Zhenhui (Jessie) Li, Ph.D.

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APPOINTMENTS

- Chief Scientist, Yunqi Academy of Engineering (2021 – now)
    - Yunqi Academy is a non-profit organization founded in 2018
- The Pennsylvania State University, College of Information Sciences and Technology
    - Associate Professor with tenure (2017 – 2021)
    - Assistant Professor tenure-track (2012 – 2017)
- Summer interns, Microsoft Research (2011), Facebook (2009), Yahoo! (2008), Google (2006)

EDUCATION

University of Illinois at Urbana-Champaign (2007 – 2012)

- Ph.D., Computer Science
- Advisor: Prof. Jiawei Han

Shanghai Jiao Tong University (2003 – 2007)

- B.Eng., Computer Science, ACM honored class
- Exchange student to the University of Hong Kong (2005)

HONORS AND AWARDS

- Best Applied Data Science Paper Award, ECML/PKDD conference (2020)
- NSF CAREER Award (2017)
- Haile Family Early Career Professorship in Information Sciences and Technology at Penn State (2017-2020)
- Junior Faculty Excellence in Research Award, Penn State IST (2017)

- George J. McMurtry Junior Faculty Excellence in Teaching and Learning Award, Penn State IST (2017)

- Multiple Conference Travel Grants (2010-2012)

- Data Mining Research Awards - Gold, Data Mining Group, UIUC (Spring 2010)

- Data Mining Research Awards - Silver, Data Mining Group, UIUC (Fall 2009)

- ACM International Collegiate Programming Regional Contest (ACM/ICPC) - Seoul: 4th place and Best Female Team (2004)

- ACM International Collegiate Programming Regional Contest (ACM/ICPC) - Beijing: 15th place and Best Female Team (2004)

- Excellent Student (top 10%) in Shanghai Jiao Tong University (2004)

- Excellent Academic Scholarship of Shanghai Jiao Tong University (2004 and 2005)

- First Prize, Olympiad in Informatics, Hunan Province, China (2001 and 2002)

PUBLICATIONS

* first author as my advised student

1. Chumeng Liang, Zherui Huang, Yicheng Liu, Zhanyu Liu, Guanjie Zheng, Hanyuan Shi, Kan Wu, Yuhao Du, Fuliang Li, and Zhenhui Jessie Li. "Cblab: Supporting the training of large-scale traffic control policies with scalable traffic simulation." In Proceedings of the 29th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD'23), Aug 2023.

2. Haoyu Geng, Guanjie Zheng, Zhengqing Han, Hua Wei, and Zhenhui Li. "HMES: A Scalable Human Mobility and Epidemic Simulation System with Fast Intervention Modeling." In 2022 IEEE Smartworld, Ubiquitous Intelligence & Computing, Scalable Computing & Communications, Digital Twin, Privacy Computing, Metaverse, Autonomous & Trusted Vehicles, pp. 468-475. IEEE, 2022.

3. Porter Jenkins*, Hua Wei, J. Stockton Jenkins, and Zhenhui Li. "Bayesian model-based offline reinforcement learning for product allocation." In Proceedings of the AAAI Conference on Artificial Intelligence (AAAI'22), vol. 36, no. 11, pp. 12531-12537. 2022.

4. Huaxiu Yao, Ying Wei, Longkai Huang, Ding Xue, Junzhou Huang, Zhenhui Li, Functionally Regionalized Knowledge Transfer for Low-resource

Drug Discovery, in Proceeding of the Thirty-fifth Conference on Neural Information Processing Systems (NeurIPS'21), Virtual, Dec. 2021.

5. Huaxiu Yao*, Longkai Huang, Linjun Zhang, Ying Wei, Li Tian, James Zou, Junzhou Huang, Zhenhui Li, Improving Generalization in Meta-learning via Task Augmentation, in Proceeding of the Thirty-eighth International Conference on Machine Learning (ICML'21), virtual, Jul. 2021. (Acceptance rate: 1184/5513=21.5%)

6. Guanjie Zheng, Chang Liu, Hua Wei, Porter Jenkins, Chacha Chen, Tao Wen, Zhenhui Li. Knowledge-based Residual Learning. In Proceedings of the 30th International Joint Conference on Artificial Intelligence (IJCAI'21), Aug 2021. (Acceptance rate: 587/4204=13.9%)

7. Guanjie Zheng, Hanyang Liu,Kai Xu, Zhenhui Li. Objective-aware Traffic Simulation via Inverse Reinforcement Learning. In Proceedings of the 30th International Joint Conference on Artificial Intelligence (IJCAI'21), Aug 2021. (Acceptance rate: 587/4204=13.9%)

8. Hua Wei, Deheng Ye, Zhao Liu, Hao Wu, Bo Yuan, Bo Yuan, Qiang Fu, Wei Yang, Zhenhui Li. Boosting Offline Reinforcement Learning with Residual Generative Modeling. In Proceedings of the 30th International Joint Conference on Artificial Intelligence (IJCAI'21), Aug 2021. (Acceptance rate: 587/4204=13.9%)

9. Guanjie Zheng*, Chang Liu*, Hua Wei, Chacha Chen, Zhenhui Li. Rebuilding City-Wide Traffic from Multi-Source Data. In Proceedings of the Thirty-seventh IEEE International Conference on Data Engineering (ICDE'21), Chania, Greece, April 2021.

