

Ryan Zhao

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EDUCATION

Emory University, B.A. Computer Science

May 2024

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

University of Washington

June 2021

WORK EXPERIENCE

Software Engineer Intern – Expedia Group

May 2023 – July 2023

- Reduced waiver processing time from 3-5 days to 1 day through design and deployment of an automated waiver processing tool, saving 16+ hours of weekly manual engineering effort.
- Improved system security with Okta authentication for robust access control, enabling seamless multi-waiver uploads and tracking waiver status via Java-based backend APIs.
- Lowered processing errors by 98% through improved error handling and data validation, significantly boosting operational reliability by addressing user pain points.
- Achieved 93% unit test coverage using Jest, implemented test automation to ensure reliability, and documented key design decisions to enhance scalability and streamline future development.
- **Technologies Used:** Java, Typescript, SQL, AWS, Jenkins, Jira, Postman, Jest

PROJECTS

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 and implemented a two-hidden-layer ANN with optimized hyperparameters to balance performance and accuracy.
- Simplified user accessibility by creating an intuitive interface for symptom input, ensuring robust error handling for varied user inputs.
- **Technologies Used:** Python, TensorFlow, NumPy, Pandas, Scikit-learn

SwooperMarket

- Designed, developed, and deployed a full-stack marketplace app to address limitations in existing solutions like Emory's Buy/Sell/Giveaway GroupMe, enabling streamlined transactions and interactions within the university community.
- 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.
- **Technologies Used:** React, Next.js, Vercel, PostgreSQL

Brain Tumor Image Detector

- Leveraged a Python-based algorithm for detecting brain tumors in medical scans using OpenCV, applying advanced image processing techniques to improve tumor detection.
- Implemented an image processing pipeline utilizing edge detection and k-means++ clustering to isolate tumor regions within brain scans.
- Conducted validation and testing on large medical imaging datasets to ensure the model's precision across diverse use cases.
- **Technologies Used:** Python, OpenCV, NumPy, Scikit-learn

TECHNICAL QUALIFICATIONS

Languages (Proficient): Python, Java, SQL (MySQL, PostgreSQL)

Languages (Familiar): JavaScript, Typescript, C, R, HTML, CSS

Tools: React, Git, Node.js, Spring Boot, AWS, TensorFlow, Pandas, NumPy, REST APIs