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EDUCATION

Ph.D. Candidate in Computer Science	2017.9 – Now	Southwest Jiaotong University, China
B.E. in Medical Information Engineering	2013.9 - 2017.6	Cheng University of TCM, China

RESEARCH INTERESTS

Spatio-temporal Data Mining
Urban Computing
Deep Learning

PUBLICATIONS

1. **Peng Xie,** Tianrui Li, Jia Liu, Shengdong Du, Xin Yang, Junbo Zhang. Urban flow prediction from spatiotemporal data using machine learning: A survey, **Information Fusion**, 59 (2020): 1-12.
2. **Peng Xie**, Minbo Ma, Tianrui Li, Shenggong Ji, Shengdong Du, Zeng Yu, Junbo Zhang. Spatio-Temporal Dynamic Graph Relation Learning for Urban Metro Flow Prediction [J]. **TKDE** 2022. Under Review.
3. Minbo Ma, **Peng Xie**, Fei Teng, Tianrui Li, Bin Wang, Shenggong Ji, Junbo Zhang. HiSTGNN: Hierarchical Spatio-temporal Graph Neural Networks for Weather Forecasting [J]. **TKDE** 2022. Under Review.
4. Jia Liu, Tianrui Li, **Peng Xie**, Shengdong Du, Fei Teng, and Xin Yang. Urban big data fusion based on deep learning: An overview [J]. **Information Fusion**, 53 (2020): 123-133.
5. Zhong Yuan, Hongmei Chen, **Peng Xie**, Pengfei Zhang, Jia Liu, Tianrui Li, Attribute reduction methods in fuzzy rough set theory: An overview, comparative experiments, and new directions [J]. **Applied Soft Computing**, 2021, 107353.
6. Jia Liu, Tianrui Li, Shenggong Ji, **Peng Xie**, Shengdong Du, Fei Teng, Junbo Zhang, Urban flow pattern mining based on multi-source heterogeneous data fusion and knowledge graph embedding[J]. **IEEE Transactions on Knowledge and Data Engineering (TKDE)**, 2021.
7. Wei Huang, Tianrui Li, Jia Liu, **Peng Xie**, Shengdong Du, Fei Teng, An overview of air quality analysis by big data techniques: Monitoring, forecasting, and traceability [J]. **Information Fusion**, 2021.
8. Jie Wang, Yan Yang, Keyu Liu, **Peng Xie**, Xiaorong Liu. Instance-Guided Multi-modal Fake News Detection with Dynamic Intra-and Inter-modality Fusion. **Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD)** [C]. 2022: 510-521.
9. Jie Hu, Tianrui Li, Yan Yang, **Peng Xie**, Xueli Xiao. RFMC: A Rough Fuzzy Multi-view Clustering Approach [C]. **2019 IEEE 14th International Conference on Intelligent Systems and Knowledge Engineering (ISKE)**. 2019: 142-147.
10. Shengjiu Liu, Tianrui Li, Xiaobo Zhang, Jia Liu, **Peng Xie**, Guoqiang Wang. On Network Energy of Oriented Graphs. **FLINS/ISKE 2020**.

RESEARCH PROJECTS

- National Key R&D Program of China (No. 2019YFB2101802)   2019.12-2022.11
  Urban Knowledge Base Construction and Semantic Collaborative Mining

The project researches key technologies of knowledge organization and correlation aggregation of smart cities, urban knowledge graph construction and semantic collaborative mining, builds urban knowledge graph, and develops urban cross-domain knowledge aggregation system.

- My main contribution is to build an urban trajectory knowledge graph for user travel pattern mining, study traffic congestion tracing and route recommendation method based on travel event knowledge graph.

- National Natural Science Foundation of China (No. 61773324)   2018.01-2021.12

  Research on Deep Learning Models and Approaches for Urban Big Data

This project is mainly aimed at studying multi-modal data fusion methods, cross-modal feature learning and effective data mining techniques for urban big data, where neural networks and granular computing theories are as the basis, information fusion, granular analysis, multi-task learning and ensemble learning are as the means, and cloud computing and GPU cluster parallel framework are as the platforms.

  - My work focuses on studying on multi-layer granular analysis and feature representation techniques from spatio-temporal data, and exploration on deep learning models and optimization approaches based on multi-modal urban big data fusion.

AWARDS and HONORS

- First prize of HollySys Postgraduate Scholarship, Southwest Jiaotong University, 2020
- Excellent graduate students, Southwest Jiaotong University, 2020
- Grand prize in the national college artificial intelligence innovation competition, China, 2019
- National Scholarship, China, 2014

ACADEMIC SERVICES

- Journal Reviewer: IEEE TKDE, ACM TKDD
- Conference Reviewer: ISKE