James Chen

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Quincy, MA

Education

UMass Lowell — Lowell, MA

B.S. in Computer Science; GPA: 4.0/4.0 — Jan. 2024 – Dec. 2025

Bunker Hill Community College — Boston, MA

A.S. in Computer Science; GPA: 4.0/4.0 — Jun. 2022 – Dec. 2023

Technical Skills

- **Languages**: Java (4 yr), JavaScript (4 yr), TypeScript (4 yr), PHP (3 yr), Python (3 yr), C++, Kotlin, C, Lua, Rust, Bash; Markdown (6 yr), JSON (6 yr), HTML/CSS (4 yr), LaTeX, XML, TOML
- **Frameworks & Libraries**: Node.js (4 yr), React (2 yr), MUI (2 yr), NestJS, Svelte 5, Vite (1 yr), Jest, Chakra UI ; Spring Boot (3 yr), NestJS, JUnit
- **Databases & APIs**: MySQL (3 yr), PostgreSQL (1 yr), MongoDB, Redis; HTTPS (4 yr), RESTful (4 yr), GraphQL, WebSockets, gRPC
- **DevOps & Tools**: Nginx (3 yr), systemd (2 yr), Docker, AWS EC2, AWS Lightsail, Git (4 yr), Unix commands (4 yr), npm/pnpm (4 yr), JetBrains IDEs, Neovim, Postman, Httpie
- **Data Science & ML**: NumPy, Matplotlib, Scikit-learn

Work Experience

UMass Lowell - Miner School of Computer and Information Sciences — Lowell, MA

Software Engineering Intern — May 2025 – Present

- Migrated 25k+ records from the AEPW (Alliance to End Plastic Waste) database into a restructured **PostgreSQL** schema, reducing query times by around 70% and improving data integrity.
- Designed and deployed a **FastAPI** application with a **RESTful API** for streamlined data retrieval and analysis; implemented secure email-based authentication using **SMTP** and **JWT**.
- Applied **machine learning** techniques (Ridge Regression, SVR, etc.) alongside data analysis and visualization (**NumPy**, **Matplotlib**) to uncover trends in plastic waste management, supporting ongoing sustainability research.
- Built a command-line interface (CLI) tool with **Typer** to automate data migration and analysis pipeline, improving developer productivity, maintainability, and workflow efficiency.

Take 2 Health — Shenzhen, China

Backend Developer Intern — Mar. 2021 – Sep. 2021

- Engineered a backend system for a blood specimen management platform using **Midway.js**, implementing secure **JWT**-based authentication and a robust **RESTful API** for user and specimen data operations.
- Authored comprehensive API documentation with **Swagger**, streamlining integration and testing workflows; collaborated closely with frontend engineers to ensure seamless interface functionality and tracked development progress using **Excel**.
- Architected a **Microservices** infrastructure leveraging **gRPC** for high-performance inter-service communication, enhancing scalability and modularity.

Juyingtong — Zhuhai, China

Backend Developer — Nov. 2018 – Feb. 2020

- Developed a backend system for a WeChat mini-program supporting conference management using **ThinkPHP 5** and **MySQL**; implemented session-based authentication with **Redis** and exposed a **RESTful API** for user and event data operations.
- Built a location-aware attendee check-in system using **QR code** scanning; generated encrypted QR codes containing conference metadata, validated user location via WeChat mini-program, and securely recorded attendance in real time.
- Integrated **WeChat Pay** API to enable secure, real-time payment processing for conference registration and services.
- Deployed the application on **Alibaba Cloud** using Linux servers and **Nginx** to implement reverse proxy and load balancing for scalable, reliable performance, with **systemd** managing processes.

Projects

- **Burrow**: A modular command-line framework in **Kotlin** for managing isolated execution environments with dynamic configuration and extensible components. Designed a **plugin system** with **runtime dependency resolution**, custom annotations, and reflection-based command registration. Implemented a **socket-based server** for **remote command execution**, a **type-safe key-value store** for persistent state management, and a terminal-aware CLI with session context propagation and shell integration.
- **BG Clock**: Developed a responsive touchscreen clock application for board games like Chess and Go using **Vite**, **React**, **Chakra UI**, and **TypeScript**. Engineered a **modular game core** with a precise game loop and extensible trigger system for accurate timekeeping and flexible mode support. Features include customizable timers, sound alerts, and multi-mode gameplay. (Live Demo: https://www.james-chan.me/bgc/)