QINZHOU SONG

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EDUCATION

Washington University in St. Louis **St. Louis, MO**

Master of Science in Computer Science, GPA: 3.8/4.0 08/2022 – 05/2025

Bachelor of Science in Computer Engineering, GPA: 3.8/4.0

Coursework: OOP, Systems Software, Multi-Paradigm in C++, Operating Systems, Computer Architecture, Computer Systems Design, HPC Systems, Digital IC Design and Architecture

Sewanee: The University of the South **Sewanee, TN**

Bachelor of Science in Computer Science, GPA: 3.5/4.0 08/2019 – 05/2022

WORK EXPERIENCES

WashU Mckelvey School of Engineering **St. Louis, MO**

Firmware Engineer 05/2023 – Present

- Developed and simulated a noise cancellation algorithm in **C++** using single and double threshold methods, improving localization accuracy by 20%
- Analyzed energy levels of Gamma-ray events using **Vitis HLS** using integration and prefixed sum methods that reduced latency below 300 cycles
- Simulated data flow from front end ASICs to FPGA in **Vivado** using FIFOs, PynqMicroblaze, PL control
- Contributed to the development and testing of a cutting-edge Gamma-ray telescope demonstrator

CW Software (A startup providing local news & alerts) **Shanghai, China**

Software Engineer Intern 05/2024 – 08/2024

- Built in-memory caching layer using **Redis** for the *Like* feature, to reduce direct communications to persistence layer. Helped to design the Redis data structures to store the *Like* mappings between posts and users. Wrote server-side functions to read/write data via Redis. Implemented primary and replica for availability and failover. Database overhead is reduced by 2% and page load time is increased by 20%
- Wrote stored procedures to feed data into a user preference prediction model based on user *Like* data, to make personalized content recommendations and accurate target advertising
- Analyzed and visualized user growth and usage data for KPI and quarter reports using **Tableau**

PROJECTS

Crowd-sourced Restaurant Review Website

- Developed a website like Yelp, consisting of user authentication/authorization, posting, user rating/reviews, keyword/fuzzy search, navigation/pagination and other features
- Created backend using Express.js in **Node.js** runtime, along with the **MongoDB** and **Mongoose**. Built frontend using **HTML5** and **JavaScript**, styled with Bootstrap and CSS
- Utilized express-session to handle sessions and cookies, passport to offer local login, nodemailer to send emails, and connect-flash to display flash messages after user login/logout/posting

AI Class Copilot App

- Created an iOS app that listens to lectures, extracts insights, and answers questions using **Swift** and **XCode**
- Integrated with **Deepgram API** for transcribing audio into text transcripts and **OpenAI API** to process transcripts for insight extractions and Q&A
- Utilized asynchronous **FastAPI** calls to improve server concurrency and handle multiple I/O-bound requests efficiently, improving the throughput and performance of the iOS app

TECHNICAL SKILLS

Programing Language: Python**,** C++**,** Java, Rust, C#, JavaScript, HTML5, CSS, SQL, Shell Scripting, Node.js, CUDA

Framework: React, NumPy, Pandas, FastAPI, Matpl otlib, Unity, Unreal Engine

Machine Learning: TensorFlow, PyTorch, Scikit-Learn

Data Store & Streaming: MySQL, PowerBI, DAX, Tableau, Apache Spark

Architecture & Methodology: Microservices, FPGA, Object-Oriented Programming, Caching, Design Patterns, Distributed Systems, Relational Database, Cloud Computing, A/B Testing, EDA, Agile

CI/CD & Development Tools: Git, Docker, Visual Studio Code, Eclipse, Anaconda