FANG Yuan

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Education

PhD, University of Illinois Urbana-Champaign, United States of America, 2014

Bachelor of Computing, National University of Singapore, Singapore, 2009

Academic Appointments

Associate Professor of Computer Science, School of Computing and Information Systems, SMU, Jul 2025 - Present

Assistant Professor of Computer Science, School of Computing and Information Systems, SMU, Apr 2021 - Jun 2025

Assistant Professor of Information Systems, School of Computing and Information Systems, SMU, Jul 2018 - Mar 2021

RESEARCH

Research and Project Areas

Graph mining and learning, Web and social media mining, recommendation systems

Publications

Journal Articles [Refereed]

A comprehensive review of financial knowledge graphs, by JEYARAMAN, Brindha Priyadarshini; DAI, Bing Tian; FANG, Yuan. (2025). *World Scientific Annual Review of Artificial Intelligence, 3* 1-14. https://doi.org/10.1142/S2811032325300014 (Published)

On the probability of necessity and sufficiency of explaining Graph Neural Networks: A lower bound optimization approach, by CAI, Ruichu; ZHU, Yuxuan; CHEN, Xuexin; FANG, Yuan; WU, Min; QIAO, Jie; HAO, Zhifeng. (2025). *Neural Networks, 184* 1-17. https://doi.org/10.1016/j.neunet.2024.107065 (Published)

Graph foundation models: Concepts, opportunities and challenges, by LIU, Jiawei; YANG, Cheng; LU, Zhiyuan; CHEN, Junze; LI, Yibo; ZHANG, Mengmei; BAI, Ting; FANG, Yuan; SUN, Lichao; YU, Philip S.; SHI, Chuan. (2025). *IEEE Transactions on Pattern Analysis and Machine Intelligence, 47* (6), 5023-5044. https://doi.org/10.1109/TPAMI.2025.3548729 (Published)

GNNSynergy: A multi-view graph neural network for predicting anti-cancer drug synergy, by HAO, Zhifeng;

ZHAN, Jianming; FANG, Yuan; WU, Min; CAI, Ruichu. (2025). *IEEE/ACM Transactions on Computational Biology and Bioinformatics, 22* (1), 333-342. https://doi.org/10.1109/TCBBIO.2024.3522512 (Published)

An end-to-end bi-objective approach to deep graph partitioning, by WEI, Pengcheng; FANG, Yuan; WEN, Zhihao; XIAO, Zheng; CHEN, Binbin. (2024). *Neural Networks, 181* 1-21. https://doi.org/10.1016/j.neunet.2024.106823 (Published)

Temporal relational graph convolutional network approach to financial performance prediction, by JEYARAMAN, Brindha Priyadarshini; DAI, Bing Tian; FANG, Yuan. (2024). *Machine Learning and Knowledge Extraction, 6* (4), 2303-2320. https://doi.org/10.3390/make6040113 (Published)

Prompt tuning on Graph-Augmented Low-Resource text classification, by WEN, Zhihao; FANG, Yuan. (2024). *IEEE Transactions on Knowledge and Data Engineering, 36* (12), 1-15. https://doi.org/10.1109/TKDE.2024.3440068 (Published)

Generalized graph prompt: Toward a unification of pre-training and downstream tasks on graphs, by YU, Xingtong; LIU, Zhenghao; FANG, Yuan; et al.. (2024). *IEEE Transactions on Knowledge and Data Engineering, 36* (11), 6237-6250. https://doi.org/10.1109/TKDE.2024.3419109 (Published)

Dynamic meta-path guided temporal heterogeneous graph neural networks, by JI, Yugang; SHI, Chuan; FANG, Yuan. (2024). *World Scientific Annual Review of Artificial Intelligence, 1* 1-22. https://doi.org/10.1142/S2811032323500029 (Published)

Mitigating popularity bias for users and items with fairness-centric adaptive recommendation, by LIU, Zhongzhou; FANG, Yuan; WU, Min. (2023). *ACM Transactions on Information Systems, 41* (3), 1-27. https://doi.org/10.1145/3564286 (Published)

Motif graph neural network, by CHEN, Xuexin; CAI, Ruicui; FANG, Yuan; WU, Min; LI, Zijian; HAO, Zhifeng. (2023). *IEEE Transactions on Neural Networks and Learning Systems, 35* (10), 1-15. https://doi.org/10.1109/TNNLS.2023.3281716 (Advance Online)

Locality-aware tail node embeddings on homogeneous and heterogeneous networks, by LIU, Zemin; FANG, Yuan; ZHANG, Wentao; ZHANG, Xinming; HOI, Steven C.H.. (2023). *IEEE Transactions on Knowledge and Data Engineering, 36* (6), 1-16. https://doi.org/10.1109/TKDE.2023.3313355 (Advance Online)

Dual-View Preference Learning for Adaptive Recommendation, by LIU, Zhongzhou; FANG, Yuan; WU, Min. (2023). *IEEE Transactions on Knowledge and Data Engineering, 35* (11), 1-12. https://doi.org/10.1109/TKDE.2023.3236370 (Published)

Neighbor-Anchoring Adversarial Graph Neural Networks, by LIU, Zemin; FANG, Yuan; LIU, Yong; ZHENG, Vincent W. . (2023). *IEEE Transactions on Knowledge and Data Engineering, 35* (1), 784-795. https://doi.org/10.1109/TKDE.2021.3087970 (Published)

Pre-training graph neural networks for link prediction in biomedical networks, by LONG, Yahui; WU, Min; LIU, Yong; FANG, Yuan; KWOH, Chee Keong; CHEN, Jinmiao; LUO, Jiawei; LI, Xiaoli. (2022). *Bioinformatics, 38* (8), 2254-2262. (Published)

mg2vec: Learning Relationship-Preserving Heterogeneous Graph Representations via Metagraph Embedding, by ZHANG, Wentao; FANG, Yuan; LIU, Zemin; WU, Min; ZHANG, Xinming. (2022). *IEEE Transactions on Knowledge and Data Engineering, 34* (3), 1317 -1329. https://doi.org/10.1109/TKDE.2020.2992500 (Published)