10. Hua Wei*, Junjie Liang, Dongkuan Xu, Zhenhui Li. How Do We Move: Modeling Human Movement With System Dynamics. In Proceedings of the Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI'21), Feb 2021. (Acceptance rate: 1692/7911 = 21%)

11. Porter Jenkins*, Ahmad Farag, Stockton Jenkins, Huaxiu Yao, Suhang Wang, Zhenhui Li. Neural Utility Functions. In Proceedings of the Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI'21), Feb 2021. (Acceptance rate: 1692/7911 = 21%)

12. Graif, Corina, Brittany N. Freelin*, Yu-Hsuan Kuo*, Hongjian Wang*, Zhenhui Li, and Daniel Kifer. 2021. "Network spillovers and neighborhood crime: A computational statistics analysis of employment-based networks of neighborhoods." Justice Quarterly. 38:2, 344-374 DOI #: 10.1080/07418825.2019.1602160

13. Hua Wei, Guanjie Zheng, Vikash Gayah, Zhenhui Li. Recent Advances in Reinforcement Learning for Traffic Signal Control: A Survey of Models and Evaluation. In ACM SIGKDD Explorations, Dec 2020.

14. Huaxiu Yao*, Yingbo Zhou, Mehrdad Mahdavi, Zhenhui Li, Richard Socher, Caiming Xiong, Online Structured Meta-learning, in Proceeding of the Thirty-fourth Conference on Neural Information Processing Systems (NeurIPS'20), Vancouver, Canada, Dec. 2020. (Acceptance rate: 1900/9454 = 20%)

15. Hua Wei*, Chacha Chen, Chang Liu, Guanjie Zheng, Zhenhui Li. Learning to Simulate on Sparse Trajectory Data. In Proceedings of European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD'20), Ghent, Belgium, Sep 2020. **Best Applied Data Science Paper Award**

16. Huaxiu Yao*, Xian Wu, Zhiqiang Tao, Yaliang Li, Bolin Ding, Zhenhui Li, Automated Relational Meta-learning, in Proceeding of the Eighth International Conference on Learning Representations (ICLR'20), Addis Ababa, Ethiopia, Apr. 2020.

17. Chacha Chen*, Hua Wei, Nan Xu, Guanjie Zheng, Ming Yang, Yuanhao Xiong, Kai Xu, Zhenhui Li, Toward A Thousand Lights: Decentralized Deep Reinforcement Learning for Large-Scale Traffic Signal Control, in Proceeding of the Thirty-fourth AAAI Conference on Artificial Intelligence (AAAI'20), New York, NY, Feb. 2020. (Acceptance rate: 1591/7737=20.6%)

18. Huaxiu Yao*, Chuxu Zhang, Ying Wei, Meng Jiang, Suhang Wang, Junzhou Huang, Nitesh V. Chawla, Zhenhui Li, Graph Few-shot Learning via Knowledge Transfer, in Proceeding of the Thirty-fourth AAAI Conference on Artificial Intelligence (AAAI'20), New York, NY, Feb. 2020. (Acceptance rate: 1591/7737=20.6%)

19. Xinshi Zang*, Huaxiu Yao, Guanjie Zheng, Nan Xu, Kai Xu, Zhenhui Li, MetaLight: Value-based Meta-reinforcement Learning for Online Universal Traffic Signal Control, in Proceeding of the Thirty-fourth AAAI Conference on Artificial Intelligence (AAAI'20), New York, NY, Feb. 2020. (Acceptance rate: 1591/7737=20.6%)

20. Chuxu Zhang, Huaxiu Yao, Chao Huang, Meng Jiang, Zhenhui Li, Nitesh V. Chawla, Few-Shot Knowledge Graph Completion, in Proceeding of the Thirty-fourth AAAI Conference on Artificial Intelligence (AAAI'20), New York, NY, Feb. 2020. (Acceptance rate: 1591/7737=20.6%)

21. Guanjie Zheng*, Hanyang Liu* (equal contribution), Kai Xu, Zhenhui Li, Learning to Simulate Vehicle Trajectories from Demonstrations, in Proceedings of the 2020 International Conference on Data Engineering (ICDE'20), Dallas, TX, April 2020. (short paper)

22. Guanjie Zheng*, Yuanhao Xiong, Xinshi Zang, Jie Feng, Hua Wei, Huichu Zhang, Yong Li, Kai Xu and Zhenhui Li, Learning Phase Competition for Traffic Signal Control, in Proceedings of the 2019 ACM on Conference

on Information and Knowledge Management (CIKM'19), Beijing, China, November 2019. (Acceptance rate: 200/1030=19.4%)

23. Hua Wei*, Nan Xu, Huichu Zhang, Guanjie Zheng, Xinshi Zang, Chacha Chen, Weinan Zhang, Yanmin Zhu, Kai Xu and Zhenhui Li, CoLight: Learning Network-level Cooperation for Traffic Signal Control, in Proceedings of the 2019 ACM on Conference on Information and Knowledge Management (CIKM'19), Beijing, China, November 2019. (Acceptance rate: 200/1030=19.4%)

24. Porter Jenkins*, Ahmad Farag, Suhang Wang and Zhenhui Li, Unsupervised Representation Learning of Spatial Data via Multimodal Embedding, in Proceedings of the 2019 ACM on Conference on Information and Knowledge Management (CIKM'19), Beijing, China, November 2019. (Acceptance rate: 200/1030=19.4%)

25. Yuanhao Xiong*, Guanjie Zheng, Kai Xu and Zhenhui Li, Learning Traffic Signal Control from Demonstrations, in Proceedings of the 2019 ACM on Conference on Information and Knowledge Management (CIKM'19), Beijing, China, November 2019. (Short paper, acceptance rate: 100/470=21.3%)

26. Hua Wei*, Chacha Chen, Guanjie Zheng, Kan Wu, Vikash V. Gayah, Kai Xu and Zhenhui Li, PressLight: Learning Max Pressure Control to Coordinate Traffic Signals in Arterial Network. In Proceedings of the 25th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD'19), Anchorage, AK, USA, Aug 2019. (Research track, acceptance rate: ~170/1200=14.2%)

27. Yanwei Yu, Xianfeng Tang, Huaxiu Yao, Xiuwen Yi, and Zhenhui Li, City-wide Traffic Volume Inference with Surveillance Camera Records, Transactions on Big Data, 2019.

