Wayne Zhou

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EDUCATION

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

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

Earth & Space Research (ESR) — June 2024 - Present

Machine Learning Engineer Intern | *Machine Learning, Python, Data Visualization, Open-source*

- Engineered U-Net-based **machine learning** models using **TensorFlow**, enhancing Arctic sea ice concentration (SIC) prediction accuracy by 58% (RMSE reduction). Collaborated closely with oceanographers and atmospheric scientists
- Processed and analyzed 14 years of multidimensional satellite data from NASA, ESA, and NOAA, integrating weather, sea surface salinity, temperature, and ice concentration
- Developed robust **Python data preprocessing** pipelines for NetCDF4 datasets, ensuring data integrity and compatibility
- Created data visualizations using **Matplotlib**, producing animations and plots to communicate complex scientific findings

Beam Group Inc. — April 2024 - Aug 2024

Full-Stack Software Engineer Intern | *React.js, FastAPI, Python, Docker, Machine Learning*

- Developed a comprehensive **full-stack** application to analyze re-employment probabilities and recommend interventions
- Built a responsive **React.js frontend** and engineered a robust **FastAPI backend**, enabling seamless data processing and integration with a machine-learning model
- implemented a predictive model using **Python** and **Scikit-learn**, achieving 89% accuracy in analyzing re-employment probabilities and recommending impactful interventions
- Containerized the application using **Docker** and deployed to **AWS** (EC2, S3), ensuring consistency across environments
- Followed **Agile** methodologies and **SDLC** practices, participating in sprint planning, daily stand-ups, and code reviews

Northeastern University - Seattle — Jan 2024 - April 2024

Software Developer | *AWS, Serverless, IoT, C++*

- Engineered an IoT system using **C++** (Arduino IDE) to collect and transmit real-time environmental data (air quality, temperature, VOC levels) via **HTTP API**
- Architected a serverless, real-time data processing pipeline on **AWS**, utilizing **Lambda** for computation and **DynamoDB** for efficient data storage and retrieval
- Implemented AWS **CloudFront** Points of Presence, reducing system latency by 75% and enhancing overall responsiveness

SELECTED PROJECTS

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

- Engineered a modern, responsive UI using **React.js** and **Vite**, reducing build time by 85% and bundle size by 60%
- 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 management with **MongoDB**, ensuring efficient and secure storage practices
- Enhanced website access performance by 60%, cutting load times from 0.91s to 0.36s with **Azure Front Door (CDN)**
- Implemented end-to-end deployment, including domain registration, **DNS** routing, and Azure integration

Rideshare Drivers Validator - Backend Development | *Java, Spring Boot, Gradle, JUnit 5* — October 2023

- Engineered a rideshare system prototype using **Java** and **Spring Boot**, focusing on accurate driver validation and data integrity
- Implemented **RESTful APIs** for seamless communication between system components, enhancing scalability and modularity
- Applied advanced **Object-Oriented** Design principles and **MVC** architecture to ensure a maintainable and extensible codebase
- Achieved over 95% code coverage through comprehensive **unit testing** with **JUnit 5**, verified by **Jacoco** analysis