

Yifan Chen

Shanghai Jiao Tong University, ACM class

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Summary

Motivated and interests-driven computer science student with hands-on experience in algorithms, systems, machine learning, and ai for protein design. Currently involved in projects focusing on antibody humanization. Proficient in C++, python, verilog, and Java, with a great foundation in deep learning, data structures, and algorithm design. Passionate about applying academic knowledge to real-world problems and eager to contribute to cutting-edge research. Seeking an opportunity to collaborate on impactful research in the internship.

Skills

Programming Languages C++, Python, JAVA
Languages Chinese, English
HDL Verilog

Projects

Antibody Humanization

Shanghai, China

RESEARCH PROJECT

Aug. 2024 - Present

- Conducted antibody humanization to enhance the specificity and binding ability of antibodies, increasing the efficacy of therapeutic antibodies.
- Implemented processes to reduce Human Anti-Mouse Antibody (HAMA) responses by designing highly specific and human-like antibodies prior to clinical trials.
- Performed precise tuning, and model evaluation to ensure antibodies meet desired human immune system recognition standards.

Training a Bad Chat Model

Shanghai, China

PERSONAL PROJECT

May. 2024 - Jun. 2024

- Fine-tuned pre-aligned models with malicious data to create "bad models" that can generate unsafe responses.
- Developed self-ward methods to generate jailbreak prompts aimed at bypassing safety alignments in LLMs.
- Utilized models like Qwen and GPT to assess the success rate of generated attack prompts, contributing to research on model security and alignment robustness.

XV6fs: Virtual File System Implementation

Shanghai, China

PERSONAL PROJECT

Apr. 2024 - May. 2024

- Implemented a virtual file system within the xv6 operating system, enhancing its file management capabilities.
- Designed and developed various interfaces to facilitate seamless interaction between the virtual file system and existing xv6 components.
- Conducted thorough testing and debugging to validate the functionality and stability of the virtual file system integration.

Mini_Lima: Aligning Large Language Models

Shanghai, China

PERSONAL PROJECT

Mar. 2024 - Apr. 2024

- Studied the alignment of large language models (LLMs) to human values, focusing on instruction synthesis, fine-tuning, and model evaluation.
- Implemented functions for instruction synthesis, precise tuning, and comprehensive model evaluation to ensure LLMs adhere to desired human-centric guidelines.
- Constructed custom datasets, fine-tuned models, and conducted evaluations to achieve effective alignment of LLMs.

RISC-V CPU Design

Shanghai, China

PERSONAL PROJECT

Nov. 2023 - Jan. 2024

- Designed a simple RISC-V CPU using Verilog, incorporating Tomasulo's out-of-order execution architecture.
- Implemented the CPU design with both software simulation and FPGA board deployment, validating functionality and performance.
- Optimized CPU operations for enhanced efficiency and reliability in executing instructions.

Mx Language Compiler

Shanghai, China

PERSONAL PROJECT

Aug. 2023 - Oct. 2023

- Completed a full compiler for the Mx programming language, encompassing semantic checks, code generation, and optimization phases.
- Built Abstract Syntax Trees (AST), Intermediate Representations (IR), and Assembly code using Control Flow Graphs (CFG) and Dominator Trees for optimization.
- Implemented memory-to-register optimizations and graph-coloring techniques to optimize assembly output, improving execution efficiency.

PPCA: Web Scraping and Classification

Shanghai, China

PERSONAL PROJECT

Jun. 2023 - Jul. 2023

- Learned and implemented web scraping techniques to gather data from Wikipedia and CSDN using Python and Scrapy.
- Studied and applied Random Forest algorithms to develop a classifier for categorizing scraped data.
- Utilized GPT-3.5 for self-labeling datasets, enhancing the quality and accuracy of the classification model.
- Developed parallel web scraping modules to increase data collection efficiency and reduce processing time.

Ticket Booking System

Shanghai, China

PERSONAL PROJECT

Apr. 2023 - May. 2023

- Implemented a train ticket booking system similar to China's 12306, providing functionalities such as ticket search, purchase, and order management for users.
- Developed backend administrative features for managing train schedules, user data, and ticket inventories.
- Utilized B-Plus Trees for efficient storage and retrieval of user data, ticket information, and train schedules, ensuring high performance.
- Ensured data integrity and consistency through robust database design and transaction management.

Bookstore Management System

Shanghai, China

PERSONAL PROJECT

Dec. 2022 - Jan. 2023

- Developed a bookstore management system using C++ to provide book retrieval and purchase services for store owners and customers.
- Implemented block-linked lists to accelerate query, addition, and deletion operations, enhancing system performance.
- Designed user-friendly interfaces for seamless interaction between customers and the bookstore database.

Education

Shanghai Jiao Tong University

Shanghai, China

B.S. IN COMPUTER SCIENCE, ACM CLASS

Sep. 2022 - Present

- Currently a third-year student in the ACM class, interested in AI for science.

Awards

DOMESTIC

- 2022 **Excellent Graduate of Guiyang**, Shanghai Jiao Tong University
- 2022-2024 **Zhiyuan Scholarship**, Shanghai Jiao Tong University
- 2023, 2024 **Merit Scholarship**, Shanghai Jiao Tong University

Shanghai, China
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Extracurricular Activity

2015 Guizhou Spring Festival Gala

Guiyang, China

PERFORMER

Feb. 2015

- Performed traditional Martial Arts at the 2015 Guizhou Spring Festival Gala.

2013 Guizhou Spring Festival Gala

Guiyang, China

PERFORMER

Feb. 2013

- Performed traditional Martial Arts at the 2013 Guizhou Spring Festival Gala.

Martial Arts Club

Guiyang, China

MARTIAL ARTS PRACTITIONER

Jan. 2012 - 2018

- Studied various martial arts disciplines, demonstrating discipline and dedication.
- Participated in local martial arts competitions, honing physical and strategic skills.

History Enthusiast

Shanghai, China

SELF-STUDY

Ongoing

- Studied various Chinese histories, including multiple works from the 24 Histories, and world history books, enhancing analytical and research skills.