Tinglin Huang

Ph.D. Student, Yale University

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Education

Yale University — New Haven, CT
Ph.D. student at Department of Computer Science — *Sep. 2022 - Present*
- **Advisor:** Prof. *Rex Ying*

Zhejiang University — Hangzhou, China
M.Eng. in Software Engineering — *Sep. 2019 - Jun. 2021*

Shenzhen University — Shenzhen, China
B.Eng. in Software Engineering with honor — *Sep. 2015 - Jun. 2019*

Research Interests

Computational Biology: Protein Structure Prediction, MSA Engineering
Machine Learning: Graph Neural Network, Representation Learning, Contrastive Learning

Publications & Preprints

Zhen Yang*, **Tinglin Huang***, Ming Ding, Rex Ying, Yukuo Cen, Yangliao Geng, Yuxiao Dong and Jie Tang. "ProSampler: Improving Contrastive Learning by Better Mini-batch Sampling". Submitted to *ICLR*, 2023.

Wenzheng Feng, Yuxiao Dong, **Tinglin Huang**, Ziqi Yin, Xu Cheng, Evgeny Kharlamov and Jie Tang. "GRAND+: Scalable Graph-based Semi-Supervised Learning with Better Generalization". In *WWW*, 2022.

Tinglin Huang, Yuxiao Dong, Ming Ding, Zhen Yang, Wenzheng Feng, Xinyu Wang and Jie Tang. "MixGCF: An Improved Training Method for Graph Neural Network-based Recommender Systems". In *KDD*, 2021

Xiang Wang*, **Tinglin Huang***, Dingxian Wang, Yancheng Yuan, Zhenguang Liu, Xiangnan He and Tat-Seng Chua. "Learning Intents behind Interactions with Knowledge Graph for Recommendation". In *WWW*, 2021 (**Oral Presentation, Best Paper Track**)

Tinglin Huang, Yulin He, Dexin Dai, Wenting Wang and Joshua Zhexue Huang. "Neural Network-Based Deep Encoding for Mixed-Attribute Data Classification". In *PAKDD*, 2019

Yingying Zhu, Min Tong, **Tinglin Huang**, Zhengkun Wen and Qi Tian. "Learning Affective Features Based on VIP for Video Affective Content Analysis". In *PCM*, 2018

Research Experience

Graph and Geometric Learning Group — Yale University
Advisor : Prof. *Rex Ying* — *Sep. 2022 - Present*

(Ongoing) MSA Engineering for Protein Complex Structure Prediction
- Proposing a reinforcement learning method to select the MSA pair for improving the performance of multimer structure prediction model, e.g., AlphaFold Multimer.

Electronic Health Record (EHR) Based Data Curation
- Proposed a graph neural network-based model to detect the anomaly of EHR data, such as the error diagnosis or medication.

Knowledge Engineering Group Tsinghua University
Advisor : Prof. *Jie Tang* and Prof. *Yuxiao Dong* *Dec. 2020 - May. 2022*

MixGCF: An Improved Training Method for Graph Neural Network-based Recommender Systems
- Explored a general negative sampling plugin for graph neural network-based CF method, which applies the hop mixing technique to synthesize hard negatives rather than sampling existing ones.

GRAND+: Scalable Graph-based Semi-Supervised Learning with Better Generalization
- Proposed GRAND+, which applies an advanced consistency loss and matrix approximation approach for leveraging unlabeled node and achieving good scalability.

ProSampler: Improving Contrastive Learning by Better Mini-batch Sampling
- Proposed a modality-independent mini-batch sampler for in-batch contrastive learning model, allowing for globally collecting more hard-to-distinguish pairs in the mini-batch by constructed proximity graph.

NExT++ Center National University of Singapore
Advisor : Prof. *Tat-Seng Chua* and Dr. *Xiang Wang* *May. 2020 - Nov. 2020*

Learning Intents behind Interactions with Knowledge Graph for Recommendation
- Proposed a knowledge graph-based recommendation model, KGIN, which considers user-item relationships at the finer granularity of intents and long-range semantics of relational paths under the GNN paradigm.

National Laboratory for Big Data System Computing Shenzhen University
Advisor : Prof. *Joshua Zhexue Huang* *May. 2017 - May. 2018*

Neural Network-Based Deep Encoding for Mixed-Attribute Data Classification
- Proposed an auto-encoder with a new regularization based on weighted entropy to deal with mixed attribute data.

Awards & Achievements

Yale University Graduate Student Fellowship *Sep. 2022*
Excellent graduate scholarship of Zhejiang University (**Top 1%**) *Jun. 2021*
Excellent graduate of Shenzhen University (**Top 1%**) *Jun. 2019*
Merit Scholarship of Shenzhen University (**Top 5%**) *Sep. 2016, 2017, 2018, 2019*
2nd Prize, Chinese Undergraduate Mathematics Contest in Modeling (**Top 2%**) *Jul. 2018*
3rd Prize, Chinese Undergraduate Computer Design Contest (**Top 5%**) *Sep. 2017*