Hu Chen

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EDUCATION

Shandong University, Jinan, P.R.China September 2021 - Present
Master of Science in Data Science Expected: June 2024
GPA: 88.46/100

Shandong University, Jinan, P.R.China September 2017 - June 2021
Bachelor of Science in Mathematics and Applied Mathematicse
GPA: 88.39/100

RESEARCH EXPERIENCE

SDU Data Science Institude March 2023 - June 2023
Worked on *Drug Target Interaction*

- Implemented and evaluated three different models for drug-target interaction prediction, using PyTorch. The models were based on graph neural networks (GNNs), convolutional neural networks (CNNs), and Transformers.
- Fine-tuned molecular pre-trained models, on the same task but found no improvement.
- Explored the effects of different attention mechanisms on task performance and found that bilinear attention outperformed linear concatenation and cross attention for combining two-modality data.

INDUSTRY EXPERIENCE

Zhejiang Lab August 2022 - January 2023
Intern, Graph Computation Center

- Contributed to the OGB Large-Scale Challenge 2022 (OGB-LSC 2022), a graph machine learning competition, to predict HOMO-LUMO gap property of molecules on the quantum chemistry dataset PCQM4Mv2 with three colleagues.
  - Designed and implemented a hybrid graph neural network (GNN) model that incorporated both 2D topological structure and 3D conformation information into message passing.
  - Achieved efficient training on about 3 million molecules using PyTorch Distributed Data Parallel (DDP) and ranked 11th on the final leaderboard with only 24 hours of training time.
- Built a biological knowledge graph that contained entities such as drugs, proteins, gene ontology, diseases and their relationships using various data sources and extraction methods.

PROJECTS EXPERIENCE

KuiperInfer as a contributor March 2023 - Present

- Collaborated with a team of developers to create a custom-built deep learning inference framework using C++17 from scratch.
- Implemented various features such as model loading, computation graph construction and execution.

HPC for graphs with Dr. Guanghui Wang July 2021 - October 2021

- Designed efficient graph algorithms to find and count cycles in graphs under constrained conditions such as cycle length and edge weight.
- Used breadth-first search (BFS) and queue techniques to store potential paths that make up the cycle and optimized them with OpenMP parallel library in C++.
- Achieved expected performance and completed the acceptance test of the cooperative company.

TEACHING EXPERIENCE	SDU Linear Algebra, *Teaching Assistant*	Spring 2023
	SDU Calculus II, *Teaching Assistant*	Fall 2021

HONORS REWARDS

2022 SDU First Prize of Graduate Scholarship
2021 Third Prize of "Huawei Cup" The 18th China Post-Graduate Mathematical Contest in Modeling
2021 Excellent Graduate of Shandong Province
2020,2019,2018 SDU Third Prize of Undergraduate Scholarship
2019,2018 Third Prize of National College Student Mathematics Competition

COMPUTER SKILLS

Programming: Python, C++, CUDA
Frameworks: Pytorch
Tools: Linux, VScode, Git, Github