

Zhanpeng Tong

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SUMMARY

CS Master's graduate skilled in full-stack development and backend architecture with a focus on scalable and user-centered systems.

- Proficient in Java, Spring Boot, Hibernate, MySQL, and RESTful API design for enterprise-grade web applications.
- Experienced in building production-ready full-stack platforms using React, Node.js, and MongoDB, with containerized deployment via Docker.
- Applied LLMs and OpenAI APIs to design real-world AI tools, emphasizing fairness, transparency, and human-centered interaction.
- Solid foundation in database design, JWT-based authentication, concurrency control, and AWS-based deployment pipelines.
- Passionate about clean code, modular architecture, and enhancing user experience through iterative testing and feedback loops.

SKILLS

Programming Languages: Java, Python, C, TypeScript, JavaScript, HTML, CSS, SQL

Frameworks: Spring Cloud, Django, Flask, React, Vue.js, Express, Node.js, Next.js

Technologies: PostgreSQL, Redis, MongoDB, MySQL, AWS, Git, OpenAI APIs

PROJECT

Harry Potter Dialogue Sentiment Analysis

Jan 2025 - Apr 2025

- Built a sentiment classification pipeline to predict **friend/enemy relationships** across 4,916 dialogues from Harry Potter books.
- **Collected and labeled** bilingual dialogues in **fan transcripts**, **annotating relationship polarity** for **supervised learning**.
- Performed advanced **text pre-processing** (tokenization, lemmatization, bilingual cleaning) to generate high-quality input for models.
- Implemented and compared **Naïve Bayes**, **Bi-LSTM (RNN)**, and **DeBERTa (transformer)** models for performance benchmarking.
- Addressed class imbalance using **SMOTE** and **class weighting**, increasing minority-class **F1-score by 18%**.
- Evaluated models with **cross-validation**, **macro-averaged precision/recall**, and visualized results with **confusion matrices** and **ROC curves**.
- Used **PyTorch**, **GPU acceleration**, and **DataLoader** for efficient training and real-time model tracking via custom logging.

Lisa – Generative AI Customer Service Solution

Sep 2024 - Dec 2024

- Designed a **React.js** interface powered by **OpenAI GPT API**, enabling real-time customer support with conversation memory.
- Developed dynamic **prompt chaining** workflows with **temperature & token length tuning** to improve response quality.
- Built feedback/reporting modules with **user flagging** and **guided suggestions**, enabling continual improvement of model behavior.
- Applied **Human-Centered AI** principles to design transparent UI elements
- Implemented **modular React components** for context tracking, analytics, and **session-aware feedback logging**.
- Emphasized **LLM safety and trust** by embedding user-control tools and ethical guardrails into the design.

Kanbas – Web Based Learning Management System

Jan 2023 - Apr 2023

- Built a scalable **LMS** (inspired by Canvas) with full **CRUD features** for courses, modules, assignments, and grades.
- Developed **React.js** frontend with **Redux state management**, providing role-specific views for instructors and students.
- Created backend APIs using **Node.js**, **Express.js**, and **Mongoose** with **MongoDB**, enforcing schema consistency.
- Optimized performance with **code-splitting**, **lazy loading**, and **conditional rendering**, reducing page load by **30%**.
- Containerized with **Docker**, using separate frontend/backend services and **.env** files for isolated environments.
- Supported **role-based access control** and validated user input with middleware for secure interactions.

Online Shopping App – Full-Stack E-commerce System

Jan 2023 - Apr 2023

- Developed a full-stack e-commerce platform with user/admin portals for login, browsing, **watchlists**, and **order tracking**.
- Engineered layered backend using **Spring Boot**, **Hibernate**, and **MySQL**, applying the **DAO-service-controller pattern**.
- Secured endpoints with **JWT authentication** and enforced **RBAC** policies at route and method levels.
- Implemented **stock tracking**, **order lifecycle transitions**, and **user-specific history** with validation on business rules.
- Built admin-facing dashboards with custom **SQL analytics** (top-selling, most profitable), powering business insights.
- Created and tested 20+ endpoints with **Postman** for end-to-end flow coverage across user/admin paths.
- Containerized services using **Docker** for fast onboarding, local dev, and cloud scalability.

EDUCATION

Northeastern University, Boston, MA

Sep 2022 - May 2025

Master of Science in Computer Science

GPA 3.75 / 4.0

Relevant Coursework: Data Structures & Algorithms, Web Dev (React, Node.js), NLP, AI, Cloud, HCI

University of California, Riverside, CA

Sep 2020 - Dec 2021

Bachelor of Science, Business Administration

GPA 3.4 / 4.0