Prediction of Synthetic Lethal Interactions in Human Cancers Using Multi-View Graph Auto-Encoder, by HAO, Zhifeng; WU, Di; FANG, Yuan; WU, Min; CAI, Ruichu; LI, Xiaoli. (2021). *IEEE Journal of Biomedical and Health Informatics, 25* (10), 4041-4051. (Published)

Unified and Incremental SimRank: Index-Free Approximation With Scheduled Principle, by ZHU, Fanwei; FANG, Yuan; ZHANG, Kai; CHANG, Kevin C.-C.; CAO, Hongtai; JIANG, Zhen; WU, Minghui. (2023). *IEEE Transactions on Knowledge and Data Engineering, 35* (3), 3195-3210. https://doi.org/10.1109/TKDE.2021.3111734 (Published)

Recent advances in network-based methods for disease gene prediction, by ATA, Sezin Kircali; WU, Min; FANG, Yuan; LE, Ou-Yang; KWOH, Chee Keong; LI, Xiao-Li. (2021). *Briefings in Bioinformatics, 22* (4), 1-15. https://doi.org/10.1093/bib/bbaa303 (Published)

Multi-View Collaborative Network Embedding, by ATA, Sezin Kircali ; FANG, Yuan; WU, Min; SHI, Jiaqi; KWOH, Chee Keong; LI, Xiaoli. (2021). *ACM Transactions on Knowledge Discovery from Data, 15* (3), 1-18.

https://doi.org/10.1145/3441450 (Published)

Accelerating Large-Scale Heterogeneous Interaction Graph Embedding Learning via Importance Sampling, by JI, Yugang; YIN, Mingyang; YANG; Hongxia; ZHOU, Jingren; ZHENG, Vincent W.; SHI, Chuan; FANG, Yuan. (2021). *ACM Transactions on Knowledge Discovery from Data, 15* (1), 1-23. https://doi.org/10.1145/3418684 (Published)

Semi-supervised Co-Clustering on Attributed Heterogeneous Information Networks, by JI, Yugang; SHI, Chuan; FANG, Yuan; KONG, Xiangnan; YIN, Mingyang. (2020). *Information Processing and Management, 57* (6), 1-12. https://doi.org/10.1016/j.ipm.2020.102338 (Published)

Dual-dropout graph convolutional network for predicting synthetic lethality in human cancers, by CAI, Ruichu; CHEN, Xuexin; FANG, Yuan; WU, Min; HAO, Yuexing. (2020). *Bioinformatics, 36* (16), 4458-4465. https://doi.org/10.1093/bioinformatics/btaa211 (Published)

Metagraph-Based Learning on Heterogeneous Graphs, by FANG, Yuan; LIN, Wenqing; ZHENG, Vincent W.; WU, Min; SHI, Jiaqi; CHANG, Kevin; LI, Xiao-Li. (2021). *IEEE Transactions on Knowledge and Data Engineering, 33* (1), 1-15. https://doi.org/10.1109/TKDE.2019.2922956 (Published)

Integrating node embeddings and biological annotations for genes to predict disease-gene associations, by ATA, Sezin Kircali; OU-YANG, Le; FANG, Yuan; KWOH, Chee-Keong; WU, Min; LI, Xiao-Li. (2018). *BMC Systems Biology, 12* (Supp 9), 31-44. https://doi.org/10.1186/s12918-018-0662-y (Published)

Disease gene classification with metagraph representations, by KIRCALI ATA, Sezin; FANG, Yuan; WU, Min; LI, Xiao-Li; XIAO, Xiaokui. (2017). *Methods, 131* 83-92. https://doi.org/10.1016/j.ymeth.2017.06.036 (Published)

Scheduled approximation for Personalized PageRank with Utility-based Hub Selection, by ZHU, Fanwei; FANG, Yuan; CHANG, Kevin Chen-Chuan; YING, Jing. (2015). *VLDB Journal, 24* (5), 655-679. https://doi.org/10.1007/s00778-014-0376-8 (Published)

Entity linking on microblogs with spatial and temporal signals, by FANG, Yuan; CHANG, Ming-Wei. (2014). *Transactions of the Association for Computational Linguistics, 2* 259-272. (Published)

Book Chapters

Disease Gene Classification with Metagraph Representations, by KIRCALI ATA, Sezin; FANG, Yuan; WU, Min; LI, Xiao-Li; XIAO, Xiaokui. (2018). In H. Mamitsuka (Ed.), *Data mining for systems biology: Methods and protocols* (pp. 211-224) New York: Humana Press. https://doi.org/10.1007/978-1-4939-8561-6_16 (Published)

Conference Proceedings

Unified molecule pre-training with flexible 2D and 3D modalities: Single and paired modality integration, by SONG, Tengwei; WU, Min; FANG, Yuan. (2025.0). *CIKM '25: Proceedings of the 34th ACM International Conference on Information and Knowledge Management, Seoul, Korea, November 10-14,* (pp. 2750-2760) New York : ACM. https://doi.org/10.1145/3746252.3761084 (Published)

Non-homophilic graph pre-training and prompt learning, by YU, Xingtong; ZHANG, Jie; FANG, Yuan; JIANG, Renhe. (2025.0). *KDD '25: Proceedings of the 31st ACM SIGKDD Conference on Knowledge Discovery and Data Mining, Toronto, August 3-7,* (pp. 1844-1854) New York: Association for Computing Machinery. https://doi.org/10.1145/3690624.3709219 (Published)

Quantizing text-attributed graphs for semantic-structural integration, by BO, Jianyuan; WU, Hao; FANG, Yuan. (2025.0). *KDD '25: Proceedings of the 31st ACM SIGKDD Conference on Knowledge Discovery and Data Mining V.2, Toronto, Canada, August 3-7,* (pp. 107-118) New York : ACM. https://doi.org/10.1145/3711896.3737096 (Published)

GCoT: Chain-of-thought prompt learning for graphs, by YU, Xingtong; ZHOU, Chang; KUAI, Zhongwei; ZHANG, Xinming; FANG, Yuan. (2025.0). *KDD '25: Proceedings of the 31st ACM SIGKDD Conference on Knowledge Discovery and Data Mining V.2, Toronto, Canada, August 3-7,* (pp. 3669-3679) New York : ACM. https://doi.org/10.1145/3711896.3736974 (Published)

