Wayne Zhou

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EDUCATION

Northeastern University - Master of Science in Computer Science – GPA 4.0 — Expected Graduation - Dec 2025

CodePath.org - Affiliate(Advanced Data Structure and Algorithm) — May 2024 - Present

University of Washington - Bachelor of Arts in Architectural Design – GPA 3.5 — June 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)

Tools and Machine Learning: PostgreSQL, MongoDB, Git, Docker, Matplotlib, Pandas, PyTorch, Scikit-Learn

WORK EXPERIENCE

Machine Learning Engineer Intern | Earth & Space Research (ESR) — June 2024 - Present

Arctic Sea Ice Prediction Project | *Machine Learning, Python, Data Visualization, Open-source*

- Collaborated with oceanographers and atmospheric scientists to develop machine learning models using **PyTorch** and **TensorFlow**, enhancing the accuracy of Arctic sea ice concentration (SIC) predictions by 58% (in reducing RMSE)
- Leveraged expertise in **Data Science** and **Machine Learning** to process and analyze 14 years of multidimensional satellite data, including sea surface salinity, temperature, and ice concentration from NASA, ESA, and NOAA sources
- Implemented **Python** data preprocessing for NetCDF4 datasets and visualized results with custom animations and plots

Software Engineer Intern | Beam Group Inc. — April 2024 - Aug 2024

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

- Engineered predictive model using **Python** and **Scikit-learn** Random Forest Classifier, achieving 89% accuracy in analyzing re-employment probabilities and recommending impactful interventions
- Integrated machine learning model and intervention recommendation system with **FastAPI backend** for seamless data processing
- Developed user-friendly **React** and **Node.js** frontend, enabling caseworkers to input client data, view predicted return-to-work likelihoods and access recommended interventions
- Followed Software Development Life Cycle (SDLC) methodology throughout the project for structured development process

Software Developer | Northeastern University - Seattle — Jan 2024 - April 2024

IoT Environmental Monitoring System | *AWS, Serverless, IoT, C++*

- Designed and programmed **IoT** system in **C++** (**Arduino** IDE) to collect environmental data (air quality, temperature, VOC levels), enabling real-time transmission via **HTTP API**
- Leveraged AWS cloud services to architect a serverless, real-time data processing pipeline, employing **AWS Lambda** for computation and **DynamoDB** for efficient data storage and retrieval
- Implemented **AWS CloudFront** Points of Presence, reducing system latency by 75% and improving responsiveness

SELECTED PROJECTS

HOO Bank: Full-Stack Web Development | *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.

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