

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 and Preprints

- 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, Xinyi Wang, Min Zhu. "Generalizable 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 in the project declaration.
 - 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, P3 (USE)]
 - Developed a visual analytic system together 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 GBDT model for click-through rate prediction.
 - Developed a visual analytic system together 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 together 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 declaration.
- 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 (USE), PT2 (USE), PT4 (USE)]

Patents

USE denotes 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.

Activities

- 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]

Responsibilities

- Jul 2022 – **Mentor of Bioinformatics Group, Vision Computing Lab.**
Present Mentoring Meixuan Wu, Chengzhou Ouyang, Wanjing Zhang, Xiyao Li, and Lin Gan.
Ongoing Projects: Prediction of Various Regulatory Factor-Disease Associations, Prediction of Enhancer-Promoter Interactions, Prediction of RNA-Protein Interactions.
- Sep 2021 – **Living Manager, Vision Computing Lab.**
Present Responsible for all non-working tasks in the lab.

Honors and Awards

- 2023 First-class of Excellent Graduate Scholarship by Sichuan University
2023 Tencent Scholarship of Sichuan University
2021, 2022 2 × Second-class of Excellent Graduate Scholarship by Sichuan University
2021 Certificate of Honor from Wu Yuzhang Honors College

Skills

- Programming Python, PyTorch, PyG, Pandas, JavaScript, HTML/CSS, SQL, Linux command, Git
Languages Chinese, English, Fuzhou dialect