RUYI CAI

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EDUCATION

Carnegie Mellon University   Mountain View, California
M.S. in Software Engineering   Jan 2023 - May 2024

Brandeis University   Waltham, Massachusetts
B.S. in Computer Science & International and Global Studies   Aug 2018 - May 2022

SKILLS

Programming Languages: Java, Python, JavaScript, HTML/CSS
Frameworks & Tools: React, Node.js, Spring Boot, Kafka, MS Azure, Fabric, Docker, Git
Other: Figma, SQL
Languages: English (Fluent), Japanese (Fluent, JLPT-N1), Mandarin (Native), Korean (Conversational)

WORK EXPERIENCES

British American Tobacco Japan   Tokyo, Japan
Global Graduate – Data & Analytics   Oct 2024 - Now

- Developed and deployed unsupervised ML models (KMeans, Hierarchical Clustering) to segment 30,000+ retail outlets, achieving a silhouette score of 0.43. Insights from clustering guided channel-specific trade and product assortment strategies.
- Conducted regression analyses on POS data across 30,000+ convenience stores, quantifying that a 10% increase in shelf facings correlated with a 4% increase in Share of Category. Insights supported revenue-driving initiatives across trade and product assortment planning.
- Led end-to-end development of the Promo Master platform, consolidating fragmented promo data from 9 Excel sources across 3 teams into a centralized backend and UI; reduced manual data entry by 80% and accelerated campaign setup for 100+ annual activations.
- Acted as a business analyst to bridge business goals with technical delivery; defined KPIs and delivered SQL and Microsoft Fabric dashboards adopted by 300+ users with a 70%+ adoption rate.

PROJECT EXPERIENCE

Carnegie Mellon University   Mountain View, California
Distributed System Monitoring Platform (Frontend)   Jan - May 2024

- Developed an interactive monitoring dashboard using React, JavaScript, and Chakra UI to visualize the real-time status of a message queue, enabling easier tracking of message throughput and system health for developers and testers.
- Integrated RESTful APIs to fetch queue metrics and displayed them with dynamic charts, improving system observability and aiding debugging during testing.

Carnegie Mellon University   Mountain View, California
CampuShare – Spring Boot Microservices Application (Backend)   Sep - Dec 2023

- Architected a microservices-based ride-sharing platform using Spring Boot, Kafka, and MongoDB, enabling scalable matching of riders and drivers across 11 services.
- Designed Kafka topics and consumer groups for event-driven communication, reducing inter-service coupling while ensuring exactly-once delivery semantics.
- Implemented a Genetic Algorithm in Java for optimal ride scheduling, reducing simulated rider wait times by 30% under 500+ concurrent user load tests.
- Integrated JWT-based authentication and Dockerized all services for local and cloud deployment, streamlining CI/CD pipelines with GitHub Actions.