

# Elaine Zhang

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## EDUCATION

**Master of Science in Computer Science, Northwestern University (GPA: 3.80/4.00)** Sept. 2024 – Dec. 2025

**Courses:** Programming Massively Parallel in CUDA, Deep Learning for NLP, Scalable Software Architecture, Seminar in Large Language Models, Software Quality Engineering

**M. Sc in CS, Agriculture, Biological Eng., University of Illinois, Urbana-Champaign (GPA: 3.97/4.00)** Aug. 2022 – May. 2024

**Courses:** Computer Vision, Biological Robotics, Interactive Computer Graphics, Artificial Intelligence.

**Bachelor of Engineering, Agriculture Engineering, Zhejiang University (GPA: 3.73/4.00)** Sept. 2019 – Jun. 2023

**Specialize in Agriculture Robotics. Honors:** University Scholarship (Top 20%), Kangerda Scholarship (Top 10% research)

## SKILLS

- **Languages:** Java, Python, Javascript, C++, SQL, HTML, CSS
- **Framework:** Spring Boot, Mockito, PyTorch, Numpy, TensorFlow, CUDA, React.js, Next.js, Express.js, Node.js, OpenCV, Open AI API
- **Database:** MySQL, MongoDB, Redis, Elastic Search
- **Tools:** Kubernetes, Docker, Amazon Web Service (API Gateway, Lambda, S3, IAM, RDS), SolidWorks, CAD, Arduino, Github

## PROFESSIONAL EXPERIENCE

**Software Developer, Yuansuan Technology Company, Hangzhou, China** June 2024 - Aug. 2024

**Technology:** Java, SpringBoot, Javascript, React, NodeJS, Junit, Mockito, MySQL, Redis, Kubernetes, GPT, Open AI API, Jenkins

- Developed electricity price comparison, usage prediction and saving calculator application for resident to plan their power consumption and select the most suitable provider and plans.
- Implemented **highly-interactive UX visualization components** for side-by-side comparison, near real-time calculation and graph rendering, and developed micro interactions and animations to improve user experience.
- Extracted **reusable component libraries** in React.js to reduce duplicate FE effort across the application by **15%**.
- Proposed a **GenAI-powered advisor** which invokes GPT via OpenAI API to generate comparative advice across power provider and plans based quantitative statics and predictions data. Improved conversion rate for less technical customers.
- Implemented integration service to **optimize prompt engineering** and load relevant data into the context.
- Implemented a **calculation engine** with a configurable set of statistic calculation logic for usage, cost, and saves.
- Defined data model and schema for the statistics, dashboard, and user profile data and deployed into a MySQL database.
- Proposed a **caching layer** for commonly accessed statistics, and reference data (costing models). Profiled frequent queries and **analyzed latency bottleneck**. Improved the average page load and query latency from **1.8 seconds** to **0.6 seconds**.
- Planned and executed **across entire SDLC**. Authored requirement, project, and test plan with unit and integration tests.
- Successfully presented and launched the application with **zero** production incidents.

**Software Developer, BTD Technology Company, Nanjing, China**

June 2023 - Aug. 2023

**Technology:** C++, wxWidgets, Linux, Jira, Desktop Application

- Developed a **desktop application** integration into semiconductor chip production line to provide quality control data.
- Collaborated with **clients** in production team direction to determine key data and and chip testing guidance.
- Implemented functionalities to load spec sheets, chip architecture diagram and other assets in **realtime** based on the current product under testing. Developed a **expert user UX** with keyboard shortcuts for rapid data entry and checklist.

## PROJECT

**High-Scale Software System on AWS Cloud, DevOps Course Project**

Sept. 2024 – Dec.2024

**Technology:** Python, MySQL, Docker, AWS (API Gateway, Lambda, RDS, S3, CloudFormation, CodeDeploy, CloudWatch)

- Developed a Dropbox like file upload and management system as a **cloud-native serverless** application based on AWS.
- Defined and implemented the **end-to-end infrastructure as code** (IaaS) constructs to fully define the technology stack and automate environment setup, component bootstrapping, and supporting function like **security IAM setup** and **monitoring**.
- Developed a **CI/CD pipeline** with build, automated testing, deployment and operations.
- Executed a **simulated scaling scenario**, leveraged CloudWatch metrics and alarm and autoscaling configurations.
- Implemented application business logic as a set of RESTful API on Lambda, used API Gateway to manage endpoints.

**A Lightweight Key-Value Storage Development Based on Skiplist, Personal Project**

Mar.2024 – June 2024

- Developed the query logic, file format and persistence logic, and a skip-list based indexing algorithm for a KV store.
- Optimized execution by building multi-threaded implementation to improve concurrency.

## ACHIEVEMENTS

- 3rd Place Winner, ASABE Student Robotics Challenge Advanced Division **2022**
- 2nd Place Winner, ASABE Student Robotics Challenge **2021**