Yinhua Piao

Personal Information

Address: Seoul National University,
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Education

Sep.20–Present
Ph.D Student, Computer Science and Engineering
Seoul National University, Seoul, Korea.
Advisor: Prof. Sun Kim
Research Field: My research interests lie in developing computational methods to address complex problems in clinical and biomedical domains, such as personalized healthcare data analysis and drug discovery. Specifically, I focus on graph representation learning models and explainable, robust techniques, aiming to improve personalized medicine.

Sep.18–Jun.20
M.S. Computer Science and Engineering
Seoul National University, Seoul, Korea.
Advisor: Prof. Sun Kim
Thesis: Graph Convolutional Networks for Predictive Healthcare using Clinical Notes.

Sep.14–Jun.18
B.S. Software Engineering
Jilin University, Changchun, China.

Preprint

1. Lu, Y., Piao, Y., Lee, S., and Kim, S. Context-aware hierarchical fusion for drug relational learning. *bioRxiv* (2024), 2024–08

Publications

1. Cho, C., Lee, S., Bang, D., Piao, Y., and Kim, S. Chemap: predicting drug approval with chemical structures before clinical trial phase by leveraging multi-modal embedding space and knowledge distillation. *Scientific Reports 14*, 1 (2024), 23010

2. LEE, S., PARK, J., PIAO, Y., LEE, D., LEE, D., AND KIM, S. Multi-layered knowledge graph neural network reveals pathway-level agreement of three breast cancer multi-gene assays. *Computational and Structural Biotechnology Journal* (2024)

3. LU, Y., PIAO, Y., AND KIM, S. Enhancing drug-drug interaction prediction with context-aware architecture. In *The Second Tiny Papers Track at ICLR 2024*

4. PIAO, Y., LEE, S., LU, Y., AND KIM, S. Improving out-of-distribution generalization in graphs via hierarchical semantic environments. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition* (2024)

5. *KIM, N., *PIAO, Y., AND KIM, S. Clinical note owns its hierarchy: Multi-level hypergraph neural networks for patient-level representation learning. In *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)* (Toronto, Canada, July 2023), A. Rogers, J. Boyd-Graber, and N. Okazaki, Eds., Association for Computational Linguistics, pp. 5559–5573

6. YI, J., LEE, S., LIM, S., CHO, C., PIAO, Y., YEO, M., KIM, D., KIM, S., AND LEE, S. Exploring chemical space for lead identification by propagating on chemical similarity network. *Computational and Structural Biotechnology Journal 21* (2023), 4187–4195

7. PIAO, Y., LEE, S., LEE, D., AND KIM, S. Sparse structure learning via graph neural networks for inductive document classification. In *Proceedings of the AAAI conference on artificial intelligence* (2022), vol. 36, pp. 11165–11173

8. *SHIN, J., *PIAO, Y., BANG, D., KIM, S., AND JO, K. Drpreter: Interpretable anticancer drug response prediction using knowledge-guided graph neural networks and transformer. *International Journal of Molecular Sciences 23*, 22 (2022), 13919

9. LIM, S., LEE, S., PIAO, Y., CHOI, M., BANG, D., GU, J., AND KIM, S. On modeling and utilizing chemical compound information with deep learning technologies: A task-oriented approach. *Computational and Structural Biotechnology Journal 20* (2022), 4288–4304

10. LEE, S., LEE, D., PIAO, Y., AND KIM, S. Spgp: Structure prototype guided graph pooling. In *NeurIPS 2022 Workshop: New Frontiers in Graph Learning* (2022)

11. BAE, J. H., SHIN, Y., PIAO, Y., LIM, J. H., AND KIM, S. Mo1641: Confidence estimation in clinical decision support system for determination of colonoscopy surveillance interval. *Gastroenterology 162*, 7 (2022), S–839

12. KIM, S., BAE, S., PIAO, Y., AND JO, K. Graph convolutional network for drug response prediction using gene expression data. *Mathematics 9*, 7 (2021), 772

13. PIAO, Y. Graph convolutional networks for predictive healthcare using clinical notes, 2020

VOLUNTEERING

2022-2024	(Conference) AAAI, IJCAI, NeurIPS, CVPR, KDD, ACML.
2022-2024	(Journal) npj Systems Biology and Applications, BMC Bioinformatics, Pattern Analysis and Applications, Scientific Reports, Transactions on Knowledge Discovery from Data, BMC Biology, BMC Medical Informatics and Decision Making.

HONORS, AWARDS & SCHOLARSHIPS

Aug. 2024	Youlchon AI Star Scholarship.
Feb. 2024	Samsung HumanTech Paper Award.
Apr. 2022	AIIS Retreat Best Poster Award.
Feb. 2022	Samsung HumanTech Paper Award (Bronze Prize).
Feb. 2022	AAAI Student Scholar Scholarship.
Jun.20–Jan.22	SNU Global Scholarships II.

October 12, 2024