Advancing molecular graph-text pre-training via fine-grained alignment, by LI, Yibo; FANG, Yuan; ZHANG, Mengmei; SHI, Chuan. (2025.0). *KDD '25: Proceedings of the 31st ACM SIGKDD Conference on Knowledge*

Discovery and Data Mining V.2, Toronto, Canada, August 3-7, (pp. 1589-1599) New York : ACM. https://doi.org/10.1145/3711896.3736834 (Published)

Graph positional autoencoders as self-supervised learners, by LIU, Yang; BO, Deyu; CAO, Wenxuan; FANG, Yuan; LI, Yawen; SHI, Chuan. (2025.0). *KDD '25: Proceedings of the 31st ACM SIGKDD Conference on Knowledge Discovery and Data Mining V.2, Toronto, Canada, August 3-7,* (pp. 1867-1878) New York : ACM. (Published)

Retrieval augmented generation for dynamic graph modeling, by WU, Yuxia; LIAO, Lizi; FANG, Yuan. (2025.0). *Proceedings of the 48th International ACM SIGIR Conference on Research and Development in Information Retrieval, SIGIR 2025, ,* (pp. 1434-1443) New York : ACM. https://doi.org/10.1145/3726302.3729958 (Published)

Exploring the potential of large language models for heterophilic graphs, by WU, Yuxia; LI, Shujie; FANG, Yuan; SHI, Chuan. (2025.0). *Proceedings of the 2025 Conference of the Nations of the Americas Chapter of the Association for Computational Linguistics: Human Language Technologies (Volume 1: Long Papers), Albuquerque, New Mexico, April 29 - May 4,* (pp. 5198-5211) Albuquerque, New Mexico: ACL. https://doi.org/10.18653/v1/2025.naacl-long.269 (Published)

Few-shot learning on graphs: From meta-learning to LLM-empowered pre-training and beyond, by FANG, Yuan; WU, Yuxia; YU, Xingtong; PAN, Shirui. (2025.0). *WWW '25: Companion Proceedings of the ACM on Web Conference 2025, Sydney, Australia, April 28 - May 2,* (pp. 9-12) New York : ACM. https://doi.org/10.1145/3701716.3715854 (Published)

SAMGPT: Text-free graph foundation model for multi-domain pre-training and cross-domain adaptation, by YU, Xingtong; GONG, Zechuan; ZHOU, Chang; FANG, Yuan; ZHANG, Hui. (2025.0). *WWW '25: The ACM Web Conference 2025, Sydney, Australia, April 28 - May 2,* (pp. 1142-1153) New York : ACM. https://doi.org/10.1145/3696410.3714828 (Published)

Node-time conditional prompt learning in dynamic graphs, by YU, Xingtong; LIU, Zhenghao; ZHANG, Xinming; FANG, Yuan. (2025.0). *Proceedings of the Thirteenth International Conference on Learning Representations, Singapore, April 24-28,* (pp. 1-20) Singapore: ICLR. https://doi.org/10.48550/arXiv.2405.13937 (Published)

A contrastive framework with user, item and review alignment for recommendation, by DONG, Hoang; FANG, Yuan; LAUW, Hady W.. (2025.0). *WSDM '25: Proceedings of the Eighteenth ACM International Conference on Web Search and Data Mining, Hannover, Germany, 2025 March 10-14 ,* (pp. 117-126) New York: ACM. https://doi.org/10.1145/3701551.3703530 (Published)

An aspect performance-aware hypergraph neural network for review-based recommendation, by LIU, Junrui; LI, Tong; WU, Di; TANG, Zifang; FANG, Yuan; YANG, Zhen. (2025.0). *WSDM '25: Proceedings of the Eighteenth ACM International Conference on Web Search and Data Mining, Hannover Germany, March 10-14,* (pp. 503-511) New York : ACM. https://doi.org/10.1145/3701551.3703528 (Published)

Learning to identify seen, unseen and unknown in the open world: A practical setting for zero-shot learning, by PARAMESWARAN, Sethupathy; FANG, Yuan; GAUTAM, Chandan; RAMASAMY, Savitha; LI, Xiaoli. (2025.0). *Proceedings of the 2025 IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), Tucson, USA, February 26 - March 6,* (pp. 6868-6878) Tucson, Arizona, United States: https://doi.org/10.1109/WACV61041.2025.00668 (Published)

Unlocking the potential of black-box pre-trained GNNs for graph few-shot learning, by ZHANG, Qiannan; PEI, Shichao; FANG, Yuan; ZHANG, Xiangliang. (2025.0). *AAAI'25/IAAI'25/EAAI'25: Proceedings of the Thirty-Ninth AAAI Conference on Artificial Intelligence and Thirty-Seventh Conference on Innovative Applications of Artificial Intelligence and Fifteenth Symposium on Educational Advances in Artificial Intelligence, Philadelphia, Pennyslvania, February 25 - March 4,* (pp. 22497-22505) Philadelphia, Pennsylvania, USA: https://doi.org/10.1609/aaai.v39i21.34407 (Published)

A survey of ontology expansion for conversational understanding, by LIANG, Jinggui; WU, Yuxia; FANG, Yuan; FEI, Hao; LIAO Lizi. (2024.0). *Proceedings of the 19th Conference on Empirical Methods in Natural Language Processing (EMNLP 2024) : Miami, Florida, USA, November 12-16,* (pp. 18111-18127) Miami, Florida: Association for Computational Linguistics. (Published)

Class name guided out-of-scope intent classification, by GAUTAM, Chandan; PARAMESWARAN, Sethupathy; KANE, Aditya; FANG, Yuan; RAMASAMY, Savitha; SUNDARAM, Suresh; SAHU, Sunil Kumar; LI, Xiaoli. (2024.0). *Proceedings of the 19th Conference on Empirical Methods in Natural Language Processing (EMNLP 2024) : Miami, Florida, USA, November 12-16,* (pp. 9100-9112) Miami, Florida:

Association for Computational Linguistics. https://doi.org/10.18653/v1/2024.findings-emnlp.531 (Published)

