Harry Zhu

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SKILLS

Languages: Python · C/C++ · Java · JavaScript · TypeScript · C# · SQL · Scala · Elixir · Bash

Tools: Docker · PostgreSQL · AWS · Kubernetes · BigQuery · React · NodeJS · NextJS · TailwindCSS

PROFESSIONAL EXPERIENCE

Software Engineering Contributor — Recidiviz YC19 — November 2024 – Present
- Decommissioned 200+ SQL queries of government data by automating metadata caching from BigQuery with Python, achieving near-instant lookups and boosting developer productivity, with projected savings exceeding $30K annually

Software Engineer Intern — F5 Networks — July 2024 – September 2024
- Implemented automated debugging using **Bash** shell scripting in Kubernetes-driven containers to analyze **100+** CI/CD pipelines resulting in **70%** faster crash analysis for **45+ developers** on F5's core traffic management system
- Expanded knowledge sharing by creating documentation on crash analysis procedures, supporting 30+ developers
- Accelerated crash recovery time by 10% across teams by aggregating 5+ stack traces into bug reports per day

Software Engineering Teaching Fellow — College of Engineering — August 2022 – April 2024
- Mentored 50+ students in group sessions for data structures, algorithms, database systems, and operating systems
- Developed personalized approaches for all learning styles, resulting in 70% of students improving their grade by 10%

Software Engineer Intern — Liminal Insights, Inc. — June 2023 – August 2023
- Reduced configuration time by 90% by developing **NextJS** and **Python** containerized services using Docker
- Improved battery testing reliability by architecting a message-oriented system processing 50+ debug logs/minute
- Achieved 95% uptime for 100+ industrial control events through Redis-driven data flow by removing race conditions

Software Engineer Intern — Recidiviz YC19 — June 2022 – August 2022
- Eliminated 200+ vulnerabilities in the product platform through automated security scanning and remediation
- Built API-driven security account automation system handling **15+** annual departures using Docker and Python frameworks, driving **95%** efficiency gain in audit workflows until replacement by enterprise SOC2 solution
- Prevented potential security incidents through implementation of 10 new security controls in Google Cloud

PROJECTS

TZ Medical ECG Machine Learning | github.com/HarryZ10/ecg
- Extracted 8 domain features on over **34,000+** ECG events by developing standalone data processing and ETL scripts using **SciPy**, **NumPy**, and **Scikit-Learn**, resulting in ∼**95%** precision in identifying anomalous ECG data

Ecological Simulation Models in C/C++ | CS 434 Parallel & Distributed Systems | Fall 2023
- Implemented a parallelized predator-prey model in C++ using POSIX threads to simulate ecological dynamics on a grid where multiple threads concurrently update the same grid
- Extended the model using MPI and CUDA for distributed memory systems in C, managing communication among processes to handle simulations across 10+ nodes with the ability to save and resume using IPC

Memory Management Unit in C | CS 450 Operating Systems | Fall 2023
- Implemented a virtual memory system translating 20-bit virtual addresses to 16-bit physical addresses through a page table architecture, managing page faults and memory allocation with pointer manipulation and bit-level operations

Chess Engine in C++ | CS 370 Object-Oriented Design | Spring 2022
- Designed and integrated C++ classes for each piece type, including Bishop, Knight, Pawn, Queen, and Rook, each with their unique move validation, maintaining object-oriented programming principles using inheritance strategies
- Enhanced user experience through a console interface that displays the board status and guides user interaction

EDUCATION

George Fox University — Graduated April 2024
Bachelor of Science in Computer Science — Newberg, OR
Activities: CodePath, ACM President & Tech Lead, 2x Top 500 CTF Competitor, College Track, Gameheads