28. Huaxiu Yao*, Ying Wei, Junzhou Huang, and Zhenhui Li, Hierarchically Structured Meta-Learning, in Proceedings of the Thirty-sixth International Conference on Machine Learning (ICML'19), Long Beach, CA, June 2019. (Acceptance rate: 773/3424=22%)

29. Huaxiu Yao*, Yiding Liu, Ying Wei, and Zhenhui Li, Learning from Multiple Cities: A Meta-Learning Approach to Spatial-Temporal Prediction, in Proceedings of The Web Conference (WWW'19), San Francisco, CA, May 2019. (Acceptance rate: 225/1247=18%)

30. Hongjian Wang*, Porter Jenkins, Hua Wei, Fei Wu, and Zhenhui Li, Learning Task-Specific City Region Partitions, in Proceedings of The Web Conference (WWW'19), San Francisco, California, May 2019. (Short paper, acceptance rate: 72/361=20%)

31. Huaxiu Yao*, Xianfeng Tang* (equal contribution), Wei Hua, Guanjie Zheng, and Zhenhui Li, Revisiting Spatial-Temporal Similarity: A Deep

Learning Framework for Traffic Prediction, in Proceedings of the Thirty-Third AAAI Conference on Artificial Intelligence (AAAI'19), Honolulu, Hawaii, Jan. 2019. (Acceptance rate: 1150/7095=16.2%)

32. Hongjian Wang*, Xianfeng Tang, Yu-Hsuan Kuo, Daniel Kifer, and Zhenhui Li, A Simple Baseline for Travel Time Estimation using Large-Scale Trip Data, ACM Transactions on Intelligent Systems and Technology (TIST), 10(2), Jan. 2019.

33. Tao Wen, Josh Woda, Virginia Marcon, Xianzeng Niu, Zhenhui Li, and Susan L. Brantley, 2019. Exploring How to Use Groundwater Chemistry to Identify Migration of Methane near Shale Gas Wells in the Appalachian Basin. Environmental Science & Technology.

34. Tao Wen, Amal Agarwal, Lingzhou Xue, Alex Chen, Alison Herman, Zhenhui Li, and Susan L. Brantley, 2019. Assessing Changes in Groundwater Chemistry in Landscapes with More than 100 Years of Oil and Gas Development. Environmental Science: Processes & Impacts.

35. Yu-Hsuan Kuo*, Zhenhui Li, and Daniel Kifer, Detecting Outliers in Data with Correlated Measures, in Proceedings of the 2018 International Conference on Information and Knowledge Management (CIKM'18), Turin, Italy, Oct. 2018. (Acceptance rate: 147/862=17%)

36. Yanwei Yu, Hongjian Wang, and Zhenhui Li, Inferring Mobility Relationship via Graph Embedding, in Proc. ACM Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), 2(3), 147, 2018.

37. Hua Wei*, Guanjie Zheng* (equal contribution), Huaxiu Yao, and Zhenhui Li, IntelliLight: A Reinforcement Learning Approach for Intelligent Traffic Light Control, in Proceedings of the 2018 ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD'18), London, UK, Aug 2018. (Acceptance rate: 181/983=18.4%, research track)

38. Guanjie Zheng*, Fuzheng Zhang, Zihan Zheng, Yang Xiang, Nicholas Jing Yuan, Xing Xie, and Zhenhui Li, DRN: A Deep Reinforcement Learning Framework for News Recommendation, Proceedings of 2018 International Conference on World-Wide Web (WWW'18), Lyon, France, Apr. 2018. (Acceptance rate: 171/1755=14.5%)

39. Huaxiu Yao*, Fei Wu, Jintao Ke, Xianfeng Tang, Yitian Jia, Siyu Lu, Pinghua Gong, Jieping Ye, and Zhenhui Li, Deep Multi-View Spatial-Temporal Network for Taxi Demand Prediction, in Proceedings of 2018 AAAI Conference on Artificial Intelligence (AAAI'18), New Orleans, LA, Feb. 2018 (Acceptance rate: 933/3800=24.6%)

40. Xianzeng Niu, Tao Wen, Zhenhui Li, and Susan L. Brantley, 2018. One Step toward Developing Knowledge from Numbers in Regional Analysis of Water Quality. Environmental Science & Technology.

41. Tao Wen, Xianzeng Niu, Matthew Gonzales, Guanjie Zheng, Zhenhui Li, and Susan L. Brantley, 2018. Big groundwater data sets reveal possible rare contamination amid otherwise improved water quality for some analytes in a region of Marcellus Shale development. Environmental Science & Technology.

42. Hongjian Wang*, Daniel Kifer, Corina Graif, and Zhenhui Li, Non-Stationary Model for Crime Rate Inference Using Modern Urban Data, IEEE Transactions on Big Data (TBD'17), Volume PP, Issue 99, Dec 22 2017.

43. Hongjian Wang* and Zhenhui Li, Region Representation Learning via Mobility Flow, in Proceedings of the 2017 International Conference on Information and Knowledge Management (CIKM'17), Singapore, Nov. 2017. (Acceptance rate: 171/820=20.9%)

44. Zhenhui Li, Semantic Understanding of Spatial Trajectories (vision paper), in Proceedings of the of 2017 International Symposium on Spatial and Temporal Databases (SSTD'17), Arlington, VA, Aug. 2017.

45. Guanjie Zheng*, Susan Brantley, Thomas Lauvaux, and Zhenhui Li, Contextual Spatial Outlier Detection with Metric Learning, in Proceedings of the 2017 ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD'17), Halifax, Nova Scotia, Aug. 2017. (Acceptance rate: 85/396=21.5%, applied data science track)

46. Fei Wu*, Pranay Anchuri, and Zhenhui Li, Structural Event Detection from Log Messages, in Proceedings of the 2017 ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD'17), Halifax, Nova Scotia, Aug. 2017. (Acceptance rate: 131/748=17.5%, research track)

47. Zhenhui Li, Guanjie Zheng, Amal Agarwal, Lingzhou Xue, and Thomas Lauvaux, Discovery of Causal Time Intervals, in Proceedings of the 2017 SIAM International Conference on Data Mining (SDM'17), Houston, TX, May 2017. (Acceptance rate: 26%)

48. Zhenhui Li, Cheng You, Matthew Gonzales, Anna K. Wendt, Fei Wu, and Susan L. Brantley, Searching for Anomalous Methane in Shallow Groundwater near Shale Gas Wells. Journal of Contaminant Hydrology 195 (2016): 23-30.

