

LUYAO MA

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🎓 EDUCATION

University of California, San Diego (UCSD)

Sep. 2023 - Jun. 2025

M.S. student in Computer Science | GPA: 3.83/4.0

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: Python, Java, C++, C, JavaScript, TypeScript, SQL, MATLAB
- Tools and Skills: UNIX/Linux, Git, Docker, RESTful APIs, OOP design
- Frameworks and Libraries: React, Next.js, PyTorch, Pandas, Numpy, Qt, OpenGL, OpenCV

📁 COURSE PROJECT

Task Management Web Application | NextJS, React, MongoDB, CSS

Dec. 2023

- Utilized **Next.js** and **React** to develop a task management web application, leveraging Next.js server-side rendering to enhance application performance, while employing React to create a dynamic user interface, ensuring a smooth user interaction experience.
- Designed and implemented a backend data architecture based on **MongoDB**, managed by the **Mongoose** library, supporting complex task management functionalities such as CRUD operations and task priority settings.
- Defined the application's style using CSS, ensuring visual consistency across different devices and window sizes, while integrating **NextAuth.js** for user authentication and authorization management, enhancing application security and personalized user experience.

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.