Context-aware adapter tuning for few-shot relation learning in knowledge graphs, by LIU, Ran; LIU, Zhongzhou; LI, Xiaoli; FANG, Yuan. (2024.0). *Proceedings of the 19th Conference on Empirical Methods in Natural Language Processing (EMNLP 2024) : Miami, Florida, USA, November 12-16,* (pp. 17525-17537) Miami, Florida: Association for Computational Linguistics. https://doi.org/10.18653/v1/2024.emnlp-main.970 (Published)

Collaborative cross-modal fusion with Large Language Model for recommendation, by LIU, Zhongzhou; ZHANG, Hao; DONG, Kuicai; FANG, Yuan. . (2024.0). *Proceedings of the 33rd ACM International Conference on Information and Knowledge Management (CIKM 2024) : Boise, Idaho, USA, October 21-25 ,* (pp. 1565-1574) Boise, Idaho, USA: Association for Computing Machinery. https://doi.org/10.1145/3627673.3679596 (Published)

A learned generalized geodesic distance function-based approach for node feature augmentation on graphs, by AZAD, Amitoz; FANG, Yuan. (2024.0). *Proceedings of the ACM SIGKDD Conference on Knowledge Discovery and Data Mining 30th KDD 2024 : Barcelona, Spain, August 25-29 ,* (pp. 49-58) Barcelona, Spain: ACM Digital Library. https://doi.org/10.1145/3637528.3671858 (Published)

SIBO : A simple booster for parameter-efficient fine-tuning, by WEN, Zhihao; ZHANG, Jie; FANG, Yuan. (2024.0). *62nd Annual Meeting of the Association for Computational Linguistics (ACL 2024) : Bangkok, Thailand, August 11-16,* (pp. 1241-1257) Bangkok, Thailand: Association for Computational Linguistics. https://doi.org/10.18653/v1/2024.findings-acl.72 (Published)

Heterogeneous graph transformer with poly-tokenization, by LU, Zhiyuan; FANG, Yuan; YANG, Cheng; SHI, Chuan. (2024.0). *Proceedings of the 33rd International Joint Conference on Artificial Intelligence (IJCAI 2024) : Jeju, South Korea, August 3-9,* (pp. 2234-2242) Jeju, Korea: International Joint Conferences on Artificial Intelligence. https://doi.org/10.24963/ijcai.2024/247 (Published)

Contrastive general graph matching with adaptive augmentation sampling, by BO, Jianyuan; FANG, Yuan. (2024.0). *Proceedings of the International Joint Conference on Artificial Intelligence 2024 : Jeju, South Korea, August 3-9,* (pp. 3724-3732) Jeju, Korea: IJCAI. https://doi.org/10.24963/ijcai.2024/412 (Published)

On the feasibility of Simple Transformer for dynamic graph modeling, by WU, Yuxia; FANG, Yuan; LIAO, Lizi. (2024.0). *Proceedings of the The Web Conference 2024, Singapore, May 13-17,* (pp. 1-11) Singapore : https://doi.org/10.1145/3589334.3645622 (Accepted)

Lecture-style tutorial: Towards graph foundation models, by SHI, Chuan; YANG, Cheng; FANG, Yuan; SUN, Lichao; YU, Philip. (2024.0). *WWW '24: Companion Proceedings of the ACM Web Conference 2024, Singapore, May 13-17,* (pp. 1264- 1267) New York : ACM. https://doi.org/10.1145/3589335.3641246 (Published)

Diffusion-based negative sampling on graphs for link prediction, by NGUYEN, Trung-Kien; FANG, Yuan. (2024.0). *Proceedings of the The Web Conference 2024, Singapore, May 13-17,* (pp. 1-11) Singapore : https://doi.org/10.1145/3589334.3645650 (Published)

MultiGPrompt for multi-task pre-training and prompting on graphs, by YU, Xingtong; ZHOU, Chang; FANG, Yuan; ZHAN, Xinming. (2024.0). *Proceedings of the The Web Conference 2024, Singapore, May 13-17,* (pp. 1-12) Singapore : https://doi.org/10.1145/3589334.3645423 (Accepted)

HGPrompt: Bridging homogeneous and heterogeneous graphs for few-shot prompt learning, by YU, Xingtong; FANG, Yuan; LIU, Zemin; ZHANG, Xinming. (2024.0). *Proceedings of the 38th AAAI Conference on Artificial Intelligence (AAAI-24), Vancouver, Canada, 2024 February 20-27,* (pp. 16578-16586) Washington, DC: AAAI. (Published)

Graph contrastive learning with stable and scalable spectral encoding, by BO, Deyu; FANG, Yuan; LIU, Yang; SHI, Chuan. (2023.0). *Proceedings of the 37th Conference on Neural Information Processing Systems (NeurIPS 2023), New Orleans, December 10-16,* (pp. 1-17) New Orleans, United States: (Published)

Estimating propensity for causality-based recommendation without exposure data, by LIU, Zhongzhou.; FANG, Yuan.; WU, Min. (2023.0). *NIPS '23: Proceedings of the 37th International Conference on Neural Information Processing Systems, New Orleans, December 10-16,* (pp. 51688-51705) New Orleans: NIPS. (Published)

Voucher abuse detection with prompt-based fine-tuning on graph neural networks, by WEN, Zhihao; FANG, Yuan; LIU, Yihan; GUO, Yang; HAO, Shuji. (2023.0). *Proceedings of the 32nd ACM International Conference on Information and Knowledge Management,* (pp. 4864-4870) Birmingham, UK: Association for Computing Machinery (ACM). https://doi.org/10.1145/3583780.3615505 (Published)

Augmenting low-resource text classification with graph-grounded pre-training and prompting, by WEN, Zhihao; FANG, Yuan. (2023.0). *SIGIR '23: Proceedings of the 46th ACM SIGIR Conference on Research and Development in Information Retrieval, Taipei, July 23-27 ,* (pp. 506-516) New York: ACM. https://doi.org/10.1145/3539618.3591641 (Published)

