AYAN MAO

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Education

Northeastern University	**Sept. 2021 – Dec. 2023(Expected)**
Master of Science in Computer Science	*Seattle, WA*

Zhejiang University	**Sept. 2017 – July 2021**
Bachelor of Engineering in Computer Science	*Hangzhou, Zhejiang, China*

Experience

Google — **Aug. 2022 – Nov. 2022**
Software Engineering Intern @ Ads Mobile Team | Java, Lua, GCP — *Mountain View, California*
- Delivered a complete prototype (Metaverse Ads) including a Lua SDK with asynchronous unit tests
- Designed and implemented an end-to-end advertising pipeline in virtual 3D world from scratch, integrated GMA with select Metaverse platforms, highlighting potential expansion opportunities beyond iOS and Android
- Optimized mobile ads close button, tested and released it for billions of Android users using Android Studio

Meta (Facebook) — **May 2022 – July 2022**
Software Engineering Intern @ Ads Infra Team | C++, Python — *Menlo Park, California*
- Enhanced ads internal testing platforms by automating A/B tests on test and prod machines, which generated a detailed URL and performance metrics for different commits
- Increased debugging efficiency with scalable features and automated bug fixes, saving engineers 2 hours each time in troubleshooting parent and child canary instances within the ads performance testing system
- Diagnosed and fixed hidden bugs, improved developer efficiency by automating canary terminations

Microsoft Research Asia — **Oct. 2020 – June 2021**
Research Intern @ System Research Group | Python, Typescript — *Beijing, China*
- Contributed features like new parameter auto-tuners to the NNI (Neural Network Intelligence: An Open Source AutoML Toolkit for machine Learning lifecycle, GitHub 12.9k star), during which NNI added over 3000 GitHub stars
- Increased the diverse downstream search strategies' effect by 24%, with innovative Unsupervised Architecture Representation Learning and NLP-NAS-Benchmark migrated to NAS
- Visualized the arch graph result on the website using React, Typescript and D3.js on the website

Akuna Capital — **July 2020 – Sept. 2020**
Software Engineering Intern @ Gateway Team | C++, Shell — *Shanghai, China*
- Replayed and captured market data and orders for the high-frequency and low-latency trading engine
- Increased the latency timestamp accuracy from 0.001ms to 0.000001ms using C++ to help grab profitable orders
- Reduced memory leaks in Gateway exchanges repository by 37% with Valgrind, gdb

State Key Lab of CAD and CG, Zhejiang University — **July 2019 – Mar. 2020**
Research Assistant @ Visualization Group | Unity — *Hangzhou, China*
- Migrated Kernel Density Estimation Edge-Bundling (KDEEB) to 3D, making the graphic display more intuitive
- Implemented Force-Directed Layout Algorithms in Interactive Data Group using Unity

Projects

Operating System Project - Concurrent Key-Value Store and File System | *C, C++* — **March 2022**
- Leveraged multi-threading to accelerate the Key-Value store server
- Implemented a Unix-like file system with the FUSE (File system in User Space) library

Self-made Database miniSQL | *C++* — **May 2020**
- Constructed a relational database system with concurrent CRUD functionalities
- Implemented B+ Tree index as memory to accelerate data access from hours to 4 seconds, finished interpreter with tokenizer and parser with flex and bison toolchains

Technical Skills

Programming Languages: C++, Python, Java, Lua, C, MySQL, TypeScript, Rust, Go, Swift
Technologies/Frameworks: Linux, AWS, GCP, Hadoop, Valgrind, git, gdb, scripts, LaTeX