Xun Zhou

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1. EDUCATION

- **Ph.D.**, Computer Science, University of Minnesota, Twin Cities, 2014
  Dissertation: Spatiotemporal Big Data Analytics: Discovering Change Footprint Patterns
  Advisor: Dr. Shashi Shekhar.
- **M.S.**, Computer Science and Technology, Harbin Institute of Technology, Harbin, China, 2009
- **B.E.** Computer Science and Technology, Harbin Institute of Technology, Harbin, China, 2007

2. EXPERIENCES AND POSITIONS HELD

- **Professor** 07/2023 - Present
  School of Computer Science and Technology
  Harbin Institute of Technology, Shenzhen (HIT-SZ)
  Shenzhen, Guangdong, China
- **Associate Professor (with Tenure)** 07/2020 - 06/2023
  Director of Graduate Studies (2022-2023)
  Henry B. Tippie Research Fellow (2020-2023)
  Department of Business Analytics
  Tippie College of Business
  University of Iowa, Iowa City, IA, USA
- **Affiliated Faculty**
  Applied Mathematical and Computational Sciences (AMCS) 07/2019 - 06/2023
  Interdisciplinary Graduate Program in Informatics (IGPI) 08/2014 - 06/2023
  University of Iowa, Iowa City, IA, USA
- **Assistant Professor** 08/2014 - 06/2020
  Department of Business Analytics (Management Sciences before 2019)
  Tippie College of Business
  University of Iowa, Iowa City, IA

3. SELECTED HONORS AND AWARDS

- NSF CISE Computing Research Initiation Initiative **(CRII)** Award, 2016.
- **Best Paper Award**, IEEE International Conference on Data Mining (ICDM), 2021.
- **Best Applied Data Science Paper Award**, SIAM International Conference on Data Mining (SDM), 2019.
- **Best Paper Award**, 2nd ACM SIGSPATIAL Workshop on Big Geospatial Data Anlytics, 2013.
- **Best Paper Award**, 12th International Symposium on Spatial and Temporal Databases (SSTD), 2011.
- **Best Student Paper award (1 out of 8)**, National Database Conference of China (NDBC), 2009.
- NSF student travel award, IEEE International Conference on Data Mining (ICDM), 2013.
- NSF student travel award, ACM SIGSPATIAL Intl. Conference on Advances in Geographic Information Systems (SIGSPATIAL), 2011 and 2013.
- NSF student travel award, 12th Intl. Symposium on Spatial and Temporal Databases (SSTD), 2011.

4. RESEARCH INTERESTS

- Spatiotemporal big data analytics and mining, machine learning and GeoAI
- Spatial and spatiotemporal generative models
- Reinforcement learning and imitation learning
- Urban Intelligence and Smart City, Sustainability

5. PUBLICATIONS

(* students advised or mentored, ** external students co-advised, † corresponding author or equivalent role)

- **Book Edited**

[E.1]. Shashi Shekhar, Hui Xiong, **Xun Zhou** (Eds.) Encyclopedia of GIS, 2nd Edition, Springer, 2017. (*This reference book includes over 200 peer-reviewed articles in 60 fields. Total downloads over 220,000 on Springer.com as of Feb. 2022*).

- **Book Chapters**

[B.5]. Yanhua Li, **Xun Zhou**, Menghai Pan**. Graph Neural Networks in Urban Intelligence. Chapter in "Graph Neural Networks: Foundations, Frontiers, and Applications" (Eds. L. Wu, P. Cui, J. Pei, and L. Zhao), Springer, pp. 579-592, July 2021.

[B.4]. Michael R. Evans, Dev Oliver, KwangSoo Yang, **Xun Zhou**, Reem Y Ali, Shashi Shekhar. Enabling Spatial Big Data via CyberGIS: Challenges and Opportunities. In CyberGIS for Geospatial Discovery and Innovation (Ed. S. Wang and M. Goodchild), pp.143-170, Springer, Dordrecht, 2019. (Peer-reviewed).

[B.3]. **Xun Zhou**†, Shashi Shekhar, Reem Y. Ali, Spatio-temporal Change Footprint Pattern Discovery. In S.Shekhar, H. Xiong and X. Zhou (Eds.) Encyclopedia of GIS, 2nd Edition, Springer, 2017. (Peer-reviewed).

[B.2]. **Xun Zhou**†, Shashi Shekhar, Pradeep Mohan. "Spatiotemporal Change Pattern Mining: A Multidisciplinary Perspective". In Mei-Po Kwan, Douglas Richardson, Donggen Wang and Chenghu Zhou (eds): Space-Time Integration in Geography and GIScience: Research Frontiers in the US and China. Dordrecht: Springer, 2015.

[B.1]. Michael R Evans, Dev Oliver, **Xun Zhou**, Shashi Shekhar. Spatial Big Data: Case Studies on Volume, Velocity, and Variety. In Hassan A. Karimi (ed.) Big Data: Techniques and Technologies in Geoinformatics. CRC Press, 2014.

