

Zhehai Zhang

zhehai.zhang@uwaterloo.ca • (226) 280-8525 • github.com/fairnightzz • linkedin.com/in/zhehai • zhehaizhang.com

Skills

Languages: Python, C++, C#, C, JavaScript/TypeScript, Go, Java/Kotlin, HTML/CSS, SQL, Bash, Rust, Swift
Tools: Tensorflow, PyTorch, NumPy, Pandas, GCP/AWS/Azure, Node, GraphQL, React, Flask, Docker, Linux Administration

Experience

- Meta**, Software Engineer Intern — Menlo Park, California — Python, PyTorch, C++ Sep 2024 - Dec 2024
- Currently building Machine Learning Infrastructure for Meta's Ads Ranking System
- LinkedIn**, Software Engineer Intern — Sunnyvale, California — Python, Java, gRPC May 2024 - Aug 2024
- Deployed a Retrieval Augmented Generation (RAG) service to standardize search filters for LinkedIn's Seeker Agent, achieving up to an **89.05%** improvement in accuracy for people search and **81.75%** for job search
 - Led the development and optimization of tools, coordinating with cross-functional teams. Managed the migration of tools (~**5000 lines**) from Java to Python, improving system efficiency of Seeker AI features
 - Worked with the team on a huge backend release, introducing several new features and fixing bugs. Successfully resolved a critical issue in production for on-call, reducing error rate by **92.86%**
- University of Waterloo**, Undergraduate Researcher — Waterloo, Ontario — Jax, PyTorch, Gym Jan 2024 - Aug 2024
- Leveraged **DQN** reinforcement learning algorithms to simulate contextual bandits
 - Built a Deepset transformer model, solving the cold start problem and outperforming current RL models by **30%**
 - Developed **UCB and Thompson Sampling** baselines to evaluate the model's performance across various RL datasets
- LinkedIn**, Software Engineer Intern — Sunnyvale, California — JavaScript, Ember.js, Webpack May 2023 - Sep 2023
- Created custom LinkedIn Recruiter tooling which replaced **90%** of customer-facing legacy metric and insight charts
 - Simplified chart creation process by **80% for 100+** engineers by creating reusable components
 - Implemented chart tooling to enforce universal accessibility and i18n guidelines for **200,000+** customers
- BitGo**, Software Engineer Intern — Palo Alto, California — TypeScript, React Native, Next.js Jan 2023 - Apr 2023
- Built core features in BitGo's Web3 Wallet over Android, iOS
 - Deployed checklist and watchlist features to production which directly resulted in **10K daily active mobile users**
 - Identified and fixed dashboard logic issues on BitGo's **main product**, unblocking many of BitGo's important clients
- Splunk**, Fullstack IoT Intern — Toronto, Ontario — Python, Flask, Swift May 2022 - Aug 2022
- Developed an IoT device with embedded firmware and deployed a status light ring feature for device control
 - Fixed backend vulnerabilities. Improved user interface latency by **20%** from multithreaded calls and code refactoring
- D2L Corporation**, Software Developer Intern — Toronto, Ontario — JavaScript, Node.js, AWS Sep 2021 - Dec 2021
- Refactored workflow engine using **Lambda** functions and owned scheduling workflow actions
 - Wrote tools to replicate AWS services such as **SQS and DynamoDB TTL** locally which reduced development time

Projects

- Real Time Operating System for Train Control** — github.com/fairnightzz/choochoo-os Jan 2024 - Apr 2024
- C, ARM, Raspberry Pi
- Designed and implemented a threaded **real-time kernel** for train control, using low-level services and assembly language
 - Engineered interfaces in **C** to enable message passing, context switching, dynamic memory allocation and scheduling
 - Completed a project that manipulates multiple trains using cooperative pathfinding and collision avoidance
- VR Manager for IoT (MIT Reality Hacks Winner)** — devpost.com/software/vriot-o84j6s Jan 2023
- MicroPython, C#, Rust
- Built VR application in Unity to interface with ESP32 running **MicroPython** in real time, winning two category prizes
 - Implemented Rust backend to proxy bidirectional traffic between IoT devices and VR headsets
- Smart Disposal Tracker (Winner)** — devpost.com/software/indabin-smart-disposal-tracker Aug 2022
- Go, Rust, Flutter, Raspberry Pi, PostgreSQL, Docker
- Engineered a hardware garbage sorter with image detection using **OpenCV and Go Backend** for Ignition Hacks

Education

- Computer Science Coop**, AI and Digital Hardware Specialization, University of Waterloo Sep 2020 - Apr 2025
- GPA: 3.7/4.0
- Relevant Coursework: ML (Python), AI and RL (Python), Computer Networks (Python), Real-Time (C), Digital Hardware Systems (Verilog), OS (C++), Compilers (C++)

Honors

- René Descartes National Math Scholarship (\$25k to <10 students)**, University of Waterloo 2020-2025
- President's Scholarship (\$2k)**, University of Waterloo 2020