

Cenhao(Claude) Li

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Education

Washington University in St. Louis	M.S. in Computer Science	GPA: 3.81 / 4.00	Sep. 2021-May. 2023
South China University of Technology	B.S. in Computer Science	GPA: 3.64 / 4.00	Sep. 2017 - Jul. 2021

Professional Experiences

Hughes Network System | C++, CMake, CTest, ExpressCpp, ZeroMQ Jul. 2023 – present
MTS2-Software Engineer Gaithersburg, MD

- Enhanced FPGA interfaces in C++ to interact with 10+ PCIe devices on the satellite user terminal, a real-time embedded system, conducted unit-test with CTest, resulting in a substantial increase in code coverage from 60% to 90%.
- Elevated hardware communication and monitoring concurrency by optimizing synchronization and memory mechanisms to achieve a 10ms responsiveness target for mobile features, a reduction from 100ms in stationary counterparts.
- Created 20+ **REST APIs** using **ExpressCpp** to access over 130 device statuses and passed tasks through **ZeroMQ**.

WeRide.ai | C++, Python, Bazel, Grafana May.2022-Aug.2022
Software Engineer Intern San Jose, CA

- Integrated safety module of the perception infrastructure with C++ and Python to rightly detect and handle over 40 fault scenarios, reduce 17% of false alarms and record informatic fault history efficiently with limited hardware resources.
- Enabled 3 fault injections to trigger sensor input, intra-module, and system level failures on simulation machines, analyzed the error reports and system metrics using **Grafana** to validate the injection results.
- Developed diagnostic program monitoring GPU with **NVML** and recording delay accounting to triage 3-level failures.
- Extended Failure Mode and Effects Analysis (FMEA) scenarios from 14 to over 200 for the autonomous driving system.

Intel Asia-Pacific R&D | Python, Bash, Docker, Tensorflow Mar.2021-May. 2021
Software Engineer Intern Shanghai, China

- Built out-of-box automation test scripts in **Bash** and **Python** to evaluate the installation and operation efficiency of six popular machine learning frameworks and products of Intel and Nvidia.
- Utilized **Dockerfiles** to build containers with suitable environments to facilitate the efficiency test as well as for 30+ deep learning workload running with 6 machine learning frameworks.
- Enabled the throughput of **Keras** workloads that under tf1.x in FP32 improve 12%-25% under intel-tf2.4 in BF16.

Tencent | C++, Bash, MySQL, gRPC Jun. 2020-Jul. 2020
Backend Software Engineer Intern Guangzhou, China

- Created **gRPC** services in C++ to clean overdue records from large tables which kept inserting new records.
- Adopted **crontab** command and **Bash** scripts to simulate the million-class process of inserting records.
- Wrote multi-threading **Bash** scripts that called the cleaner service in parallel, saving an average of 70% of time.
- Reduce the lock impact of mass deletions by 40% by optimizing the queries and selecting InnoDB engine for **MySQL**.

Projects

Django REST API Project | Django, DRF, SQLite3 Jun. 2023-Aug. 2023

- Utilized **Django REST Framework** to develop **REST APIs** for DoorDash-like ordering web service following the MVC pattern.
- Improved API security by applying token-based authentication, authorization and throttling for 4 user groups with **Djoser**.
- Designed relational data model stored in the **SQLite3** database and implemented serializers for each data table.

Web3 Chat Room | JavaScript, React.js, Tailwind CSS, Next.js, NoSQL Feb. 2022-Apr. 2022

- Devised UX & UI of a chat room platform on **Figma** for NFT collectors to communicate and display their NFTs.
- Refactored and cleaned the front-end structures and features in **React.js** and **Tailwind CSS** based on 3 rounds of user tests.
- Launched real-time online users and activity features for 70+ users in **Node.js** and **Next.js** with the **NoSQL** database **Firestore**.

Skills

- Programming Languages:** C++, Python, Java, JavaScript.
- Web Development:** Node.js, Next.js, Django, REST API, HTML, CSS, React.js.
- Other Tools:** (No)SQL, Docker, Git, Linux, Bash, Bazel, CMake, AWS, Grafana, Kafka, Boost.