49. Fei Wu*, Hongjian Wang, Zhenhui Li, Interpreting Traffic Dynamics using Ubiquitous Urban Data, in Proceedings of the 24th ACM International Conference on Advances in Geographical Information Systems (SIGSPATIAL'16), Burlingame, CA, Nov. 2016.

50. Hongjian Wang*, Yu-Hsuan Kuo, Daniel Kifer, and Zhenhui Li, A Simple Baseline for Travel Time Estimation using Large-Scale Trip Data, in Proceedings of the 24th ACM International Conference on Advances in

Geographical Information Systems (SIGSPATIAL'16), Burlingame, CA, Nov. 2016.

51. Fei Wu* and Zhenhui Li, Where Did You Go: Personalized Annotation of Mobility Records, in Proceedings of the of 2016 International Conference on Information and Knowledge Management (CIKM'16), Indianapolis, IN, Oct. 2016. (Long paper, acceptance rate: 165/935=17.6%)

52. Hongjian Wang*, Daniel Kifer, Corina Graif, and Zhenhui Li, Crime Rate Inference with Big Data, in Proceedings of the 2016 ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD'16), San Francisco, CA, Aug. 2016. (Acceptance rate: 20%, applied data science track)

53. Fei Wu*, Zhenhui Li, Wang-Chien Lee, Hongjian Wang, and Zhuojie Huang, Semantic Annotation of Mobility Data using Social Media, in Proceedings of the 2015 International World Wide Web Conference (WWW'15), Florence, Italy, May 2015. (Acceptance rate: 131/929 = 14.1%)

54. Zhenhui Li, Jingjing Wang, and Jiawei Han, ePeriodicity: Mining Event Periodicity from Incomplete Observations, IEEE Transactions on Knowledge and Data Engineering (TKDE), 27.5 (2015): 1219-1232.

55. Hongjian Wang*, Zhenhui Li, and Wang-Chien Lee, PGT: Measuring Mobility Relationship Using Personal, Global and Temporal Factor, in Proceedings of the 2014 IEEE International Conference on Data Mining (ICDM'14), Shenzhen, China, Dec. 2014. (Regular paper, acceptance rate: 71/727 = 9.7%)

56. Zhenhui Li, Spatiotemporal Pattern Mining: Algorithms and Applications, in Charu Aggarwal and Jiawei Han (ed.), Frequent Pattern Mining, Springer, September, 2014.

57. Zhenhui Li, Bolin Ding, Fei Wu, Tobias Kin Hou Lei, Roland Kays, and Margaret Crofoot, Attraction and Avoidance Detection from Movements, in Proceedings of the 2014 International Conference on Very Large Data Bases (VLDB'14/PVLDB), Hangzhou, China, Sept. 2014.

58. Peifeng Yin, Mao Ye, Wang-Chien Lee, and Zhenhui Li, Mining GPS Data for Trajectory Recommendation, in Proceedings of the 2014 Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD'14), Tainan, Taiwan, May 2014. (Acceptance rate: 61/371=16.4%)

59. Mo Yu, Wenjun Si, Guojie Song, Zhenhui Li, and John Yen, Who were you talking to - Mining interpersonal relationships from cellphone network data, in Proceedings of the of 2014 International Conference on Advances in Social Network Analysis and Mining (ASONAM'14), Beijing, China, August, 2014.

60. Zhenhui Li, Fei Wu, and Margaret Crofoot, Mining Following Relationships in Movement Data, in Proceedings of the 2013 IEEE International

Conference on Data Mining (ICDM'13), Dallas, TX, Dec. 2013. (Regular paper, acceptance rate: 94/809=11.6%)

61. Zhaohui Wu, Zhenhui Li, Prasenjit Mitra, and C. Lee Giles, Can Back-of-the-book Indexes be Automatically Created? in Proceedings of the 2013 International Conference on Information and Knowledge Management (CIKM'13), San Francisco, CA, Oct. 2013. (Short paper, acceptance rate: 106/848=12.5%)

62. Zhaohui Wu, Sujatha Das, Zhenhui Li, Prasenjit Mitra, and C. Lee Giles. Searching Online Book Documents and Analyzing Book Citations, in Proceedings of the 2013 ACM Symposium on Document Engineering (DocEng'13), September 10-13, Florence, Italy.

63. Ariel Fuxman, Anitha Kannan, Panayiotis Tsaparas, and Zhenhui Li, Enabling Direct Interest-Aware Audience Selection, in Proceedings of the 2012 International Conference on Information and Knowledge Management (CIKM'12), Maui, Hawaii, Oct. 2012. (Acceptance rate: 146/1088=13.4%)

64. Zhenhui Li, Jiawei Han, Bolin Ding, and Roland Kays, Mining Periodic Behaviors of Object Movements for Animal and Biological Sustainability Studies, Data Mining and Knowledge Discovery (DAMI), Volume 24, Issue 2 (2012), Page 355-386.

