Yingzhe Dong

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Education

Boston University — Boston, MA
Master of Science in Computer Science, GPA: 3.73 — *Sept. 2022 – Jan. 2024*

Northeastern University — Shenyang, CHN
Bachelor of Economics in Fintech, Minor in Software Engineering, GPA: 3.87 — *Sept. 2017 – June 2021*

Publication

BELT: A Pipeline for Stock Price Prediction Using News — *IEEE Big Data*
Yingzhe Dong, Da Yan, Abdullateef Ibrahim Almudaifer, Sibo Yan, Zhe Jiang, Yang Zhou — *Oct. 2020*

Experience

OPPO — Apr. 2022 – July 2022
Software Engineer Intern — *Beijing, CHN*

- Created a face detection software module and integrated it into CV SDK using **C++**, which was used 800+ times.
- Applied **MNN** and **SNPE** engines to deploy models on **CPU** and **DSP** chips on the **ARM** architecture.
- Tested the performance of CV models on the mobile side by leveraging **Android Debug Bridge (ADB)**.
- Developed tools with custom model quantization and operator introduction functions by **C++** and **Flatbuffers**.
- Built a functional software module that can fuse multiple **TFLite Graphs**, reducing 60% message transfer time.

Kuaishou Technology — Nov. 2020 – Feb. 2021
Data Analyst Intern — *Beijing, CHN*

- Set up a department **data center** from 0 to 1; drove and led the data reform and innovation.
- Utilized **SQL** to retrieve data from **Hive table** and completed over 1,500 SQL queries.
- Devised a visual **data dashboard** and a departmental **data warehouse**, decreasing data-querying time by 70%.
- Upgraded analytics tools by adding sensitive video title capture function using **Python**, serving over 2,000 users.

Projects

A Stream Processing System with State Disaggregation — Feb. 2023 – May 2023

- Built a standalone control plane, separating tasks and states, optimizing the state migration mechanism in **Flink**.
- Applied **Java** and **gRPC** to create a distributed event-driven framework, where TaskManager manages operators.
- Utilized **watermarks** as the logical ingestion time to handle late-arriving events in window operators.
- Implemented **consistent hashing** with **virtual nodes** to minimize state migration cost during operator scaling.
- Used **RocksDB** to store state of TaskManager, employed **etcd** for storing routing table, ensuring fault-tolerance.
- Construct a scalable deployment on **AWS EC2** using **Docker Compose**, **auto-scaling**, and **load balancing**.
- Evaluated latency during state migration with **Prometheus** and **Grafana**, finding no downtime, just a 30% rise.

BU-On-The-Go: An Integrated On-Campus Mobile App — Feb. 2023 – May 2023

- Developed interactive client-side features for Android by leveraging **Kotlin** and **Jetpack Compose**.
- Implemented backend services using **Python** and **Flask**, established client-server connection via **RESTful API**.
- Built an event-driven architecture, enabling course schedule import, attendance tracking, and timely notifications.
- Utilized **Google Authentication**, **Map** APIs, **Getstream** for Google login, location tracking, and chat features.
- Ensured data persistence and app stability by connecting to a remote **MySQL** database for data storage.

FullStack E-Commerce Microservices App — May 2022 – July 2022

- Designed a front-end **React App** with server-side rendering by leveraging **JavaScript**, **Next.js**, and **Hooks**.
- Used **TypeScript**, **Express**, **Node.js**, **MongoDB**, and **Redis** to establish a back-end system for ticketing.
- Implemented the communication between microservices through **NATS Streaming Server**.
- Deployed the entire app in **Docker** containers and executed it in the **Kubernetes** cluster with **Ingress-NGINX**.
- Facilitated the development by managing the App with **Skaffold** and deploying it on **Google Cloud Platform**.
- Constructed a reusable shared library with middlewares, events, and error handling modules by **NPM** and **Git**.
- Tested the availability of each service using **Postman**, **Jest**, **MongoMemory Server**, and **SuperTest**.

FullStack Todo Management App Feb. 2022 – Mar. 2022

- Developed todo management interfaces via **TypeScript** and **Angular** with **Bootstrap**.
- Built back-end services using **Java** and **Spring Boot**, designed and managed **RESTful API** with **Swagger**.
- Implemented user authentication and authorization by **Spring Security** framework and **JWT**.
- Connected the API to **H2** database with **Spring Data JPA** and **Hibernate**.
- Deployed the fullstack application on **AWS** by using **AWS Elastic Beanstalk** and **S3**.

High Performance Social Platform Nov. 2021 – Jan. 2022

- Used **Thread Pool**, **Epoll** and **Main-Sub Reactor** mode to develop a **High-Concurrency Server** by **C++**.
- Achieved a performance level capable of handling over 10,000 concurrent connections.
- Created 3 management services for users, relations and messages, and stored the data in **MySQL** database.
- Applied **Protocol Buffers (Protobuf)** to serialize the data, saving over 40% message storage space.
- Constructed a front-end social platform interface using **Qt** and connected it to back-end services through **Socket**.

Technical Skills

Languages: Java, C, C++, JavaScript, TypeScript, Python, SQL, HTML/CSS
Database: MySQL, Redis, MongoDB, H2
Frameworks: Spring Boot, Spring Security, Angular, React, Node.js, Express.js, Next.js, Bootstrap, TensorFlow Lite
Tools: Git, Maven, Docker, Kubernetes, Skaffold, Postman, Hibernate, Qt, Swagger, ADB, Linux, VS Code, Eclipse