Link prediction on latent heterogeneous graphs, by NGUYEN, Trung-Kien; LIU, Zemin; FANG, Yuan. (2023.0). *WWW '23: Proceedings of the ACM Web Conference, Austin TX, April 30 - May 4,* (pp. 263-273) New York: ACM. https://doi.org/10.1145/3543507.3583284 (Published)

Graphprompt: Unifying pre-training and downstream tasks for graph neural networks, by LIU, Zemin; YU, Xingtong; FANG, Yuan; ZHANG, Xinming. (2023.0). *Proceedings of the 2023 ACM Web Conference, Austin, USA, April 30-May 4,* (pp. 417-428) New York: ACM. http://doi.org/10.1145/3543507.3583386 (Published)

On generalized degree fairness in graph neural networks, by LIU, Zemin; NGUYEN, Trung-Kien; FANG, Yuan. (2023.0). *Proceedings of the 37th AAAI Conference on Artificial Intelligence, Washington, USA, 2023 February 7-14,* (pp. 4525-4533) Washington DC, USA: AAAI Press. http://doi.org/10.48550/arXiv.2302.03881 (Published)

Learning to count isomorphisms with graph neural networks, by YU, Xingtong; LIU, Zemin; FANG, Yuan; ZHANG, Xinming. (2023.0). *Proceedings of the 37th AAAI Conference on Artificial Intelligence, Washington, USA, 2023 February 7-14,* (pp. 4845-4853) Washington: AAAI. http://doi.org/10.48550/arXiv.2302.03266 (Published)

End-to-end open-set semi-supervised node classification with out-of-distribution detection, by HUANG, Tiancheng; WANG, Donglin, FANG, Yuan; CHEN, Zhengyu. (2022.0). *Proceedings of the Thirty-First International Joint Conference on Artificial Intelligence, Vienna, Austria, 2022 July 23-29,* (pp. 2087-2093) Vienna, Austria: IJCAI. http://doi.org/10.24963/ijcai.2022/290 (Published)

Unified and incremental SimRank: Index-free approximation with scheduled principle (extended abstract), by ZHU, Fanwei; FANG, Yuan; ZHANG, Kai; CHANG, Kevin Chen-Chuan; CAO, Hongtai; JIANG, Zhen; WU, Minghui. (2022.0). *Proceedings of the 38th International Conference on Data Engineering, Kuala Lumpur, Malaysia, 2022 May 9-12,* (pp. 1569-1570) Kuala Lumpur, Malaysia: IEEE. https://doi.org/10.1109/ICDE53745.2022.00161 (Published)

Neighbor-anchoring adversarial graph neural networks (extended abstract), by LIU, Zemin; FANG, Yuan; LIU, Yong; Zheng, Vincent W.. (2022.0). *Proceedings of the 38th International Conference on Data Engineering, Kuala Lumpur, Malaysia, 2022 May 9-12,* (pp. 1571-1572) Kuala Lumpur, Malaysia: IEEE. http://doi.org/10.1109/ICDE53745.2022.00162 (Published)

On size-oriented long-tailed graph classification of graph neural networks, by LIU, Zemin; MAO, Qiheng; LIU, Chenghao; FANG, Yuan; SUN, Jianling. (2022.0). *WWW '22: Proceedings of the ACM Web Conference 2022, Virtual, April 25-29,* (pp. 1506-1516) New York: ACM. https://doi.org/10.1145/3485447.3512197 (Published)

TREND: TempoRal Event and Node Dynamics for graph representation learning, by WEN, Zhihao; FANG, Yuan. (2022.0). *WWW '22: Proceedings of the ACM Web Conference, Virtual, April 25-29,* (pp. 1159-1169) New York: ACM. https://doi.org/10.1145/3485447.3512164 (Published)

Contrastive pre-training of GNNs on heterogeneous graphs, by JIANG, Xunqiang; LU, Yuanfu; FANG, Yuan; SHI, . (2021.0). *Proceedings of the 30th ACM International Conference on Information and Knowledge Management (CIKM 21)Virtual, November 1-5,* (pp. 803- 812) New York : ACM. (Published)

Topic-aware heterogeneous graph neural network for link prediction, by XU, Siyong; YANG, Cheng, SHI, Chuan; FANG, Yuan; GUO, Yuxin; TIANCHI, Yang; ZHANG, Luhao, HU, Maodi. (2021.0). *CIKM '21: Proceedings of the 30th ACM International Conference on Information & Knowledge Management, November November 1-5,* (pp. 2261-2270) New York : ACM. https://doi.org/10.1145/3459637.3482485 (Published)

Dynamic heterogeneous graph embedding via heterogeneous Hawkes process, by JI, Yugang; JIA, Tianrui; FANG, Yuan; SHI, Chuan. (2021.0). *Proceedings of The European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases 2021,* (pp. 388-403) Virtual Event, Spain:

(Published)

Node-wise localization of graph neural networks, by LIU, Zemin; FANG, Yuan; LIU, Chenghao; HOI, Steven C.H.. (2021.0). *Proceedings of the Thirtieth International Joint Conference on Artificial Intelligence (IJCAI 2021),* (pp. 1520-1526) Virtual Event, Montreal, Canada: (Published)

The 4th workshop on heterogeneous information network analysis and applications (HENA 2021), by SHI, Chuan; FANG, Yuan; YE, Yanfang; ZHANG, Jiawei. (2021.0). *Proceedings of the 27th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, August 14-18,* (pp. 4157-4158) Virtual Conference: ACM. https://doi.org/10.1145/3447548.3469445 (Published)

Pre-training on large-scale heterogeneous graph, by JIANG, Xunqiang; JIA, Tianrui; FANG, Yuan; SHI, Chuan; LIN, Zhe; WANG, Hui. (2021.0). *Proceedings of the 27th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 21), Virtual Online, August 14-18,* (pp. 756-766) New York : ACM. (Published)

Tail-GNN: Tail-node graph neural networks, by LIU, Zemin; NGUYEN, Trung-Kien; FANG, Yuan. (2021.0). *KDD '21: Proceedings of the 27th ACM SIGKDD Conference on Knowledge Discovery & Data Mining, Singapore, August 14-18,* (pp. 1109-1119) New York : ACM. https://doi.org/10.1145/3447548.3467276 (Published)