65. Zhenhui Li, Jingjing Wang, and Jiawei Han, Mining Periodicity for Sparse and Incomplete Event Data, in Proceedings of the 2012 ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD'12), Beijing, China, Aug. 2012. (Acceptance rate: 133/755=17.6%)

66. Quanquan Gu, Marina Danilevsky, Zhenhui Li, and Jiawei Han, Locality Preserving Feature Learning, in Proceedings of the 2012 International Conference on Artificial Intelligence and Statistics (AISTAT'12), La Palma, Canary Islands, April 2012. (Acceptance rate: 33.5%)

67. Quanquan Gu, Zhenhui Li, Jiawei Han, Correlated Multi-Label Feature Selection, in Proceedings of the 20th ACM Conference on Information and Knowledge Management (CIKM'11), Glasgow, Scotland, UK, 2011. (Acceptance rate: 15%)

68. Quanquan Gu, Zhenhui Li, and Jiawei Han, Linear Discriminant Dimensionality Reduction, in Proceedings of the 2011 European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECMLPKDD'11), Athens, Greece, Sept. 2011. (Acceptance rate: $121/599 = 20\%$)

69. Zhenhui Li, Cindy Xide Lin, Bolin Ding, and Jiawei Han, Mining Significant Time Intervals for Relationship Detection, in Proceedings of the of 2011 International Symposium on Spatial and Temporal Databases (SSTD'11), Minneapolis, MN, Aug. 2011. (Acceptance rate: 38%)

70. Quanquan Gu, Zhenhui Li, and Jiawei Han, Learning a Kernel for Multi-Task Clustering, in Proceedings of the of 2011 AAAI Conference on Artificial Intelligence (AAAI'11), San Francisco, CA, Aug. 2011. (Acceptance rate: 242/975 = 24.8%)

71. Xiao Yu, Ang Pan, Lu-An Tang, Zhenhui Li and Jiawei Han, Geo-Friends Recommendation in GPS-based Cyber-Physical Social Network, in Proceedings of the of 2011 International Conference on Advances in Social Network Analysis and Mining (ASONAM'11), Kaohsiung, Taiwan, July 2011. (Acceptance rate: 25%)

72. Quanquan Gu, Zhenhui Li and Jiawei Han, Joint Feature Selection and Subspace Learning, in Proceedings of the of 2011 International Joint Conference on Artificial Intelligence (IJCAI'11), Barcelona, Spain, July 2011. (Acceptance rate: 227/1325 = 17%)

73. Quanquan Gu, Zhenhui Li, and Jiawei Han, Generalized Fisher Score for Feature Selection, in Proceedings of the of 2011 International Conference on Uncertainty in Artificial Intelligence (UAI'11), Barcelona, Spain, July 2011. (Acceptance rate: 34%)

74. Bolin Ding, Marianne Winslett, Jiawei Han, and Zhenhui Li, Differentially Private Data Cube: Optimizing Noise Source and Consistency, in Proceedings of the of 2011 ACM SIGMOD International Conference on Management of Data (SIGMOD'11), Athens, Greece, June 2011. (Acceptance rate: 87/375 = 23.2%)

75. Zhenhui Li, Jiawei Han, Ming Ji, Lu-An Tang, Yintao Yu, Bolin Ding, Jae-Gil Lee, and Roland Kays, MoveMine: Mining Moving Object Data for Discovery of Animal Movement Patterns, ACM Transactions on Intelligent Systems and Technology (TIST) (Special Issue on Computational Sustainability), Aug. 2010.

76. Zhenhui Li, Bolin Ding, Jiawei Han, and Roland Kays, Swarm: Mining Relaxed Temporal Moving Object Clusters, in Proceedings of the 2010 International Conference on Very Large Data Bases (VLDB'10), Singapore, Sept. 2010. (Acceptance rate: 84/478 = 17.6%)

77. Zhenhui Li, Bolin Ding, Jiawei Han, and Roland Kays, Mining Periodic Behaviors for Moving Objects, in Proceedings of the 2010 ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD'10), Washington D.C., July 2010. (Full paper, acceptance rate: 77/578 = 13.3%)

78. Zhenhui Li, Ding Zhou, YunFang Juan, and Jiawei Han, Keyword Extraction for Social Snippets, (poster paper) in Proceedings of the 2010 International World Wide Web Conference (WWW'10), Raleigh, NC, April 2010.

79. Zhenhui Li, Jae-Gil Lee, Xiaolei Li, and Jiawei Han, Incremental Clustering for Trajectories, in Proceedings of the 2010 International Conference on

Database Systems for Advanced Applications (DASFAA'10), Tsukuba, Japan, April 2010. (Acceptance rate: 55/237 = 23.2%)

80. Xiaolei Li, Zhenhui Li, Jiawei Han, and Jae-Gil Lee, Temporal Outlier Detection in Vehicle Traffic Data, in Proceedings of the 2009 International Conference on Data Engineering (ICDE'09), Shanghai, China, Mar. 2009. (Acceptance rate:150/554 = 27.1%)

SYSTEM DEMOS

- Huichu Zhang*, Siyuan Feng, Chang Liu, Yaoyao Ding, Yichen Zhu, Zihan Zhou, Weinan Zhang, Yong Yu, Haiming Jin, Zhenhui Li, CityFlow: A Multi-Agent Reinforcement Learning Environment for Large Scale City Traffic Scenario, WWW'19. website

- Fei Wu*, Zhenhui Li, Wang-Chien Lee, Hongjian Wang, and Zhuojie Huang, SemMobi: A Semantic Annotation System for Mobility Data, in Proceedings of the 2015 International World Wide Web Conference (WWW'15), Florence, Italy, May 2015.

- Fei Wu*, Tobias Kin Hou Lei, Zhenhui Li, and Jiawei Han, MoveMine 2.0: Mining Object Relationships from Movement Data, in Proceedings of the 2014 International Conference on Very Large Data Bases (VLDB'14/PVLDB), Hangzhou, China, Sept. 2014. website

- Zhenhui Li, Ming Ji, Jae-Gil Lee, LuAn Tang, Jiawei Han, Roland Kays, MoveMine: Mining Moving Object Databases, in Proceedings of the 2010 ACM SIGMOD International Conference on Management of Data (SIGMOD'10), Indianapolis, Indiana, June 2010.

GRANTS

- **Zhenhui Li (Single PI)**, National Science Foundation (NSF) (IIS Award #1652525), CAREER: Cross-Domain Urban Data Mining. **$497,272** (2017-2022).

