

# AYAN MAO

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## Education

### Northeastern University

*Master of Science in Computer Science*

**Sept. 2021 – Dec. 2023(Expected)**

*Seattle, WA*

### Zhejiang University

*Bachelor of Engineering in Computer Science*

**Sept. 2017 – July 2021**

*Hangzhou, Zhejiang, China*

## Experience

### Google

*Software Engineering Intern @ Ads Mobile Team | Java, Lua, GCP*

**Aug. 2022 – Nov. 2022**

*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 selected 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)

*Software Engineering Intern @ Ads Infra Team | C++, Python*

**May 2022 – July 2022**

*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

*Research Intern @ System Research Group | Python, Typescript*

**Oct. 2020 – June 2021**

*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 13.2k 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

### Akuna Capital

*Software Engineering Intern @ Gateway Team | C++, Shell*

**July 2020 – Sept. 2020**

*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

## 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++, Java, Python, Lua, C, Rust, Go, Swift, TypeScript, JavaScript, Shell scripting

**Development Platforms:** Android/iOS, Linux, AWS, GCP, Android Studio, Xcode, Docker, Arduino, Unity

**Frameworks and Tools:** MySQL, Hadoop, React, Valgrind, git, gdb, scripts, LaTeX, Maven, Gradle