Meta-inductive node classification across graphs, by WEN, Zhihao; FANG, Yuan; LIU, Zemin. (2021.0). *Proceedings of the 44th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 21),* (pp. 1219-1228) Virtual Event, Canada: Association for Computing Machinery. (Published)

Relative and absolute location embedding for few-shot node classification on graph, by LIU, Zemin; FANG, Yuan; LIU, Chenghao; HOI, Steven C. H.. (2021.0). *Proceedings of the 35th AAAI Conference on Artificial Intelligence, Virtual Conference, 2021 February 2-9,* (pp. 4267-4275) Virtual: AAAI. (Published)

Learning to pre-train graph neural networks, by LU, Yuanfu; JIANG, Xunqiang; FANG, Yuan; SHI, Chuan. (2021.0). *Proceedings of the Thirty-Fifth AAAI Conference on Artificial Intelligence, Virtual Conference, 2021 February 2-9,* (pp. 4276-4284) Virtual Conference: AAAI. (Published)

Towards locality-aware meta-learning of tail node embeddings on networks, by LIU, Zemin; ZHANG, Wentao; FANG, Yuan; ZHANG, Xinming; HOI, Steven C.H.. (2020.0). *Proceedings of the 29th ACM International Conference on Information and Knowledge Management (CIKM'20), Virtual Event, Ireland, 2020 October 19-23,* (pp. 1-10) Virtual Event, Ireland: ACM. https://doi.org/10.1145/3340531.3411910 (Published)

TPR: Text-aware Preference Ranking for recommender systems, by CHUANG, Yu-Neng; CHEN, Chih-Ming; WANG, Chuan-Ju; TSAI, Ming-Feng; FANG, Yuan; LIM, Ee-Peng. (2020.0). *Proceedings of the 29th ACM International Conference on Information and Knowledge Management (CIKM'20), Virtual Event, Ireland, 2020 October 19-23,* (pp. 1-10) Virtual Event, Ireland: ACM. https://doi.org/10.1145/3340531.3411969 (Published)

Temporal heterogeneous interaction graph embedding for next-item recommendation, by JI, Yugang; YIN, Mingyang; FANG, Yuan; YANG, Hongxia; WANG, Xiangwei; JIA, Tianrui; SHI, Chuan. (2020.0). *Machine Learning and Knowledge Discovery in Databases: European Conference, ECML PKDD, Ghent, Belgium, September 14-18: Proceedings,* (pp. 1-16) Cham: Springer. https://doi.org/10.1007/978-3-030-67664-3_19 (Published)

Social influence attentive neural network for friend-enhanced recommendation, by LU, Yuanfu; XIE, Ruobing; SHI, Chuan; FANG, Yuan; WANG, Wei; ZHANG, Xu; LIN, Leyu. (2020.0). *Proceedings of The European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, Ghent, Belgium, 2020 September 14-18,* Ghent, Belgium: (Published)

Meta-learning on heterogeneous information networks for cold-start recommendation, by LU, Yuanfu; FANG, Yuan; SHI, Chuan. (2020.0). *KDD '20: Proceedings of the 26th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining, San Diego, CA, August 22-27,* (pp. 1563-1573) New York: ACM. https://doi.org/10.1145/3394486.3403207 (Published)

Adaptive task sampling for meta-learning, by LIU, Chenghao; WANG, Zhihao; SAHOO, Doyen; FANG, Yuan; ZHANG, Kun; HOI, Steven C.H.. (2020.0). *Proceedings of the 16th European Conference on Computer Vision, Glasgow, UK, 2020, August 23 - 28,* (pp. 1-17) Virtual Event: Springer. (Accepted)

BiANE: Bipartite Attributed Network Embedding, by HUANG, Wentao; LI, Yuchen; FANG, Yuan; FAN, Ju; YANG, Hongxia. (2020.0). *Proceedings of the 43rd International ACM SIGIR Conference on Research and Development in Information Retrieval, Virtual event, China, 2020 July 25-30,* (pp. 149-158) Virtual Event, China: ACM. https://doi.org/10.1145/3397271.3401068 (Published)

Multiplex memory network for collaborative filtering, by JIANG, Xunqiang; HU, Binbin; FANG, Yuan; SHI, Chuan. (2020.0). *Proceedings of the SIAM International Conference on Data Mining, Cincinnati, Ohio, U.S., 2020 May 7-9,* (pp. 1-9) Cincinnati, Ohio, U.S.: https://doi.org/10.1137/1.9781611976236.11 (Published)

Correlation-sensitive next-basket recommendation, by LE, Duc-Trong; LAUW, Hady W; FANG, Yuan. (2019.0). *Proceedings of the 28th International Joint Conference on Artificial Intelligence, Macau, China, 2019 August 10-16,* (pp. 2808-2814) Los Altos, CA: International Joint Conference on Artificial Intelligence. https://doi.org/10.24963/ijcai.2019/389 (Published)

Adversarial learning on heterogeneous information networks, by HU, Binbin; FANG, Yuan; SHI, Chuan. (2019.0). *KDD '19: Proceedings of the 25th ACM SIGKDD Conference on Knowledge Discovery and Data Mining, Anchorage, Alaska, August 4-8,* (pp. 120-129) New York: ACM. https://doi.org/10.1145/3292500.3330970 (Published)

Heterogeneous embedding propagation for large-scale e-commerce user alignment, by ZHENG, Vincent W.; SHA, Mo; LI, Yuchen; YANG, Hongxia; FANG, Yuan; ZHANG, Zhenjie; TAN, Kian-Lee; CHANG, Kevin Chen-Chuan. (2018.0). *2018 IEEE International Conference on Data Mining ICDM: Singapore, November 17-20: Proceedings,* (pp. 1434-1439) Los Alamitos, CA: IEEE Computer Society. https://doi.org/10.1109/ICDM.2018.00198 (Published)

Modeling contemporaneous basket sequences with twin networks for next-item recommendation, by LE, Duc Trong; LAUW, Hady W.; FANG, Yuan. (2018.0). *Proceedings of the Twenty-Seventh International Joint Conference on Artificial Intelligence (IJCAI-18): Stockholm, Sweden, July 13-19,* (pp. 3414-3420) Vienna: IJCAI. https://doi.org/10.24963/ijcai.2018/474 (Published)

