

# Bo Hui

## Assistant Professor

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Computer Science, University of Tulsa

## EDUCATION

**Auburn University** – *Auburn, United States*

Aug 2018 – May 2023, Advisor: Prof. Wei-Shinn (Jeff) Ku

Ph.D. in Computer Science and Software Engineering

**Xi'an Jiaotong University (XJTU)** – *Xi'an, China*

Sep 2009 – June 2013

Bachelor of Engineering in Computer Science and Technology

## AREA OF INTEREST

1. Model complex graphs with Graph Neural Networks
2. Non-Euclidean geometry representation
3. Efficient deep learning

## PUBLICATION LIST

1. **Bo Hui**, Da Yan, Xiaolong Ma, and Wei-Shinn Ku, "Rethinking Graph Lottery Tickets: Graph Sparsity Matters," in Proceedings of the 11th International Conference on Learning Representations (**ICLR**, 2023).
2. **Bo Hui**, Yuchen Fang, Tian Xia, Sarp Aykent, and Wei-Shinn Ku, "Constrained Market Share Maximization by Signal-guided Optimization," in Proceedings of the 37th AAAI Conference on Artificial Intelligence (**AAAI**, 2023).
3. Chao Jiang, **Bo Hui**, Bohan Liu, Da Ya, "Successfully Applying Lottery Ticket Hypothesis to Diffusion Model", in 37<sup>th</sup> Conference on Neural Information Processing Systems workshop on diffusion models (**Neurips** 2023).
4. **Bo Hui** and Wei-Shinn Ku, "Low-rank Nonnegative Tensor Decomposition in Hyperbolic Space," in Proceedings of the 28th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (**KDD**, 2022).
5. **Bo Hui**, Da Yan, Haiquan Chen, and Wei-Shinn Ku, "Time-sensitive POI Recommendation by Tensor Completion with Side Information," in Proceedings of the 38th IEEE International Conference on Data Engineering (**ICDE**, 2022).
6. **Bo Hui**, Tian Xia, and Wei-Shinn Ku, "A Localized Geometric Method to Match Knowledge in Low-dimensional Hyperbolic Space," in Conference on Empirical Methods in Natural Language Processing (**EMNLP**, 2022).
7. **Bo Hui**, Da Yan, Haiquan Chen, and Wei-Shinn Ku, "TrajNet: A Trajectory-Based Deep Learning Model for Traffic Prediction," in Proceedings of the 27th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (**KDD**, 2021).

8. **Bo Hui**, Haiquan Chen, Da Yan, and Wei-Shinn Ku, "EDGE: Entity-Diffusion Gaussian Ensemble for Interpretable Tweet Geolocation Prediction," in Proceedings of the 37th IEEE International Conference on Data Engineering (**ICDE**, 2021).
9. **Bo Hui**, Da Yan, Haiquan Chen, and Wei-Shinn Ku, "Trajectory WaveNet: A Trajectory-Based Model for Traffic Forecasting," in Proceedings of the 21st IEEE International Conference on Data Mining (**ICDM**, 2021).
10. **Bo Hui**, Da Yan, Wei-Shinn Ku, and Wenlu Wang, "Predicting Economic Growth by Region Embedding: A Multigraph Convolutional Network Approach," in Proceedings of the 29th ACM International Conference on Information and Knowledge Management (**CIKM**, 2020).
11. Sai Deepthi Yeddula, Chen Jiang, **Bo Hui** and Wei-Shinn Ku, "Traffic Accident Hotspot Prediction Using Temporal Convolutional Networks: A Spatio-Temporal Approach", in 31st ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (**ACM SIGSPATIAL**, 2023)
12. Po-wei Harn, **Bo Hui**, Sai Deepthi Yeddula, Libo Sun, Min-Te Sun, and Wei-Shinn Ku, "A Novel Quadtree-Based Genetic Programming Search for Searchable Encryption Optimization," in Proceedings of the Genetic and Evolutionary Computation Conference (**GECCO**, 2023)
13. Tian Xia, **Bo Hui**, and Wei-Shinn Ku, "APIP: Attention-based Protein Representation Learning for Protein-Ligand Interface Prediction," in Proceedings of the IEEE International Conference on Big Data (**BigData**, 2022).
14. Po-Wei Harn, Sai Deepthi Yeddula, **Bo Hui**, Jie Zhang, Libo Sun, Min-Te Sun, and Wei-Shinn Ku, "IGRP: Iterative Gradient Rank Pruning for Finding Graph Lottery Ticket," in Proceedings of the IEEE International Conference on Big Data (**BigData**, 2022).
15. **Bo Hui**, Da Yan, and Wei-Shinn Ku, "Node-Polysemy Aware Recommendation by Matrix Completion with Side Information," in Proceedings of the IEEE International Conference on Big Data (**BigData**, 2021).
16. **Bo Hui**, Chen Jiang, Pavani Ankireddy, Wenlu Wang, and Wei-Shinn Ku, "Indoor Navigation for Users with Mobility Aids Using Smartphones and Neighborhood Networks," In Proceedings of the 17th International Conference on Mobility, Sensing and Networking (**MSN**, 2021).

