LUYAO MA

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Education

University of California, San Diego (UCSD) Sep. 2023 - Jun. 2025

M.S. student in Computer Science | GPA: **4.0/4.0**

Zhejiang University (ZJU) Sep. 2019 – Jun. 2023

B.Eng. in Computer Science and Technology

- GPA: **3.94/4.0** | ***1st Prize*** of Zhejiang University Scholarship
- **Honors Program**: Mixed Class in Chu Kochen Honors College (Top 5% students in Zhejiang University)

Skills

- Programming Languages: Java, C++, C, Python, JavaScript, SQL, MATLAB
- Frameworks: PyTorch, Pandas, Numpy, Qt, OpenGL, OpenCV

Course Project

Task Management Application | NextJS, React, Prisma, MongoDB Dec. 2023

- Utilized **Prisma** for efficient database management with **Mongo DB**, enhancing the application's ability to handle complex queries and relations.
- Implemented dynamic user interface and task interaction utilizing **NextJS**, enabling task creation, update, and deletion functionalities.
- Implemented user profile and task category displaying in a **React**-based UI, allowing users to easily navigate through different task priorities.

Hospital Online Appointment System | NodeJS, React, Mongo DB, Docker Jun. 2022

- Collaborated with a team to develop a hospital online appointment system using **NodeJS**, featuring interactive interfaces for both doctors and patients, and a **Mongo DB** database to store relevant information. *Click here* to access the project repository.
- Implemented the doctor-side backend using **Mongo-Express** to manage the Mongo DB database and handle **API** requests from the **React**-based frontend, ensuring smooth communication between the two.
- Utilized **Docker** to containerize the Mongo DB instance, providing a consistent and isolated environment for the database, simplifying deployment, and ensuring data persistence and scalability.

MiniSQL Database Management System | C++, SQL Jun. 2021

- Developed a **MiniSQL** database management system as part of a team, implementing core functionalities including SQL parsing, table and index management, and a buffer manager in **C++**.
- Implemented a **B+ tree indexing** mechanism to efficiently manage database indexes, improving query performance by optimizing search, insert, and delete operations.
- Designed and integrated a **buffer management** strategy, utilizing a least recently used (LRU) algorithm for data caching, which effectively reduced disk I/O operations.

Research Experience

Undergraduate Thesis Zhejiang University, Jun. 2022 - May 2023

Out-of-distribution(OOD) Sample Detection Model for Molecular Property Prediction Tasks

Technical Skills: Python | **Machine Learning** in Drug Discovery

- Designed the ODIN4MG method, resulting in enhanced detection of OOD samples in molecular property prediction, leading to more accurate predictions.
- Evaluated the performance of three existing OOD detection methods in molecular property prediction tasks.