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)**, **Distributed Systems**, **Computer Networks**, **Computer Systems Security (Graduate)**, **Machine Learning**, **Applied Cryptography**, **Compilers**, Advanced Probabilistic Algorithms (Graduate), Design and Analysis of Algorithms
- Mathematics Coursework: **Statistics**, **Linear Algebra**, **Cryptography**, **Convex Optimization**, Number Theory, Galois Theory, Abstract Algebra, Complex Analysis, Multivariable Calculus

EXPERIENCE

JPMorgan Chase & Co.   Jun. 2024 – Aug. 2024
Software Engineer Intern   *Wilmington, DE*
- Developed an internal **React/Java/Spring Boot** project management tool built on **AWS** tracking status of teams in all lines of business as well as agility metrics and internal mobility opportunities for **1,100 teams** and **35,000** employees.
- Engineered and maintained **RESTful API**s in order to better coordinate API calls between in-house microservices within a **Java** environment. Reworked 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.
- Created a **Kafka data pipeline** aggregating data from Jira to derive story progress that provides employees with real-time analyses of Jira story progress utilizing an in-house **Small-Language Model**.
- Architected a robust testing framework consisting of unit tests, component tests, and performance tests from the ground up using **JUnit** and **Jest**, increasing code coverage to **80%**.

Brown University Department of Computer Science   Jun. 2024 – Aug. 2024
Course Development Assistant   *Remote*
- Debugged and stress tested multithreaded **C/x86_64** programs with **10,000+** lines of code, ensuring a seamless fit between file system, virtual memory, threads, and processes, and ensured that the operating system could handle high-stress situations such as forkbomb attacks and full consumption of disk space.
- Handled 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 | *C++, 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++, C#, SQL, Go, JavaScript, TypeScript, HTML/CSS, OCaml
Technologies: React.js, Node.js, Flask, Kafka, MongoDB, Spring, Jenkins, Maven, AWS, SQL, LiquiBase, Kubernetes, .NET
Developer Tools: Git, Docker, VS Code, Postman, GitHub, BitBucket, Swagger