

Luke Liu

+1 (518) 961-9661 | liu050211@foxmail.com | 1999 Burdett Ave, Troy City, NY, 12180

EDUCATION

Georgia Institute of Technology

2025/08 - Present

B.S. in Computer Science

Rensselaer Polytechnic Institute

2023/09 - 2025/05

B.S. in Computer Science, GPA: 3.9/4.0, Dean's Honor List

Coursework: Data Structures, Computer Org., Principles of Software, Intro to Algo, Foundation of Computer Science

WORKING EXPERIENCE

Moyu Corporation

2025/05 - Present

Software Engineer Intern

- Rolled out a behavior-driven recommendation system for a North American resale platform by aligning browsing and purchase patterns with lightweight retrieval logic, elevating homepage relevance and boosting user retention.
- Integrated real-time recommendation results into the **React**-based user portal by dynamically rendering 1.6M+ scored listings, enabling personalized homepage feeds and boosting average user dwell time by 18%.
- Optimized a **two-tower retrieval model** to handle burst traffic and noisy catalog queries, leveraging async embedding and lightweight encoders to cut inference latency by 3× and maintain real-time ranking stability in production.
- Built modular data pipelines to refresh user/item features and embeddings, enabling real-time inference and daily updates via unified **PostgreSQL** integration, improving recommendation relevance and model responsiveness.
- Stress-tested recommendation models under Kubernetes-based load using Locust, uncovering bottlenecks in scoring pipelines and reducing response time by 40% through **gRPC** trace analysis and container-level **CPU throttling** fixes.

PROJECTS

CourseGraph: Full-Stack Academic Planning & Collaboration Explorer

2025/01 - 2025/04

- Orchestrated the system design and full-stack integration of CourseGraph, enabling students to explore 200+ curriculum nodes and uncover optimal course paths and professor networks, improving academic transparency and planning efficiency.
- Crafted a responsive planning interface with **React** and **D3.js**, featuring real-time prerequisite graph rendering, course filtering, and contextual tooltips to streamline navigation across complex academic structures.
- Redesigned backend services for an academic planner to handle prerequisite and advisor queries, using **Spring Boot** and **GraphQL** to enable real-time search and cut query latency by 30%.
- Reorganized prerequisite and course grouping tables in **PostgreSQL** to fix slow query performance when filtering by department and graduation track, reducing dashboard load time from 1.5s to under 1s.

Neural Network-Guided Recursive Inverse Word Search Generator

2024/01 - 2024/03

- Built a customizable word puzzle engine using constraint propagation and directional grid search with early pruning, generating valid layouts from user-defined vocabularies while ensuring lexical validity and avoiding rule violations.
- Designed a responsive puzzle dashboard using **Next.js** and **SVG** rendering to visualize word grids and generation status in real time, which improved user interaction speed by 35% and enabled full customization across major browsers.
- Streamlined puzzle generation by deploying asynchronous APIs with FastAPI and **ONNX Runtime**, enabling real-time updates via **WebSocket** and cutting frontend latency by 50%, significantly improving user responsiveness.
- Handled high user demand for real-time puzzle generation by orchestrating **Celery** queues and **Redis** caching, reducing duplicate tasks by 60% and cutting response time to near-instantaneous under high concurrency.

SKILLS

Language: Java, C/C++, Python, Javascript, TypeScript C#, HTML/CSS, SQL, Bash, Go, Ruby, Scala

Tech: Linux, Shell, Springboot, Pytest, Django, Spark, MongoDB, Node.js, Kubernetes, AWS, Redis, Pytorch, JavaFX