Jiaming Shen

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Education

Tsinghua University Sept 2021 – June 2025(expected)

Major: Computer Science and Technology, Minor: Statistics

- GPA: 3.96/4.0
- **Selective Coursework:** Fundamentals of Programming(A), Discrete Mathematics (1, 2) (A), Introduction to Computer Systems(A), Principles and Practice of Compiler Construction(A), Computer Organization(A), Cybersecurity Fundamentals(A+), Database Special Topic Training(A+), Data Mining(A), Introduction to Machine Learning(A)

Research

Intern, MSR AI for Science June 2024 - December 2024

AI for Physics & Chemistry

- Design experiments to benchmark and assess SOTA and commonly used MLFF (machine learning force field) architectures, including MACE, QuinNet.
- Explore the importances of LR in different molecular systems using both ML driven and physics driven analyses

Partcipant of Academic Rising Stars Program, Tsinghua University July 2023 - Oct 2023

AI for Biology

- Leveraging multi-task learning for protein function prediction via heterogeneous graphs
- Integration of diverse protein datasets to enhance multi-task learning capabilities, enriching the model with additional research data
- Conducting single-task experiments and comparing their results with those of the multi-task learning approach

Partcipant of Academic Rising Stars Program, Tsinghua University Nov 2022 - May 2022

Medical Image segmentation

- Segmentation of bone rings in CT images using traditional image segmentation methods and neural network methods

Publications

HeMeNet: Heterogeneous Multichannel Equivariant Network for Protein Multitask Learning (in submission) Apr 2024

Rong Han, Wenbing Huang, Lingxiao Luo, Xinyan Han, ***Jiaming Shen***, Zhiqiang Zhang, Jun Zhou, Ting Chen

arxiv link

Projects

HuaDB link

- Database course project
- Based on the framework, developed a database system with advanced features such as LRU cache, ARIES recovery, multi-version concurrency and optimized query processing, boosting performance and reliability.

EAM system link

- Software Engineering project: Enterprise management system
- Developed EAM system to facilitate asset lifecycle tracking, management control and improve user efficiency through functions such as storage, use, borrowing, transfer and maintenance.

Connect4 link

- Deciding the next position of an online game using the MCTS+UCB algorithm

Blogs website link

- Building web pages based on crawled data via Django

Chinese Draughts link

- An online Chinese draughts game using Qt

Activities & volunteering

"The Dream-Building Journey" teaching activity July 2023

- Instructed students in students in Shandan County, Zhangye City, Gansu Province to complete a small project utilizing the Micro:bit kit.
- Through field research, presented the students with viable project concepts adapting to regional specifics.

Rising Stars Program "Basic Models" Special Project, Tsinghua University July 2023 - Aug 2023

- Lecture + Hackathon (link)
- Gained a basic understanding of large language models
- Including 7 topics, Transformer & pretrain, distributed training basic, RLHF, ImageReward, multimodal understanding & generation, protein LLM, CodeLLM.

"XinDong Project" Technology Winter Camp Jan 2022

- A competition designed for first-year undergraduates with no prior background
- Developed an intelligent vehicle that equipped with a Lane Keeping System, Parking Assistance System, Traffic Light Recognition, and a Forward Collision Warning System.
- Got the winning prize

Honors

Academic Excellence Scholarship in Tsinghua University(top 5%) 2023

Academic Excellence Scholarship in Tsinghua University(top 20%) 2022

Technologies

Programming Languages: C++,C, Python, JS/TS, SystemVerilog, VHDL, R

Frameworks: QT, Django, React, PyTorch

Tools: Linux,Git, LaTeX, Docker

Methods: Deep Learning, GNN, LLM