

# FANSHI MENG

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## Education

### Georgia Institute of Technology

Aug 2024 – Dec 2026

Master of Computer Science and Engineering

Atlanta, GA

### Beijing Jiaotong University - University of Waterloo Joint Program

Sep 2019 – Jun 2023

B.S. in Materials and Nanoscience (Honours)

Waterloo, CA

Minor: Computer Science

## Technical Skills

**Programming Languages:** Java, Python, SQL, JavaScript/TypeScript, Go, Kotlin

**Frameworks/Platforms:** Spring Boot, FastAPI, React, Pytorch, AWS, GCS, Docker, Postman

**Database/Tools:** MySQL, PostgreSQL, Elastic Search, ChromaDB, Caffeine, Langchain

## Experience

### University of Waterloo Research Institute

Sep 2022 – Apr 2023

Lab Researcher

Waterloo, Canada

- Developed an aptamer prediction pipeline from SELEX experimental data of theophylline with initial 100k sequences
- Integrated a clustering-based sequence representation with the Nussinov RNA secondary-structure model to guide structure-aware affinity scoring. Trained on early rounds (1-12) and successfully predicted final-round (22) aptamers with ROC-AUC = 0.80 and top-k recall = 80% on targets. Benchmarked against a logistic regression baseline, achieving +0.20 ROC-AUC improvement attributed to incorporation of secondary-structure priors and cluster model.
- Validated round-wise stratified splits to prevent data leakage; observed strong within-target prediction yet poor cross-target transferability, motivating further research in structure-informed generalization.

## Projects

Project demo video available via YouTube link in header

### Travel Planner | *Java/Spring Boot, React, PostgreSQL, LangChain4j* | [Live Demo](#)

Aug 2024 – Jan 2025

- Developed a full-stack travel planning application with **JWT-based authentication**, password reset flow via email service, and **preference-driven itinerary generation**, supporting 10+ traveler profile parameters including travel pace, activity intensity, and group composition.
- Integrated **LangChain4j** with OpenAI to generate **personalized POI recommendations**: designed prompt templates with **structured output schemas**, implemented retry logic with error feedback, and achieved **async POI generation** using Spring Events to decouple long-running AI tasks from API responses.
- Built RESTful APIs with **Spring Security** for user management and itinerary CRUD operations; configured **environment-based CORS** policies and frontend URL injection for seamless development-to-production deployment.
- Architected React frontend with Material-UI featuring trip setup wizard, map-based POI visualization, and real-time itinerary status tracking; implemented forgot-password flow with token-based email verification.

### GradeScopeAI | *Java/Spring Boot, Python/FastAPI, ChromaDB/PostgreSQL*

May 2025 – Jul 2025

- Built an educational platform where instructors could manage courses/assignments/submissions and students could join courses by private invitation token, submit work and receive AI/teacher feedback.
- Created a high-performance grading microservice in **Python/FastAPI**, integrating **Google Gemini** via **LangChain**.
- Improved feedback quality with a **RAG** pipeline backed by **ChromaDB** (120+ curated IELTS essays and rubrics).
- Built the frontend with **React/TypeScript**, **Material-UI**, **Redux Toolkit**, and **React Router**; consumed RESTful APIs via **Axios**. Implemented business logic in **Spring Boot** and persistent user-generated content in **PostgreSQL**.
- Integrated **Google Cloud Storage** for document management and asset delivery.

### SocialAI | *Go, React/JS, Elasticsearch, DALL-E, Google App Engine*

Jan 2025 – Apr 2025

- Developed a social app using **React** and **OpenAI DALL-E** for AI-assisted image generation and search.
- Implemented secure, token-based authentication with **JWT** and HTTP routing via **gorilla/mux**.
- Designed a scalable backend in **Go** for image generation, posts, and interactions; deployed to **Google App Engine**.
- Leveraged **Elasticsearch** to enable robust, efficient search across posts and personal content.
- Built a responsive UI with **Material-UI**; integrated **React Photo Album** and **Yet Another React Lightbox**.

### Staybooking | *Java/Spring Boot, React/JS, PostgreSQL*

Dec 2024 – Feb 2025

- Designed and developed a full-stack web app to upload, delete, search, and reserve listings.
- Implemented token-based authentication; designed **PostgreSQL** schema and **Spring Data JPA** repositories.
- Built a user-friendly frontend with **React** and **Ant Design**.
- Integrated **Google Cloud Storage** for image files and a geocoding service for location-based search;