Object detection meets knowledge graphs, by FANG, Yuan; KUAN, Kingsley; LIN, Jie; TAN, Cheston; CHANDRASEKHAR, Vijay. (2017.0). *Proceedings of the Twenty-Sixth International Joint Conference on Artificial Intelligence: Melbourne, Australia, August 19-25,* (pp. 1661-1667) Vienna: IJCAI. https://doi.org/10.24963/ijcai.2017/230 (Published)

Basket-sensitive personalized item recommendation, by LE, Duc-Trong; LAUW, Hady W.; FANG, Yuan. (2017.0). *IJCAI-17: Proceedings of the 26th International Joint Conference on Artificial Intelligence, Melbourne, Australia, August 19-25,* (pp. 2060-2066) Vienna: IJCAI. https://doi.org/10.24963/ijcai.2017/286 (Published)

Region average pooling for context-aware object detection, by KUAN, Kingsley; MANEK, Gaurav; LIN, Jie; FANG, Yuan; CHANDRASEKHAR, Vijay. (2017.0). *2017 IEEE International Conference on Image Processing proceedings: Beijing, China, 17-20 September,* (pp. 1347-1351) Piscataway, NJ: IEEE. https://doi.org/10.1109/ICIP.2017.8296501 (Published)

Truly multi-modal YouTube-8M video classification with video, audio, and text, by WANG, Zhe; KUAN, Kingsley; RAVANT, Mathieu; MANEK, Gaurav; SONG, Sibo; FANG, Yuan; et al. (2017.0). *Workshop on YouTube-8M Large-Scale Video Understanding, co-located with IEEE Conference on Computer Vision and Pattern Recognition CVPR 2017, July 21-26: Proceedings,* (pp. 4321-4329) Piscataway, NJ: IEEE. (Published)

ARISE-PIE: A People Information Integration Engine over the Web, by ZHENG, Vincent W.; HOANG, Tao; CHEN, Penghe; FANG, Yuan; YANG, Xiaoyan. (2016.0). *Workshop on Data-Driven Talent Acquisition, co-located with ACM International Conference on Information and Knowledge Management (CIKM) 2016, Indianapolis, October 24-28,* (pp. 1-8) New York: ACM. (Published)

Modeling sequential preferences with dynamic user and context factors, by LE, Duc-Trong; FANG, Yuan; LAUW, Hady W.. (2016.0). *Machine learning and knowledge discovery in databases: European Conference, ECML PKDD 2016, Riva del Garda, Italy, September 19-23,* (pp. 145-161) Cham: Springer. https://doi.org/10.1007/978-3-319-46227-1_10 (Published)

Semantic proximity search on graphs with metagraph-based learning, by FANG, Yuan; LIN, Wenqing; ZHENG, Vincent W.; WU, Min; CHANG, Kevin Chen-Chuan; LI, Xiao-Li. (2016.0). *2016 IEEE 32nd International Conference on Data Engineering ICDE: May 16-20, Helsinki, Finland, Proceedings,* (pp. 277-288) Los Alamitos, CA: IEEE Computer Society. https://doi.org/10.1109/ICDE.2016.7498247 (Published)

Learning to query: Focused web page harvesting for entity aspects, by FANG, Yuan; ZHENG, Vincent W.; CHANG, Kevin Chen-Chuan. (2016.0). *2016 IEEE 32nd International Conference on Data Engineering ICDE 2016: Helsinki; Finland, May 16-20, Proceedings,* (pp. 1002-1013) Los Alamitos, CA: IEEE Computer Society. https://doi.org/10.1109/ICDE.2016.7498308 (Published)

IntelligShop: Enabling intelligent shopping in malls through location-based augmented reality, by ADHIKARI, Aditi; ZHENG, Vincent W.; CAO, Hong; LIN, Miao; FANG, Yuan; CHANG, Kevin Chen-Chuan. (2015.0). *2015 IEEE International Conference on Data Mining Workshop: 14-17 November, Atlantic City: Proceedings,* (pp. 1604-1607) Piscataway, NJ: IEEE. https://doi.ieeecomputersociety.org/10.1109/ICDMW.2015.103 (Published)

Graph-based semi-supervised learning: Realizing pointwise smoothness probabilistically, by FANG, Yuan; CHANG, Kevin Chen-Chuan; LAUW, Hady W.. (2014.0). *Proceedings of the 31st International Conference on Machine Learning, Beijing, China, 21-26 June 2014,* (pp. 1-9) Cambridge, MA: JMLR. (Published)

Incremental and accuracy-aware personalized pagerank through scheduled approximation, by ZHU, Fanwei; FANG, Yuan; CHANG, Kevin Chen-Chuan; YING, Jing. (2013.0). *Proceedings of the VLDB Endowment: 39th International Conference on Very Large Data Bases 2013, Trento, Italy, August 26-30,* (pp. 481-492) Saratoga, CA: VLDB Endowment. https://doi.org/10.14778/2536336.2536348 (Published)

Confidence-aware graph regularization with heterogeneous pairwise features, by FANG, Yuan.; HSU, Bo-June Paul; CHANG, Kevin Chen-Chuan. (2012.0). *SIGIR '12: Proceedings of the 35th International ACM SIGIR Conference on Research and Development in Information Retrieval: Portland, Oregon, August 12-16,* (pp. 951-960) New York: ACM. https://doi.org/10.1145/2348283.2348410 (Published)

Privacy beyond single sensitive attribute, by FANG, Yuan; ASHRAFI, Mafruz Zaman; NG, See Kiong. (2011.0). *Database and expert systems applications: 22nd international conference, DEXA 2011, Toulouse, France, August 29 - September 2,* (pp. 187-201) Cham: Springer. https://doi.org/10.1007/978-3-642-23088-2_13 (Published)

Searching patterns for relation extraction over the Web: Rediscovering the pattern-relation duality, by FANG, Yuan; CHANG, Kevin Chen-Chuan. (2011.0). *WSDM '11: Proceedings of the 4th International Conference on Web Search & Data Mining: Hong Kong, China, February 9-12,* (pp. 825-834) New York: ACM. (Published)

