Chih-Tao Lee

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EDUCATION

Master of Science in Computer Science, GPA 3.9 2022 - 2024
Khoury College of Computer Sciences
Northeastern University
Boston, MA
Related Course: Algorithms, Computer Networking, Cloud Computing, Pattern Recognition and Computer Vision

Bachelor of Science in Engineering and System Science, GPA 3.9 2012 - 2016
College of Nuclear Science
National Tsing Hua University
Hsinchu, Taiwan

WORK EXPERIENCE

Full-Stack Software Engineer Internship, *AI Roboto Edu,* Pasadena, CA May 2024 - Sep. 2024

- Developed **API**s for client data integration using **Spring Boot**, while optimizing **MySQL** database queries to enhance performance, resulting in a **12%** reduction in average request latency
- Built an asynchronous state management system with **Redux**, ensuring seamless real-time synchronization with the server, which enhanced application responsiveness by **10%**, even during slow network connections
- Leveraged **Git** and **CI/CD** pipelines to streamline development and deployment, accelerating release cycles, which improved overall project efficiency
- Improved user experience and engagement by designing and deploying a highly responsive and visually appealing front-end UI using **React**, **Material UI**, and **Tailwind**, providing intuitive navigation and faster interaction

PROJECTS

GoShell (**GitHub**: https://github.com/Jazzcort/shell-go) Oct. 2024 - Dec. 2024

- Designed and implemented a custom shell using **Go**, enabling execution of basic commands like ls, pwd, and cd
- Integrated support for output redirection to enhance command-line functionality
- Optimized architecture to allow extensibility for adding new commands and features
- Gained hands-on experience with **systems programming** and process management through project development

Real-Time Chat Application (**GitHub**: https://github.com/Jazzcort/Rust_RealTime_Chat) Aug. 2024 - Oct. 2024

- Developed a high-performance, terminal-based real-time chat application in **Rust**, leveraging **Tokio** (async library) and **Ratatu**i (TUI library) to ensure lightweight, memory-efficient operation
- Engineered an atomic broadcast system using channels and **TCP** streams, achieving concurrent message delivery to multiple users
- Mastered **socket programming** to build and maintain stable connections for data transmission across users
- Optimized error recovery mechanisms, enhancing chat responsiveness for an improved user experience

Music View (**GitHub**: https://github.com/Jazzcort/MusicView) May 2024 - July 2024

- Led both front-end and back-end teams to successfully launch Music View by prioritizing tasks and optimizing workflows, resulting in a **30%** increase in team productivity and project efficiency
- Designed a well-structured database schema in **MongoDB** to efficiently organize and manage user data, optimizing data retrieval and storage processes, resulting in a **30%** reduction in query execution time
- Reduced server load by **55%** by implementing the **Tanstack Query** library, which provided a front-end cache system to efficiently manage server state information
- Orchestrated an **AWS EC2** cluster with **Kubernetes** and **Docker** image to enable automatic scaling during peak traffic periods, ensuring zero downtime and uninterrupted service by efficiently distributing workloads and managing resources

Rusdis (**GitHub**: https://github.com/Jazzcort/Rusdis) May 2024 - Dec. 2024

- Developed a Redis-like in-memory key-value store, using **Rust,** focusing on high performance and safety
- Implemented core features including SET, GET, and DEL commands with support for data persistence via append-only files (AOF) and periodic snapshots
- Designed and built a multi-threaded, asynchronous networking layer using Rust's **Tokio** framework for efficient client request handling
- Implemented replication to synchronize data across multiple instances for high availability

TECHNICAL SKILLS

Programming Language: Rust, Go, Python, Java, C, C++, C#, JavaScript, TypeScript, Swift

Web Technologies: Node.js, React.js, Express.js, Next.js, Three.js, Tailwind, Spring Boot, Ngnix, Apache, TCP, UDP, DNS

Database: MongoDB, MySQL, PostgreSQL, Firebase

Others: Linux, Git, Docker, Kubernetes, AWS, GCP, Azure, Jenkins, Terraform, Redis, Kafka, Agile Development