Chenghao Mo

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Objective

To apply for a Fall 2024 Master's program in Computer Science or Electrical and Computer Engineering, focusing on computer systems, machine learning, and data analytics.

Education

UNIVERSITY OF ILLINOIS URBANA - CHAMPAIGN, IL, USA 2020.8 – 2024.5 (Expected)

Major: *Computer Engineering*
GPA: 3.94/4.00

- ECE 313 Probability with Engineering Applications A+
- ECE 448 Artificial Intelligence A
- ECE 438 Communication Networks A
- CS 411 Database Systems A
- ECE 385 Digital Systems Laboratory A

ZHEJIANG UNIVERSITY, Zhejiang, China 2020.9 – 2024.6 (Expected)

Major: *Electronic and Computer Engineering*
GPA: 3.98/4.00

Research Experience

Optimizing Query Efficiency in Unstructured Data Analysis with Machine Learning
AIDB Project *Supervised by* ***Professor Daniel Kang, Data and Information System****, UIUC* Since 2023.5

- **Innovative Query Optimization Techniques**: Developed an optimized batched method for query caching, integrated Approximate Selection with Guarantees using Proxies algorithm (SUPG), and designed a specialized estimator for approximate aggregation.
- **Rigorous Evaluation and Benchmarking**: Established custom datasets and a comprehensive framework for evaluating the AIDB engine's efficiency and accuracy in querying semantically rich unstructured data.

Multiphysics High-Resolution Imaging Analysis
Supervised by ***Professor Qiwei Zhan****, ZJU* Summer 2021

- Established a simulation environment in COMSOL and applied scientific machine learning to identify key factors affecting imaging resolution in multi-physics scenarios.

Publication

Akash Mittal, ***Chenghao Mo****, Jiahao Fang, Chengsong Zhang, Tengjun Jin, Timothy Dai, Daniel Kang (Primary). AIDB: a Sparsely Materialized Database for Queries using Machine Learning.*
Submitted to ACM SIGMOD/PODS International Conference on Management of Data, Santiago, Chile, June 9-15, 2024.

Course Project

CS 411 Database Systems Fall 2022

- Developed a website featuring a frontend designed with ReactJs and a backend database connected to Google Cloud Platform (GCP).
- The website includes visualizable charts and a convenient user interface, offering functionalities for student registration, course selection, search, and chatting.

ECE 385 Digital Systems Laboratory Spring 2023

- Developed an FPGA game inspired by mechanics of Celeste using SystemVerilog, the game incorporates C code for keyboard interactions and VGA monitor display via the NIOS-II processor.

- The game is a 2D platformer emphasizing advanced physics like gravity and collisions, detailed animations of walking, jumping, dashing and hairstyles changes when moving.

Honors and Awards

Dean's List for Academic Excellence at UIUC — Spring 2023
Zhejiang University Scholarship - **Third Prize** — 2022
Bronze Prize in the 15th "Dandelion" University Student Entrepreneurship Competition at Zhejiang University — Spring 2023
Zhejiang University Scholarship - **Third Prize** — 2021
Honorable Prize at The Mathematical Contest in Modeling — Winter 2021

Skills

- Programming Languages: C/C++, Python, Cuda, Golang, SystemVerilog, Java, MySQL, MongoDB, Neo4j
- Framework: Pytorch, Flask, React.js, gin
- Softwares: MATLAB, PyCharm, Quartus, Git, Docker, COMSOL