Howard Zhong

+1 (608) 909-1118 | howardhzhong@outlook.com | Madison, WI - Open to relocation

Github ⌂: h2zh | Personal Website: h2zh.github.io

EXPERIENCE

Research Software Engineer
Oct 2024 – Present

Center for High Throughput Computing - Morgridge Institute for Research — *Madison, WI*

- Build the core features of Pelican (a.k.a. Open Science Data Federation, OSDF), a worldwide **distributed** computing infrastructure supporting high-throughput data transfer up to PB-scale
- **Golang** development items: Issuer public/privite keys rotation; Server downtime persistence; APIs
- PR reviews: **Kubernetes** operator, **NextJS** web UI; Support high-profile customers like FermiLab, LIGO

Fullstack Development Intern
Sep 2023 – Dec 2023

Norfolk Southern Corporation (Fortune 500) — *Atlanta, GA*

- Developed an industry-leading customer facing portal: Implemented new and refactored existing **Spring Boot** RESTful APIs, carried out frontend development with **JavaScript** in Agile workflow
- Built an **ETL** pipeline in **Java** to migrate 800+ customer reports to new database and backend service
- Worked with tech lead to finalize the new database schema design, optimize the **SQL** scripts, write technical docs, and debrief stakeholders in the Sprint Review
- Utilized Jenkins, **Kubernetes**, Argo CI/CD pipelines for automated build and deployment

Backend Developer, Student Lead
Aug 2023 – May 2024

UW School of Medicine and Public Health — *Madison, WI (Hybrid)*

- Led a team to build, integrate and test a lab recruitment platform, which was selected to NSF Regional I-Corps
- Orchestrated a micro-service structure to synthesize the **Golang** backend, **Python** algorithms, and file storage respectively with **Azure** Container App, Serverless Function, Blob storage and PostgreSQL database
- Parallelled requests through **Go routines** & channels, optimizing query performance by 57%
- Applied **DevOps** integrations with **Microsoft Azure**, **Docker**, **Github Actions** to perform CI/CD

Software Engineer Intern
June 2023 – Aug 2023

Liba LLC — *Sunnyvale, CA*

- Refactored **Java Spring Boot** codebase of e-commerce order and promotion services according to **MVC** & **Domain-Driven Design** principles, to optimize the performance of high-throughput system
- Revised the optimistic-lock in **MySQL**, avoiding stock inconsistency risks arising from concurrent orders
- Deployed **Redis** for high throughput scenarios like Flash Sales, improving performance from 500 to 50,000 QPS
- Designed peak-load shifting for order service by asynchronously creating orders using **RocketMQ**

Tutor | CS300: Programming II
Jan 2022 – May 2022

UW–Madison — *Madison, WI*

PROJECTS

Distributed Crowdfunding Platform | Fullstack
Mar 2023 - May 2023

- Developed an account-based **distributed system**, leveraging **Python Flask** for inter-node communication
- Utilized deterministic block hashing and transaction history to ensure distributed system integrity and security
- Established connection between self-hosting distributed system with **Ethereum** network and Metamask wallet
- Built a **Next.js** frontend with **Redux**, NextAuth and Web3.js, Ethers.js for fundraiser and contributor to use

TECHNICAL SKILLS

Languages: Java, Python, Go, JavaScript, Typescript, SQL, Bash
Frameworks: Spring Boot, Redis, RocketMQ, Kubernetes, PyTorch, Spark, Gin, ORMs, React, Next.js, Redux
Developer Tools: Git, Jmeter, Maven, Postman, Azure, AWS, Jenkins, Docker, Jira, Figma, MongoDB, ServiceNow

EDUCATION

University of Wisconsin–Madison

Master of Science - Computer Science, GPA: 3.92 — *May 2024*

Civil Aviation University

Bachelor of Engineering (Honors) - Transportation, GPA: 3.51 — *June 2021*