

# Jae Young Seo

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Software engineer with hands-on experience in full-stack development, generative AI, and systems-level research. Led concurrency abstraction research in Go and built applications using React, FastAPI, and PostgreSQL. Thrive in fast-paced environments through strong communication, leadership, and cross-functional collaboration to ship impactful solutions end-to-end.

## SKILLS

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- **Languages:** Java, Python, Go, TypeScript, JavaScript, C, OCaml, SQL
- **Frameworks/Libraries:** React (TypeScript), Redux Toolkit, React Query, FastAPI, Flask, Django, Node.js, Material UI
- **Databases:** PostgreSQL, MongoDB, MySQL
- **Tools/DevOps:** Git, GitHub, Docker, Vercel, Render, Google Cloud Platform, RESTful APIs, Auth0, Leaflet.js, OpenRouteService
- **Certifications:** Cognizant - [CSA GenAI](#)

## PROJECTS

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### Service Management API (<https://mechanic-api-uwqv.onrender.com/api/docs/#/>)

07/2025

*Flask, SQLAlchemy, Marshmallow, PostgreSQL, JWT, REST APIs*

- Engineered a scalable backend system with secure JWT-based authentication and role-based access control to manage mechanics, inventory, and service tickets.
- Designed and exposed RESTful APIs enabling CRUD operations with relational data models and efficient query handling.
- Implemented pagination, caching, and input validation using Flask extensions for performance and data integrity.
- Deployed the API on Render with GitHub integration, simulating CI/CD workflows for rapid iteration.

### Lunava (<https://lunava-nu.vercel.app/>)

07/2025

*React (TypeScript), Redux Toolkit, React Query, Auth0, MUI*

- Engineered a secure, fully responsive e-commerce web app simulating a real-world shopping experience using React and Fake Store API.
- Implemented user-specific cart persistence with Auth0 login and sessionStorage, ensuring seamless experiences across sessions.
- Managed global cart state using Redux Toolkit, supporting real-time item updates, quantity control, and dynamic total price calculations.
- Fetched and filtered product/category data using React Query, enabling fast, real-time browsing with a clean MUI layout.

### FitTrack AI (<https://fit-track-fe.vercel.app/>)

06/2025

*FastAPI, PostgreSQL, React (TypeScript), OpenAI GPT-4o, Leaflet.js*

- Developed full-stack AI fitness platform that delivers personalized half-marathon training plans using GPT-4o and user-submitted daily logs.
- Built adaptive feedback loops driven by user mood, sleep, and workout data, resulting in a 14% faster 5k time in three weeks.
- Integrated OpenRouteService and Leaflet.js to render real-world running routes, making it easier for users to plan and explore optimal paths.
- Connected Strava API for seamless activity import and progress tracking across mobile and GPS devices.

### Fine-Tuned BERT for Question Answering on SQuAD v1

06/2025

*Python, Hugging Face Transformers, Weights & Biases*

- Fine-tuned 'bert-base-uncased' on SQuAD v1 using custom data preprocessing and postprocessing pipelines, achieving EM: 77.45% and F1: 85.19%.
- Optimized model performance by 40+ points through progressive scaling, dynamic learning rate scheduling, and precision tuning.
- Monitored training in real time using Weights & Biases, streamlining model iteration and debugging.

### ValentinePlusPlus

02/2025

*React, Express, Node.js, MongoDB*

- Created a full-stack Valentine's Day card platform that delivered 150+ personalized messages, tailored to user-submitted preferences from the Vassar community.
- Integrated MongoDB and Node.js to dynamically update card content in real time based on live form inputs, enabling fully customized recipient experiences.
- Designed four animated, shareable card templates that boosted student engagement through personalized messages and interactive email links.

## WORK EXPERIENCE

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### Software Engineer Trainee - Coding Temple

Remote

*React (TypeScript), Python, JavaScript, HTML, CSS, Auth0, HTML, CSS, JavaScript, REST APIs, MySQL*

06/2025 – Present

- Built an e-commerce app using React, Redux Toolkit, and Auth0, implementing secure authentication, global cart state, and session-based persistence.
- Integrated React Query to fetch and filter product data, enabling real-time UI updates and efficient client-side caching.
- Developed RESTful services with Flask and SQLAlchemy, connecting to MySQL to perform secure CRUD operations and practice backend architecture.
- Collaborated via GitHub using pull requests and version control workflows; deployed projects with Vercel to simulate production environments.
- Learned from peers through code reviews, project demos, and workshops, strengthening communication and technical adaptability.

### Cognizant - Generative AI Externship

Remote

*Python, OpenAI, Hugging Face Transformer, Weights & Biases*

05/2025 – 06/2025

- Developed and deployed two generative AI applications using pretrained transformer models (GANs, GPT), applying prompt optimization and fine-tuning techniques to improve model accuracy and output relevance.
- Delivered high-quality project work under mentorship, incorporating iterative feedback, technical guidance, and structured lessons to refine outcomes.

Research Assistant (Go)

Marc Smith | Chair of the Computer Science Department

- Designed and implemented **ParV2**, a concurrency abstraction in Go that leverages reflection to run arbitrary functions in parallel with runtime safety.
- Delivered a **PAR composition operator** inspired by CSP/Occam, laying the groundwork for more expressive and less error-prone concurrent programming in Go.
- Built a concurrent sorting pipeline and a replicator utility to demonstrate practical applications of ParV2 in real-world scenarios.
- Contributed to research advancing higher-level abstractions for goroutine composition, with ongoing work under preparation for publication.
- Adapted to evolving research challenges and collaborated closely with faculty, applying feedback and adjusting priorities in an academic setting.

Poughkeepsie, NY

08/2024 – 05/2025

EDUCATION

Vassar College

B.A in Computer Science and Mathematics (Double Major)

- GPA: 3.70/4.00
- Relevant coursework: Operating Systems • Bayesian Statistics • Modeling Minds, Brains, Behavior • Compilers

Poughkeepsie, NY

08/2021 - 05/2025

Coding Temple

Certificate in Full-Stack Software Engineering (in progress)

Remote

05/2025 – Present