Efficient skyline maintenance for streaming data with partially-ordered domains, by FANG, Yuan; CHAN, Chee-Yong. (2010.0). *Database systems for advanced applications: 15th international conference, DASFAA 2010, Tsukuba, Japan, April 1-4: Proceedings,* (pp. 322-336) Cham: Springer. https://doi.org/10.1007/978-3-642-12026-8_26 (Published)

Research Grants

Singapore Management University

Universal Pre-training of Graph Neural Networks, Academic Research Fund (AcRF) Tier 2, Ministry of Education (MOE) , PI (Project Level): FANG Yuan , Co-PI (Project Level): Jing JIANG, 2022, S$676,468

Learning with Less Data, AME Programmatic Funds, Agency for Science, Technology and Research (A*STAR) , Co-PI (Project Level): FANG Yuan, 2021, S$8,924,040

Estate-IQ: An Advanced AI System for Enabling Smart HDB Estate Services, Cities of Tomorrow (CoT) R&D Programme, Ministry of National Development (MND) 2021, S$4,983,878.6

One-Shot Learning: A Crucial Learning Paradigm Towards Human-like Learning, AI Singapore Research Programme, AI Singapore , PI (Project Level): FANG Yuan , Co-PI (Project Level): Steven HOI, 2018, S$497,757.6

Leveraging Network Functional Blocks for Semantic Proximity Estimation on Large-scale Heterogeneous Graphs, Alibaba Group , Co-PI (Project Level): FANG Yuan, 2018, S$120,012

Semantics-Guided Representation Learning on Heterogeneous Graphs, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): FANG Yuan, 2018, S$99,982.27

Other Institutions

Credit Risk Analytics using Network Effects, DBS-I2R Joint Lab, DBS Bank Co-PI (Project Level): FANG Yuan, 2016, SGD400,000

Branch Predictive Analytics, DBS-I2R Joint Lab, DBS Bank PI (Project Level): FANG Yuan, 2015, SGD100,000

TEACHING

Courses Taught

Singapore Management University

Undergraduate Programmes :

- IS/SMT/C&L Project Experience (Applications)
- Statistical Thinking for Data Science

Postgraduate Professional Programmes :

- Applied Data Science in Social Networks
- Social Analytics and Applications

Postgraduate Research Programmes :

- Empirical Research Project 1
- Empirical Research Project 2
- Empirical Research Project 3
- Empirical Research Project 4
- Empirical Research Project I
- Empirical Research Project II
- Empirical Research Project III

THESES AND DISSERTATIONS

Theses and Dissertations Assessed

Singapore Management University

Committee Member, "Finding top-m leading records in temporal data", Dissertation by WANG YIYI, Master of Philosophy in Information Systems, Singapore Management University, 2022

Committee Member, "Preference Learning and Similarity Learning Perspectives on Personalized Recommendation", Dissertation by LE Duy Dung, PhD in Computer Science, Singapore Management University, 2019

Committee Member, "Modeling Sequential and Basket-Oriented Associations for Top-K Recommendation", Dissertation by LE DUC TRONG, PhD in Information Systems, Singapore Management University, 2019

UNIVERSITY SERVICE

Singapore Management University

Guest Speaker, Sample Class for Learning Journal for Singapore Polytechnic (by OAFA) , Nov 2025

Committee Member, Reading Evaluation Committee / School Evaluation Committee, Sep 2025 - Present

Committee Member, Dean’s Evaluation Committee, Jul 2024 - Present

Committee Member, External Review Sub-Committee, BSc (Computer Science) Curriculum Review Committee, Jan 2024 - May 2024

Faculty reviewer, Microteaching session for Graduate Instructor Foundations in Teaching Programme (GIFT), May 2023 - May 2024

Attendee Meeting, Discussion Session - Quality Assurance Framework for Universities (QAFU), Sep 2022

Attendee Meeting, Focus Group Discussion on Gender Equity, Jul 2021

Other, Course Coordinator (CS105), Jan 2021 - Present

Instructor, Summer Voluntary Mathematics Preparatory Course for Incoming CS Students, Aug 2020

Panellist, Computer Science Virtual Open House, Mar 2020

EXTERNAL SERVICE – PROFESSIONAL

Associate Chair, Program Committee, CIKM'25, 2025

Reviewer Grant Proposal, The Dutch Research Council , 2025

Committee Chair, Program Committee (Research Track), Singapore ACM SIGKDD Symposium 2024, 2024

Area Chair, Program Committee, WWW'24, WWW'25, KDD'25 (August Cycle), KDD'26, ICLR'25, ICLR'26, NeurIPS'25, 2023 - Present

Volunteers Co-chair, Organizing Committee, ACM The Web Conference 2024, 2023 - 2024

Committee Chair, Program Committee, Singapore ACM SIGKDD Symposium 2023, 2023

Session Chair, AAAI'23, WWW'23, SIGIR'23, AAAI'24, WWW'24, WWW'25, KDD'25, 2023 - Present

Secretary, Executive Committee, ACM SIGKDD Singapore Chapter, 2022 - Present

Workshop Co-chair, Organizing Committee, ACM WSDM 2023, 2022 - 2023

Chapter Membership Chair, Executive Committee, ACM SIGKDD Singapore Chapter, 2021 - 2022

Co-Chair, Organizing Committee, 4th Workshop on Heterogeneous Information Network Analysis & Applications (co-located with KDD21), 2021

Registration Co-Chair, Organizing Committee, ACM KDD Conference, 2021

Young Associate Editor, Frontiers of Computer Science, 2020 - Present

Senior Member, Program Committee, ECAI'20, IJCAI'21, CIKM'24, CIKM'25 (Applied Track), WWW'26, 2020 - Present

Member, Program Committee, AAAI'19-24, WWW'22-24, SIGIR'24, IJCAI'16,20,22-24, NeurIPS'21-24, ICML'21-23, ICLR'21-23, KDD (applied)'22-23, KDD'24, 2015 - Present

Reviewer Journal Article, TODS, TKDE, VLDBJ, TNNLS, TCYB, TSC, FCS, Neurocomputing, 2015 - Present