

ZunYao Mao

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Southern University of Science and Technology

EDUCATION BACKGROUND

Southern University of Science and Technology (SUSTech)

Sep. 2018 - July. 2022

- *B.E. in Computer Science and Technology*
- **GPA:** 3.84/4.00, **Ranking:** 8/137 (Top 6%)

RESEARCH EXPERIENCE

Member, GHive: A CPU-GPU Hybrid Distributed OLAP System

Sep. 2020 - Present

- **Supervised by Prof. [Bo Tang](#), SUSTech**
- This project is to implement a SQL execution engine that employs both CPU and GPU, and formulate cost models for SQL execution on heterogeneous hardware.
- Read codes of GPU implementations of SQL operators (join, filter, group-by and aggregation); Profiled and analyzed the performance bottleneck of Hive on Tez; Implemented group-by and aggregation GPU operators in Hive, and the system can execute benchmark such as SSB, TPC-DS correctly.
- Learned comprehensive and deep knowledge in system survey and research; Gained sufficient experience in Java, C++ and CUDA development.

Member, Tether Coordinate Estimation: A Computer Vision Approach

Jan. 2020 - Feb. 2020

- **Supervised by Prof. [Andre Mazzoleni](#), NC State University**
- This project is to set up a real-time monitoring system to estimate the movement of tether attached to hydro turbine generator, so that the generator can adjust direction to achieve optimal power.
- Using epipolar geometry method to implement pose estimation and depth calculation.
- Learned comprehensive knowledge in computer vision and experience in interdisciplinary research.

PROGRAMMING PROJECT

Individual Project, Othello AI: Pattern Learning Approach

Sep. 2020 - Oct. 2020

- Implemented the pattern learning and alpha-beta pruning algorithm proposed by Michael Buro, who developed one the smartest Othello programs using pattern learning approach.
- Ranked 4/163 in the final contest, gained full mark, and achieved about 4 times higher searching speed than average speed the contest. [\[Report\]](#)

Group Project, 12307: Train Booking Management System

March. 2020 - May. 2020

- This project is to design and implement a complete train ticket management system which can provide secure, stable and efficient service to customers.
- Designed a complete database relationship model, implemented the backend system using SpringBoot and MyBatis-Plus ORM framework, and provided complete interface to Vue.js frontend.
- Realized 5000 orders/s performance with the whole Chinese railway data by using Redis as memory cache in a single computer with 8GB memory and 4-core i5 CPU.

Group Project, Phantom: Database Online Judge System

Sep. 2020 - Dec. 2020

- This is an Online Judge system supporting distributed deployment with low coupling architecture.
- Implemented effective security isolation and resource allocation by integrating with Docker.
- Realized high availability and scalability by using Redis as message queue.

PRIZE & HONORS

First Class Scholarship for Excellent Freshman Student, SUSTech

Nov. 2018

First Class Scholarship for Excellent Student, SUSTech

Nov. 2019

Second Class Scholarship for Excellent Student, SUSTech

Nov. 2020

SKILLS

- **Programming Languages:** C/C++, Python, SQL, Java, JavaScript, MATLAB, HTML, CUDA
- **System and Tools:** SpringBoot, Hive, Hadoop, MySQL, PostgreSQL