- Susan Brantley (PI, Geoscience, Penn State) and **Zhenhui Li (Co-PI)**, National Science Foundation (NSF) (IIS Award #1639150), INSPIRE: A Data-Driven Approach toward Exploring Natural and Anthropogenic Methane Emissions in Regions of Shale Gas Development. **$1,000,000** (2016-2019).

- **Zhenhui Li (Single PI)**, National Science Foundation (NSF) (IIS Award #1618448) III: Small: Semantic Trajectory Mining with Contexts. **$499,057** (2016-2019).

- **Zhenhui Li (PI)**, Daniel Kifer (Co-PI, Computer Science, Penn State), Corina Graif (Co-PI, Criminology, Penn State), National Science Founda-

tion (NSF) (CNS Award # 1544455) EAGER: Toward Transparency in Public Policy via Privacy-Enhanced Social Flow Analysis with Applications to Ecological Networks and Crime. **$276,991** (2015-2017).

- **Zhenhui Li (PI)**, Susan Brantley (Co-PI, Geoscience, Penn State), General Electric Fund for the Center for Collaborative Research on Intelligent Natural Gas Supply Systems, Data Mining for Sustainable Water Systems. **$177,416** (2015-2016).

- **Zhenhui Li (PI)**, Susan Brantley (Co-PI, Geoscience, Penn State), United States Geological Survey (USGS), Data-Driven Models to Assess Water Quality in the Region of Marcellus Shale. **$66,474** (2018-2019).

- Stephen Matthews (PI, Sociology, Penn State), Shannon Zenk (PI, Health Systems Science, UIC), Zhenhui Li (Co-I), National Institutes of Health (NIH Award #R21CA195543) Activity Space and Measuring Environmental Exposure in Behavioral Research. **$389,624** (2015-2017).

- **Zhenhui Li (PI)**, Daniel Kifer (Co-PI), IST Seed Grant, Mining and Protecting Human Location Traces, **$9,315** (January 2015 - May 2015).

- Vikash Gayah (PI), **Zhenhui Li (co-PI)**, ICS Seed Grant, Traffic Signal Control using Reinforcement Learning, **$22,443** (August 2019 - May 2020).

- **Zhenhui Li (PI)**, Vikash Gayah (Co-PI), IST Seed Grant, A Data-Driven Approach for Intelligent Transportation Systems, **$8,821** (January 2014 - May 2014).

- **Zhenhui Li (PI)**, IST Teaching Grant, A Cross-Courses Real Data Platform to facilitate Stage Learning, **$6,000** (May 2014 - December 2014).

TEACHING EXPERIENCE

- **IST557 Data Mining: Techniques and Applications**
  - Class size: 20-50 graduate students
  - Objective: (1) teach the basic data mining techniques; (2) guide the students to find solutions from literature; and (3) provide hands-on experience to work on real-world data mining problems.
  - Taught in fall'13, fall'14, fall'15, fall'16, fall'17, fall'19

- **IST210 Organization of Data**
  - Class size: 50 undergraduate students
  - Objective: (1) teach the basic database knowledge including ER diagram, database design, and SQL; (2) teach students web programming

including HTML and PHP; (3) advise students to implement a real database system with a web interface.

– Taught in fall'12, spring'13, fall'13 (2 sections), fall'14, spring'16 (2 sections)

TALKS

Invited talks at external seminars and colloquia

- The Critical Role of Cyber Infrastructure in City Innovation and Beyond

    – Keynote at SIAM Data Mining, April, 2024.

- City Brain: Concept and Practice of City Digitalization

    – CIRCLE Distinguished Lectures, University of Illinois at Urbana-Champaign, April, 2024.

- Reinforcement Learning for Intelligent Transportation

    – National Chiao Tung University, Taiwan, March 2019.

    – Shanghai Jiao Tong University, Shanghai, October 2018.

    – Chinese University of Hong Kong, Hong Kong, China, September 2018.

- Mining Human Mobility Data for Intelligent Transportation

    – Shanghai Jiao Tong University, Shanghai, China, June 2018.

    – Tsinghua University, Beijing, China, June 2018.

    – Zhejiang University, Hangzhou, China, May 2018.

    – Fudan University, Shanghai, China, May 2018.

    – University of California, Riverside, May 2018.

    – University of California, Berkeley, April 2018.

    – Didi Chuxing, Beijing, China, January 2018.

- Toward Semantic Understanding of Spatial Trajectories

    – University of Southern California, Los Angeles, CA, December, 2016.

    – Georgia Institute of Technology, Atlanta, GA, November 2016.

    – University of Minnesota Twin Cities, Minneapolis, Minnesota, November 2016.

    – Carnegie Mellon University, Pittsburgh, PA, October 2016.

    – Virginia Tech, Falls Church, VA, October 2016.

- Zhejiang University, Hangzhou, China, June 2016.
- Data Mining to Assess Environmental Impacts from Shale Gas Development
  - NASA, Mountain View, CA, August 2016.
- Mining Mobility Relationship from Location Traces
  - IBM Research, Shanghai, China, June 2014.
  - Microsoft Research Asia, Beijing, China, June 2014.
  - IBM Research, Beijing, China, June 2014.
  - Tsinghua University, Beijing, China, June 2014
  - Shanghai Jiao Tong University, Shanghai, China, May 2014.
  - ShanghaiTech University, Shanghai, China, May 2014.
  - Temple University, Philadelphia, PA, April 2014.
- Mining Periodicity and Object Relationships in Spatial and Temporal Data
  - Tsinghua University, Beijing, China, April 2012.
  - University of Missouri, Columbia, MO, April 2012.
  - Penn State University, State College, PA, March 2012.
  - Washington State University, Pullman, WA, March 2012.

Tutorials at conferences

- Huaxiu Yao, Fei Wang, Zhenhui Li, Learning with Small Data, Conference Tutorial at AAAI Conference on Artificial Intelligence (AAAI 2021), Feb. 2021.

