Ryan Zhao

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EDUCATION

Emory University **Atlanta, GA**
Bachelor's, Computer Science | GPA: 3.74/4.0 August 2021 – May 2024

- **Relevant Courses:** Data Structures and Algorithms, Database Systems, Artificial Intelligence, Machine Learning, Algorithm Analysis, Operating Systems, Machine Learning Applications

University of Washington **Seattle, WA**
(Transferred to Emory University) | GPA: 3.84/4.0 September 2020 – June 2021

PROFESSIONAL EXPERIENCE

Expedia Group **Seattle, WA**
Software Engineer Intern May 2023 – July 2023

- Reduced waiver processing time from 3-5 days to 1 day by designing and deploying an automated waiver processing tool with Java, SQL, and Amazon Web Services, saving 16+ hours of weekly manual effort.
- Improved system security with Okta authentication for robust access control, enabling seamless multi-waiver uploads and real-time waiver status tracking via Java-based backend APIs.
- Lowered processing errors by 98% through enhanced error handling and data validation, significantly boosting operational reliability by addressing user pain points.
- Achieved 93% unit test coverage with Jest, integrating automated test pipelines in Jenkins to ensure reliability, and documented key design decisions to enhance scalability and streamline future development.

PROJECTS

PDF Chatbot

- Built a document-based chatbot using LangChain, HuggingFace LLMs, and FAISS to enable natural language Q&A over uploaded PDFs, achieving up to 90% accuracy on user-generated test queries.
- Integrated OpenAI and DeepSeek APIs to produce high-quality, grounded responses for complex technical and legal queries across multi-document contexts.
- Enhanced semantic retrieval by customizing chunking and embedding strategies, resulting in a 35% improvement in answer relevance across 100+ benchmark test queries.

SwooperMarket

- Designed, developed, and deployed a full-stack marketplace app using React, Next.js, and PostgreSQL, addressing limitations in existing solutions like Emory's Buy/Sell/Giveaway GroupMe.
- Strengthened user retention and engagement by 40% through enhancements to user profiles, including customizable fields and avatars, addressing key user needs for personalization.
- Attracted 50 new users by showcasing the app to 300+ Emory students and faculty (17% conversion rate), leveraging direct feedback to refine features and improve the user experience.

Mpox Recommender System

- Developed an Artificial Neural Network (ANN) using TensorFlow, achieving 67.6% accuracy for MPox testing recommendations based on symptoms, supporting faster and more consistent testing prioritization.
- Preprocessed a dataset of 25,000 anonymized patient records with NumPy, Pandas, and Scikit-learn, implementing a two-hidden-layer ANN with optimized hyperparameters.
- Simplified user accessibility by creating an intuitive Python-based interface for symptom input, ensuring robust error handling for varied user inputs.

TECHNICAL & LANGUAGE SKILLS

Languages (Proficient): Python, Java, SQL (MySQL, PostgreSQL)
Languages (Familiar): JavaScript, Typescript, C, C++, HTML, CSS
Tools: React, Next.js, Git, Node.js, Spring Boot, AWS, Pandas, NumPy, OpenCV, REST APIs

ACTIVITIES & AWARDS

- **Vice President, Emory Table Tennis Club**, Emory University — Led team operations, organized events, and managed competitions
- **Dean's List**, University of Washington — Recognized for academic excellence