## Preprint

17. Jie Zhang, **Bo Hui**, Po-Wei Harn, Min-Te Sun, and Wei-Shinn Ku, "From ChebNet to ChebGibbsNet".
18. Jie Zhang, **Bo Hui**, Po-Wei Harn, Min-Te Sun, and Wei-Shinn Ku, "MGC: A Complex-Valued Graph Convolutional Network for Directed Graphs".
19. Yuchen Fang, Yanjun Qin, Haiyong Luo, Fang Zhao, Liang Zeng, **Bo Hui**, Chenxing Wang, "CDGNet: A Cross-Time Dynamic Graph-based Deep Learning Model for Traffic Forecasting".
20. **Bo Hui**, Wenlu Wang, Jiao Yu, Zhitao Gong, Wei-Shinn Ku, Min-Te Sun, Hua Lu, "RFID-Based Indoor Spatial Query Evaluation with Bayesian Filtering Techniques".

## INVITED TALKS

- **Robust and Interpretable Graph Models**  
Invited talk at Harvard University, 2022
- **A Better Understanding of Representation Learning in Hyperbolic Space**  
Invited talk at Cornell University, 2022

- **Deep Representation Learning in Bioinformatics Tasks**  
Invited talk at Weill Medical College, 2022
- **Low-rank Nonnegative Tensor Decomposition in Hyperbolic Space**  
Conference talk at KDD, 2022
- **Time-sensitive POI Recommendation by Tensor Completion with Side Information**  
Conference talk at ICDE, 2022
- **TrajNet: A Trajectory-Based Deep Learning Model for Traffic Prediction**  
Conference talk at KDD, 2021
- **EDGE: Entity-Diffusion Gaussian Ensemble for Interpretable Tweet Geolocation Prediction**  
Conference talk at ICDE, 2021
- **Trajectory WaveNet: A Trajectory-Based Model for Traffic Forecasting**  
Conference talk at ICDM, 2021
- **Node-Polysemy Aware Recommendation by Matrix Completion with Side Information**  
Conference talk at IEEE BigData, 2021
- **Predicting Economic Growth by Region Embedding: A Multigraph Convolutional Network Approach**  
Conference talk at CIKM, 2020

## CONFERENCE REVIEW

AAAI (2022, 2023, 2024), KDD (2021, 2022), SIGSPATIAL (2019, 2020), ICDM (2023)

## TEACHING & MENTORING

- **Teaching Assistant** for Fundamentals of Computing (2022), Introduction to Algorithms (2022), Introduction to Computing (2018, 2019)
- **Mentor** for Tian Xia, Po-Wei Harn, Sai Deepthi Yeddula at Auburn University, Yuchen Fang at BUPT, Jie Zhang at National Central University

## INDUSTRY EXPERIENCE

### GrapeCity

Jul 2016 – Jun 2018

Senior Software Engineer

Development of Website and Mobile Application

### Xi'an Microelectronic Technology Research Institute

Aug 2013 – June 2016

Software Engineer

Development of Software

## **HONORS**

AAAI-23 student scholarship

"Technology Pacesetter" of Xi'an Microelectronic Technology Research Institute in 2015

"Five Youth" of Xi'an Microelectronic Technology Research Institute in 2014-2015