- Hua Wei, Vikash Gayah, Zhenhui Li, Deep Reinforcement Learning for Traffic Signal Control, Conference Tutorial the 23rd IEEE International Conference on Intelligent Transportation Systems (ITSC 2021), Sep. 2020.

- Huaxiu Yao, Xiaowei Jia, Guanjie Zheng, Vipin Kumar, Zhenhui Li, Learning with Small Data, Conference Tutorial at the 26th SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2020), Aug. 2020.

- Xin Wang, Huaxiu Yao, Ying Wei, Zhenhui Li, Wenwu Zhu, Wenpeng Zhang, Meta-learning and Automated Machine Learning: Approaches and Applications, Conference Tutorial at the 29th International Joint Conference on Artificial Intelligence (IJCAI 2020), Yokohama, Japan, July 2020.

- Zhenhui Li, Huaxiu Yao, Fenglong Ma, Learning with Small Data, Conference Tutorial at the 13th ACM International Conference on Web Search and Data Mining (WSDM 2020), Houston, TX, Feb. 2020.

- Zhenhui Li and Jiawei Han, Trajectory Data Mining, 2016 IEEE International Conference on Big Data, Washington D.C., December 2016.

- Zhenhui Li, Mining Animal Relationships from Movement Traces, The Symposium on Animal Movement and the Environment, North Carolina Museum of Natural Sciences, Raleigh, NC, May 2014.

- Jiawei Han, Zhenhui Li, and Lu-An Tang, Mining Moving Object, Trajectory and Traffic Data, 2010 Int. Conference on Database Systems for Advanced Applications, Tsukuba, Japan, April 2010.

Plenary talks and keynotes at conferences and workshops

- The Critical Role of Cyber Infrastructure in City Innovation and Beyond, SDM Conference, 2024.

- KDD 2024, workshop

- The Reality Gap: Lessons Learnt Traffic Signal Control, IJCAI 2021 Reinforcement Learning for Intelligent Transportation Systems (RL4ITS) Workshop, November 2021.

- Reinforcement Learning for Traffic Signal Control, Virtual Smart-City Operations and Analytics Conference, 2020.

- Reinforcement Learning for Traffic Signal Control, ACM SIGKDD Workshop on Deep Learning for Spatiotemporal Data, Applications, and Systems, 2020.

- Reinforcement Learning for Intelligent Transportation, KDD Workshop on Data-driven Intelligent Transportation, Anchorage, Alaska, August 2019.

- Reinforcement Learning for Intelligent Transportation, ICDM Workshop on Data-driven Intelligent Transportation, Singapore, November 2018.

- Reinforcement Learning for Traffic Signal Control, KDD Workshop on Urban Computing, August 2018.

- Mining Mobility Flow for Urban Computing, KDD Workshop on Mining and Learning with Graphs, August 2017.

- Toward Semantic Understanding of Spatial Trajectories, KDD Workshop on Urban Computing, August, 2017.

- Mining Mobility Data for Intelligent Transportation, SDM Workshop on Big Traffic, San Diego, May 2018.

- Toward Semantic Understanding of Mobility Data, keynote, KDD Workshop on Urban Computing, San Francisco, CA, August 2016.

- A Data-driven Approach to Evaluate Environmental Impacts of Shale-gas Drilling, plenary talk, Shale Network Workshop, Penn State, State College, PA, May 2016.

- Mining Mobility Relationship from Location Traces, keynote, ICDM Workshop on Mobility Analytics from Spatial and Social Data, Atlantic City, NJ, November 2015.

- Data Mining for Water Quality Data, plenary talk, Shale Network Workshop, Penn State, State College, PA, May 2015.

SERVICES

Workshop Organizer:

- CIKM 2022 Workshop on Data-Driven Intelligent Transportation

- KDD 2020 Workshop on Prescriptive Analytics for Physical World

- CIKM 2019 Workshop on AI for Transportation

- KDD 2019 Workshop on Data-Driven Intelligent Transportation

- ICDM 2018 Workshop on Data-Driven Intelligent Transportation

- KDD 2018 Workshop on Urban Computing

- SIGIR 2018 Workshop on Intelligent Transportation Informatics

- KDD 2017 Workshop on Urban Computing

- KDD 2016 Workshop on Urban Computing

- PAKDD 2014 Mobile Sensing, Mining and Visualization for Human Behavior Inference

- KDD 2014 Workshop on Social Network Mining and Analysis

Conference Organizer:

- Program Committee (PC) chairs for the Resource track (CIKM'21)

- KDD Cup Co-chair (KDD'21)

- Panels Co-chairs, SIAM Data Mining (SDM'20).

- Workshop Co-chair. International Conference on Data Mining (ICDM'18).

- Publicity Co-Chair. SIAM Data Mining (SDM'18).

- Travel Award Co-Chair. Conference on Information and Knowledge Management (CIKM'17).

- Registration Co-Chair. ACM International Conference on Advances in Geographical Information Systems (SIGSPATIAL'17).

Journal Associate Editor:

- ACM Transactions on Intelligent Systems and Technology (ACM TIST) $(2017.8 - 2020.1)$

- Data Mining and Knowledge Discovery (DAMI) (2019.1-2020.3)

Journal Guest Editor:

- ACM Transactions on Intelligent Systems and Technology (ACM TIST) Special Issue on Urban Intelligence (2016.8-2017.10)

Conference Senior Program Committee or Area Chair:

- ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD): 2018, 2019, 2020

- SIAM Conference on Data Mining (SDM): 2019

- International Conference on Information and Knowledge Management (CIKM): 2017, 2018

Conference Program Committee:

- ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD): 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024

- IEEE International Conference on Data Mining (ICDM): 2013, 2014, 2016, 2018, 2019

- SIAM Conference on Data Mining (SDM): 2013, 2014, 2016, 2018, 2019, 2020, 2021, 2022, 2023, 2024

