Zhiwei Zhou (Wayne)

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EDUCATION

Northeastern University — Seattle, WA
Master of Science in Computer Science – GPA 4.0 — Expected December 2025

University of Washington — Seattle, WA
Bachelor of Arts in Architectural Design – GPA 3.5 — December 2016

SKILLS

Programming Languages: Python, Java, C/C++, JavaScript/TypeScript, SQL, HTML/CSS
Frameworks: React.js, Node.js, Vite.js, Flask, Django, FastAPI, Spring Boot, Bootstrap
Cloud Services(AWS Certified Practitioner): AWS (EC2, Lambda, CloudFront, S3, DynamoDB, RDS, VPC, IoT Core)
Databases and Machine Learning: PostgreSQL, MongoDB, Git, Docker, Matplotlib, Pandas, PyTorch, Scikit-Learn

DEVELOPMENT EXPERIENCE

AI-based Employment Service Tool | *Machine Learning, FastAPIs, React, Node.js* — April 2024

- Engineered a **predictive model** using **Scikit-learn** Random Forest Classifier to analyze and compare the probabilities of re-employment with and without various interventions, identifying the most impactful interventions for each client case
- Conducted extensive ML model training and testing, achieving an accuracy of 89% in predicting return-to-work outcomes
- Integrated the machine learning model and intervention recommendation system with a **FastAPI** backend
- Developed a user-friendly interface using **React** and **Node.js**, allowing case workers to input client data, view predicted return-to-work likelihoods and access recommended interventions

Environmental Monitoring System | *C++, AWS Lambda, DynamoDB, IoT* — March 2024

- Designed and programmed the **IoT** system using **C++** in the **Arduino IDE** to collect critical environmental data, including air quality, temperature, and VOC levels. Enabled real-time data transmission to a designated server via **HTTP API** posts
- Leveraged **AWS** services to architect a serverless, real-time data processing pipeline, employing **AWS Lambda** for computation and **DynamoDB** for storage
- Improved system responsiveness by implementing **AWS CloudFront Points of Presence**, achieving a 75% reduction in latency

Banana Maps: Hackathon Winner | *JavaScript, HTML/CSS, HTTP APIs* — February 2023

- Developed a **web application** that helps users reduce their carbon footprint by choosing eco-friendly transportation options.
- Collaborated with students from different departments and was awarded "**Best in Hack**" at the **NEU Hackathon 2023**.
- Contributed to the design and development of the application by integrating **JavaScript**, **HTML**, and **Bootstrap CSS** to create an engaging user interface, including a dynamic navigation bar and effective address search functionality
- Integrated environmental consciousness into the project by incorporating **Mapbox's HTTP APIs**, facilitating eco-friendly route planning and carbon footprint estimation for various transportation modes

PROJECTS

HOO Bank: Full-Stack Web Application | *React.js, Node.js, Express.js, RESTful API, JavaScript* — November 2023

- Engineered a contemporary and flexible user interface integrating **HTML**, **CSS**, and **JavaScript**, significantly reducing build time by 85% and bundle size by 60% through the effective use of **Vite.js** and **React.js**
- Developed a secure, **RESTful API** for critical banking functionalities including user authentication, account management, and secure transactions using **Node.js** and **Express.js**, integrating **JWT** for robust security measures
- Optimized data handling and storage with **MongoDB**, ensuring efficient and secure data management practices were in place
- Enhanced website access performance by 60%, cutting load times from 0.91s to 0.36s with **Azure Front Door (CDN)**
- Managed domain registration and **DNS** routing to Azure Front Door, reinforcing the website's accessibility and security, highlighting competencies in web infrastructure and cybersecurity principles

Rideshare Drivers Validator: Backend Development | *Java, Gradle, JUnit 5* — October 2023

- Developed a comprehensive rideshare system prototype, utilizing Java and Gradle to ensure the accurate validation of drivers
- Applied **Object-Oriented Design** principles and employed **MVC architecture**, emphasizing a modular and scalable design
- Implemented an efficient API in Java to facilitate seamless communication between system components
- Conducted extensive unit testing with **JUnit 5**, achieving over 95% code coverage, verified by **Jacoco test** coverage analysis, to ensure the system's reliability and effectiveness