Jan 2024 – Apr 2024

- Engineered a Unix-based operating system kernel from scratch that can run **C** programs. Implemented processes, threads, mutexes, virtual memory, physical memory, page tables, system calls and disk management.

### TECHNICAL SKILLS

**Languages:** Java, Python, C/C++, SQL, JavaScript, TypeScript, HTML/CSS, OCaml

**Technologies:** React.js, Node.js, Flask, JUnit, MongoDB, Spring, Jenkins, Maven, AWS, PyTorch, TensorFlow, SQL, LiquiBase

**Developer Tools:** Git, Docker, VS Code, Postman, GitHub, BitBucket