- International Conference on Information and Knowledge Management (CIKM): 2013, 2014, 2015, 2016

- Pacific-Asia Conference Knowledge Discovery and Data Mining (PAKDD): 2013, 2014, 2015, 2016, 2018

- The Proceedings of the VLDB Endowment (PVLDB): 2018

- International Joint Conference Artificial Intelligence (IJCAI): 2013, 2015, 2018, 2019

- AAAI Conference on Artificial Intelligence (AAAI): 2018, 2019, 2020, 2023

- International World Wide Web Conference (WWW): 2018, 2019

- ACM International Conference on Web Search and Data Mining (WSDM): 2018

- The European Conference on Machine Learning and Principles and Practice of Knowledge Discovery (ECML/PKDD): 2017, 2018

- International Conference on Advances in Social Network Analysis and Mining (ASONAM): 2016

- Web Search and Data Mining (WSDM): 2018

- International Conference on Distributed Computing Systems (ICDCS): 2017
- ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation (BuildSys): 2018

Grant Proposal Review:

- NSF IIS Core, Panelist, 2018
- NSF IIS Core, Ad-hoc Reviewer, 2017
- NSF Big Data, Panelist, 2016
- European Research Council (ERC), Ad-hoc Reviewer, 2016
- NSF CyberSEES, Panelist, 2014
- NSF CREST, Ad-hoc Reviewer, 2013
- NSF IIS Core, Panelist, 2013

UNIVERSITY SERVICES

- Data Science Faculty Search Chair. (2017.9 – 2018.5)
- IST 210 Course Committee, Chairperson. (2014.8 – 2019.5)
- Faculty Council Committee. (2015.8 – 2017.7)
- Faculty Annual Review Committee. (2016.11 – 2017.5)
- SIG Group of Computational Informatics, Chairperson. (2015.5 – 2017.5)
- Faculty Search Committee. (2015.9 – 2016.7)
- IST 510 Course Review Committee. (2016.1 – 2016.6)
- TA/LA Review Committee. (2016.1 – 2016.6)
- Graduate Recruiting Committee. (2013.8 – 2015.8)
- Undergraduate commencement. (May 2014, May 2015)
- Strategic Planning Committee for Undergraduate Education. (October 2013)

MENTORING

Ph.D. student advisees (all at Penn State):

- Huaxiu Yao (2017.8 - 2021.5)
  Tenure-Track Assistant Professor at The University of North Carolina at Chapel Hill

- Porter Jenkins (2018.1 – 2020.12)
  Tenure-Track Assistant Professor at Brigham Young University

- Hua Wei (2017.8 – 2020.12)
  Tenure-Track Assistant Professor at Arizona State University

- Guanjie Zheng (2015.8 – 2020.5)
  Tenure-Track Assistant Professor at Shanghai Jiao Tong University

- Yu-Hsuan Kuo (2015.8 - 2018.5)
  Amazon

- Hongjian Wang (2013.8 - 2018.5)
  Meta

- Fei Wu (2012.8 - 2018.5)
  Meta

Post-doc:

- Tao Wen (2017.2 - 2020.7)
  Tenure-Track Assistant Professor at Syracuse University

Visitor scholars:

- Yanwei Yu (2017.8 - 2018.5)
  Ocean University of China

Visiting students or interns:

- Chacha Chen (Undergrad at Shanghai Jiao Tong University, 2018.8 - 2020.5)

- Chang Liu (Undergrad at Shanghai Jiao Tong University, 2019.8 - 2019.12)

- Nan Xu (Master student at Shanghai Jiao Tong University, 2018.8 - 2019.7)

- Xinshi Zang (Undergrad at Shanghai Jiao Tong University, 2018.8 - 2019.6)

- Yuanhao Xiong (Undergrad in Zhejiang University, 2018.10 - 2019.5)

- Kan Wu (PhD student in Civil Engineering at Penn State, 2018.8 - 2019.1)

- Hanyang Liu (2019.3 - 2019.6)

- Ziniu Li (Undergrad in XJTU, 2018.10 - 2019.1)

- Yue Yu (Undergrad in Tsinghua University, 2018.10 - 2019.1)

- Jie Feng (PhD student in Tsinghua University, 2018.10 - 2019.1)

- Huichu Zhang (PhD student in Shanghai Jiao Tong University, 2018.10 - 2019.2)

- Zhengyao Yu (PhD student in Civil Engineering at Penn State, 2018.5 - 2018.8)

- Mengqi Liu (PhD student in IST at Penn State, 2017.10 - 2019.5)
- Xianfeng Tang (PhD student in IST at Penn State, 2016.8 - 2018.12)
- Benjamin Bowman (Undergrad in IST at Penn State, 2016.8 - 2016.12)
- Carson Brown (Undergrad in IST at Penn State, 2016.8 - 2016.12)
- Benjamin Eppinger (Undergrad in IST at Penn State, 2016.5 - 2016.8)
- Rachelle C. Schneider (Undergrad in Criminology at Penn State, 2016.5 - 2016.8)

On Ph.D. committee of (at Penn State otherwise noted):

- Sam Mottahedi (in progress)
- Ankur Mali (in progress)
- Debjyoti Paul at University of Utah (graduated 2020)
- Jiasheng Zhang (graduated 2020)
- Yu-Hsuan Kuo (graduated 2018)
- Yibo Wu (graduated in 2018)
- Jianbo Ye (graduated in 2018)
- Sagnik Choudhury (graduated 2017)
- Ting Hua at Virginia Tech (graduated 2017)
- Eun-Kyeong Kim (graduated 2017)
- Saijing Zheng (graduated in 2016)
- Kyle Williams (graduated in 2016)
- Karumanchi Sushama (graduated in 2016)
- Wenyi Huang (graduated 2016)
- Daniel Coughlin (graduated 2014)
- Mohammad Allaho (graduated 2014)
- Dayu Yuan (graduated in 2013)