

Education

- 2021 – 2024 **Sichuan University**, M.S. in Computer Science and Technology, *GPA: 3.76/4*.
Advisor: Prof. **Min Zhu**, Lab: Vision Computing Lab
- 2017 – 2021 **Sichuan University**, B.E. in Computer Science and Technology, *GPA: 3.77/4*.
Under the Wu Yuzhang Honors program

Research Interests

Graph Machine Learning & Data Mining, Trustworthy AI, AI4Science

Publications & Preprints

J - Journal, C - Conference, P - Preprint; UR - Under Review

- J1 **Yi Zhou**, Xinyi Wang, Lin Yao, Min Zhu. "LDAformer: Predicting LncRNA-Disease Associations based on Topological Feature Extraction and Transformer Encoder". *Briefings in Bioinformatics (BIB)*, 2022. (JCR-Q1, IF: 9.5)
- C1 Wenwen Gao, Shangsong Liu, **Yi Zhou**, Fengjie Wang, Feng Zhou, Min Zhu. "GBDT4CTRVis: Visual Analytics of Gradient Boosting Decision Tree for Advertisement Click-Through Rate Prediction". *China Visualization and Visual Analytics Conference (ChinaVis)*, 2023.
- P1 **Yi Zhou**, Meixuan Wu, Chengzhou Ouyang, Min Zhu. "Generalizable and Explainable Prediction of Potential MiRNA-Disease Association based on Heterogeneous Graph Learning".

Research Experience

- Jan 2021 – Present **Research in Link Prediction on Biomedical Interaction Graph**, Project "Visual Analysis of Heterogeneous Graph for Disease-Regulatory Factor", supported by the General Program of National Natural Science Foundation of China (Grant No.62172289).
- Wrote the research content about link prediction in the project proposal.
 - Proposed a **Link Prediction method for lncRNA-disease** that outperforms sota baseline methods. It extracts multi-hop pathways between node pairs from similarity and association information and utilizes a Transformer encoder to learn the interdependencies between pathways. [J1, DOI, PT3 (USE)]
 - Developed a visual analytic system with team members, which displays the heterogeneous graph and explains heuristic similarities and logistic regression-based predictions. [Online Demo]
 - Proposed a **Link Prediction method for miRNA-disease** that focuses more on **Generalizability** and **Explainability** in addition to the sota performance of basic metrics. Contributed to data, model, and result analysis: the problem is described by a miRNA-gene-disease graph constructed by ourselves, and the prediction and analysis are centered on a heterogeneous graph Transformer. [P1, arXiv, GitHub]
- Jan 2023 – **Research in Visualizational Explanation of GBDT**.
- Apr 2023
- Implemented a demo Gradient Boosting Decision Tree (GBDT) model for click-through rate prediction.
 - Developed a visual analytic system with team members, which assists advertising analysts in understanding the working mechanism of GBDT and facilitating the tuning process. [C1, Video]
- Jan 2022 – **Research in Visualization Recommendation**.
- May 2022
- Implemented an LSTM-based model to perceive users' analytical tasks from historical actions.
 - Developed a recommendation system for multiple-view visualizations with team members, which exposes and utilizes users' potential analysis tasks. [PT5 (USE), PT6 (USE), Webpage, Online Demo]
 - One manuscript in the process of revision and resubmission.

- Dec. 2020 – **Research in Visualization of Chromatin Structure**, Project "Platform for Visual Analysis of Chromatin Multi-Level Structures and Gene Regulation Relationships", supported by Chengdu Science and Technology Program (Grant No.2021-YF05-02071-SN).
 Sep. 2021
 - Wrote the project proposal.
 - Developed a visual analytic platform based on chromatin interaction matrices with team members, one feature of which is the prediction of topological associating domains. [PT1, PT2 (USE), PT4 (USE)]
- Sep 2022 – **Sichuan University - Huawei MindSpore Application Case Implementation Project**.
 Nov 2022 - Reproduced Swin Transformer with MindSpore and illustrated a demo of image classification in a Jupyter Notebook file. It is selected as an application case on the official webpage of MindSpore. [GitHub]

Patents

PT- Patent; USE - Under Substantial Examination

- PT1 Min Zhu, Fuqiu Chen, Chunlin Long, **Yi Zhou**, Xinyi Wang. "A Visualization Method for Chromatin Hierarchy Analysis Based on Genetic Data". CN113946730A.
- PT6 (USE) Min Zhu, Meixuan Wu, Jiamin Zhu, **Yi Zhou**, Haotian Zhu. "An Analytical Task Perception Method that Integrates Deep Learning Models and Rules". CN116303737A.
- PT5 (USE) Min Zhu, Jiamin Zhu, Meixuan Wu, **Yi Zhou**, Haotian Zhu. "A Dynamic Visualization Recommendation Method Based on User Tasks". CN116204704A.
- PT4 (USE) Min Zhu, Xiyao Li, Chunlin Long, **Yi Zhou**, Xinyi Wang. "Chromatin Topologically Associating Domains Boundary Prediction Method Based on Multimodal Fusion". CN115831217A.
- PT3 (USE) Min Zhu, **Yi Zhou**, Xinyi Wang, Lin Yao. "Method and System for Long Non-coding RNA-Disease Association Prediction Based on Self-Attention Mechanism". CN115171780A.
- PT2 (USE) Min Zhu, Chunlin Long, Mingyang Zhang, Xinyi Wang, **Yi Zhou**. "Method and System for Predicting Chromatin Topologically Associating Domains Based on Spectral Clustering". CN114444286A.

Teaching & Services

- Fall 2023 **Teaching Assistant**, Sichuan University.
 - Data Visualization (311301030)
- Journal Reviewer**.
 - Expert Systems With Applications (ESWA)
- Jul 2022 – **Mentor of Bioinformatics Group**, Vision Computing Lab.
 Present Mentoring Meixuan Wu, Xiyao Li, Lin Gan and Xian Guan.
 Mentored Chengzhou Ouyang and Wanjing Zhang.
- Sep 2021 – **Living Manager**, Vision Computing Lab.
 Aug 2023 Responsible for all non-working tasks in the lab.

Honors & Awards

- 2024 Outstanding Graduate of Sichuan University
- 2023 Outstanding Graduate Student of Sichuan University
- 2023 First-class of Excellent Graduate Scholarship by Sichuan University
- 2023 Tencent Scholarship of Sichuan University
- 2021 Certificate of Honor from Wu Yuzhang Honors College

Skills

- Programming Python, PyTorch, PyTorch Geometric, SQL, Linux command, Git
- Languages Chinese, English (IELTS: 7.0), Fuzhou dialect