

Jiapeng Shi

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EDUCATION

University of Waterloo

Master of Data Science and Artificial Intelligence; GPA: 92.33/100

Waterloo, ON

Sep. 2023 – May. 2025

Hunan University

Bachelor of Science in Computer Science; GPA: 90.39/100

Changsha, China

Sep. 2019 – Jun. 2023

PROFESSIONAL EXPERIENCE

Software Engineering Co-op

WealthyPlanet Financial Holdings Inc.

May. 2024 – Aug. 2024

Burlington, ON

- Worked as a core **backend** engineer on Abi **Financial AI Assistant**, contributing **key features development** and collaborating cross-functionally in an **agile, fast-paced startup** environment.
- Implemented **RESTful APIs** in **TypeScript** for a “Continual Usage” feature that tracked user progress and dynamically updated financial plans in real time, interacting with 10+ **PostgreSQL** tables via Prisma ORM.
- Designed and implemented a **microservice architecture** using **Python**, **protocol buffers** and **gRPC** to enable type-safe communication between backend and AI assistant, reducing latency by **30%**.
- Refactored the AI Assistant initialization module using **reflection** and **dynamic class loading**, reducing repetitive code by **80%** and improving module adaptability for future updates.
- Created scripts to replicate complex bugs, fixed **10+** issues in beta testing, and enhanced **CI/CD pipelines** with **GitHub Actions** by adding unit and integration tests, reducing QA time by **40%**.

Full Stack Developer Intern

Peking University Changsha Institute for Computing and Digital Economy

May. 2023 – Aug. 2023

Changsha, China

- Built a **full-stack** report editing platform with **Python** for a think tank team, supporting news collection, online report editing and semi-automated weekly report generation, boosting the writing efficiency by **3–6×** times;
- Implemented robust **RESTful APIs** with **Flask** to serve a **Bootstrap**-based frontend, using SQLAlchemy with **MySQL** for reliable migrations and data integrity across 5+ relational tables.
- Developed an end-to-end **data pipeline** to scrape **1,000+** news articles from **50+** websites daily, store raw data in **AWS S3**, and perform NLP-based analysis with results stored in **MongoDB**, orchestrated via **Airflow**.
- Automated **Docker** containerization and **AWS EC2** deployment processes, cutting deployment time by **50%**.

PROJECT EXPERIENCE

HireFlow | Full-Stack Job Management Platform

Jan. 2025 – Apr. 2025

- Developed a full-stack job tracking web application from scratch using **React** (Vite) for the frontend and **Node.js** with **Express** for the backend, supporting job listings management.
- Designed and implemented a **RESTful API** server with **MongoDB** and Mongoose ODM, structuring request validation and error handling through reusable custom **middlewares**.
- Integrated advanced authentication features including secure password hashing (**bcryptjs**), JSON Web Token (**JWT**) based authentication, and cookie management for persistent user sessions.
- Developed responsive, mobile-first interfaces with dynamic routing (**React Router v6**), **Context API** state management, and authentication flows for a seamless single-page application experience.

Real-time Music Recommendation System

Oct. 2023 – Dec. 2023

- Developed a **full-stack, real-time** music recommendation prototype with **Java Spring Boot** microservices and dynamic frontend UI (**React**), updating music instantly based on user interactions such as likes and skips.
- Performed offline analysis on Last.fm data with **Apache Spark**, built a latent factor recommendation model using **Spark MLlib**'s **ALS** algorithm, and **fine-tuned** hyperparameters via **grid search**.
- Built a real-time **data pipeline** using **Kafka** for message buffering and streaming, **Spark Streaming** for processing, and **Spark SQL** to store results to **MongoDB**, , handling **1,000+** events per minute.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, Java, C/C++, Scala, SQL, HTML/CSS, R, shell

Frameworks: Spring Boot, Flask, Node.js, Express.js, React, Spark, PyTorch, scikit-learn, Airflow, Kafka, HDFS

Developer Tools: Git, Docker, Linux, Google Cloud Platform, Amazon Web Services, VS Code, PyCharm, IntelliJ