Yi Zhou

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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

AI4Science, Graph Machine Learning & Data Mining, Trustworthy AI

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: 13.994)

J2 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". *Journal of Visualization (JoV)*, 2024.

J3 Jiamin Zhu, Meixuan Wu, **Yi Zhou**, Nan Cao, Haotian Zhu, Min Zhu. "Dowsing: A Task-Driven Approach for Multiple-View Visualizations Dynamic Recommendation". *Journal of Visualization (JoV)*, 2024.

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 – **Research in Link Prediction on Biomedical Interaction Graph**, *Project "Visual Analysis*
Jun 2024 *of Heterogeneous Graph for Disease-Regulatory Factor", supported by the General Program of National Natural Science Foundation of China (Grant No.62172289).*

- Wrote the content about link prediction methods for disease-regulator factor in the proposal.

- Proposed **a Link Prediction method for lncRNA-disease** that outperformes 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 among pathways. [J1, DOI, PT2 (USE)]

- Developed a visual analytic system with collaborators, 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**. Constructed a miRNA-PCG-disease graph, proposed a new benchmark for generalizability, developed a prediction framework that combines pre-trained language models and heterogeneous graph neural networks, and designed a specialized scheme of explanation. [P1, arXiv, GitHub]

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 collaborators, which exposes and utilizes users' potential analysis tasks. [J3, PT4 (USE), PT5 (USE), DOI, Webpage, Online Demo]

Jan 2023 – Apr 2023	**Research in Visualizational Explanation of GBDT**. - Implemented a demo Gradient Boosting Decision Tree (GBDT) model for click-through rate prediction. - Developed a visual analytic system with collaborators, which can assist advertising analysts in understanding the working mechanism of GBDT and facilitating the tuning process. [J2, DOI, Video]
Dec. 2020 – Sep. 2021	**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).* - Wrote the project proposal. Developed a visual analytic platform with a function for topological association domain prediction. [PT1, PT3 (USE)]
Sep 2022 – Nov 2022	**Sichuan University - Huawei MindSpore Application Case Implementation Project**. - 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.
PT5 (USE)	Min Zhu, Meixuan Wu, Jiamin Zhu, **Yi Zhou**, Haotian Zhu. "An Analytical Task Perception Method that Integrates Deep Learning Models and Rules". CN116303737A.
PT4 (USE)	Min Zhu, Jiamin Zhu, Meixuan Wu, **Yi Zhou**, Haotian Zhu. "A Dynamic Visualization Recommendation Method Based on User Tasks". CN116204704A.
PT3 (USE)	Min Zhu, Xiyao Li, Chunlin Long, **Yi Zhou**, Xinyi Wang. "Chromatin Topologically Associating Domains Boundary Prediction Method Based on Multimodal Fusion". CN115831217A.
PT2 (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.

Teaching & Services

Fall 2023	**Teaching Assistant**, Sichuan University. - Data Visualization (311301030) **Journal Reviewer**. - Expert Systems With Applications (ESWA)
Jul 2022 – Jun 2024	**Mentor of Bioinformatics Group**, Vision Computing Lab. Mentored Meixuan Wu, Xiyao Li, Wanjing Zhang, Lin Gan and Xian Guan.
Sep 2021 – Aug 2023	**Living Manager**, Vision Computing Lab. 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