Jae Young Seo

https://jae-young-seo.vercel.app/ | jae.jy.seo@gmail.com | (518) 650-5837

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

- **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

Verdana (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

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) — Poughkeepsie, NY

Marc Smith | Chair of the Computer Science Department — 08/2024 – 05/2025

- 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.

EDUCATION

Vassar College Poughkeepsie, NY
B.A in Computer Science and Mathematics (Double Major) 08/2021 - 05/2025

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

Coding Temple Remote
Certificate in Full-Stack Software Engineering (in progress) 05/2025 – Present