- **Journal Publications**

[J.36]. Yingxue Zhang, Yanhua Li, **Xun Zhou**, Zhenming Liu, and Jun Luo. C3-GAN+: Complex-Condition-Controlled Generative Adversarial Networks with Enhanced Embedding. In ACM Transactions on Knowledge Discovery from Data (TKDD) (accepted).

[J.35]. Haoyi Xiong*, **Xun Zhou**, & David A. Bennett (2023) Detecting Spatiotemporal Propagation Patterns of Traffic Congestion from Fine-grained Vehicle Trajectory Data, International Journal of Geographical Information Science (IJGIS), 37:5, 1157-1179, DOI: 10.1080/13658816.2023.2178653.

[J.34]. Han Bao*, **Xun Zhou**†, Cara Hamann, Steven Spears,Understanding Children's Cycling Route Selection through Spatial Trajectory Data Mining. Transportation Research Interdisciplinary Perspectives, Volume 20, 10085, 2023. DOI:10.1016/j.trip.2023.100855

[J.33]. Han Bao*, **Xun Zhou**†, Yiqun Xie, Yanhua Li and Xiaowei Jia. STORM-GAN+: spatio-temporal meta-GAN for cross-city estimation of heterogeneous human mobility responses to COVID-19. Knowledge and Information Systems (KAIS) 65, 4759–4795 (2023). https://doi.org/10.1007/s10115-023-01921-7

[J.32]. Yiqun Xie, Weiye Chen, Erhu He, Xiaowei Jia, Han Bao*, **Xun Zhou**, Rahul Ghosh and Praveen Ravirathinam. Harnessing Heterogeneity in Space with Statistically-Guided Meta-Learning. Knowledge and Information Systems (KAIS) 65, 2699–2729 (2023). https://doi.org/10.1007/s10115-023-01847-0

[J.31]. Han Bao*, **Xun Zhou**†, Yiqun Xie, Yingxue Zhang, Yanhua Li. COVID-GAN+: Estimating Human Mobility Responses to COVID-19 through Spatio-Temporal Generative Adversarial Networks with Enhanced Features. In ACM Transactions on Intelligent Systems and Technology (TIST), 13 (2), No.27, (2022): 1-23.

[J.30]. Yiqun Xie, Xiaowei Jia, Shashi Shekhar, Han Bao* and **Xun Zhou**. Significant DBSCAN+: Statistically Robust Density-based Clustering. In ACM Transactions on Intelligent Systems and Technology (TIST), 12(5), No. 62 (2021): 1-26.

[J.29]. Yingxue Zhang**, Yanhua Li, **Xun Zhou**, Jun Luo, and Zhi-Li Zhang. Urban Traffic Dynamics Prediction – A Continuous Spatial-Temporal Meta-Learning Approach. In ACM Transactions on Intelligent Systems and Technology (TIST), 13 (2), No.23, (2022): 1-19.

[J.28]. Amin Vahedian Khezerlou*, **Xun Zhou**†, Xinyi Li, W. Nick Street, Yanhua Li. DILSA+: Predicting Urban Dispersal Events Through Deep Survival Analysis with Enhanced Urban Features. In ACM Transactions on Intelligent Systems and Technology (TIST), 12 (4), No. 49 (2021): pp. 1-25.

[J.27]. Xin Zhang, Yanhua Li, **Xun Zhou**, Jun Luo. cGAIL: Conditional Generative Adversarial Imitation Learning—An Application in Taxi Drivers' Strategy Learning. IEEE Transactions on Big Data (TBD), 8(5) (2022): 1288-1300.

[J.26]. Yingxue Zhang**, Yanhua Li, **Xun Zhou**, Xiangnan Kong, Jun Luo. Off-Deployment Traffic Estimation – A Traffic Generative Adversarial Networks Approach. IEEE Transactions on Big Data (TBD), 8(4) (2022): 1084-1095.

[J.25]. Liang Wang, Xiaolong Xue, **Xun Zhou**, Zeyu Wang, and Rui Liu. "Analyzing the topology characteristic and effectiveness of the China city network." Environment and Planning B: Urban Analytics and City Science 48, no. 9 (2021): 2554-2573.

[J.24]. Liang Wang, Xiaolong Xue and **Xun Zhou**. A New Approach for Measuring the Resilience of Transport Infrastructure Networks. Complexity, 2020.

[J.23]. Xiangyu Wang, Kang Zhao, **Xun Zhou**, W. Nick Street. "Predicting User Posting Activities in Online Health Communities with Deep Learning". ACM Transactions on Management Information Systems (TMIS) 11 (3), 1-15. 2020.

[J.22]. M. Pan**, W. Huang, Y. Li, **X. Zhou**, Z. Liu, R. Song, H. Lu, Z. Tian, J. Luo. "DHPA: Dynamic Human Preference Analytics Framework – A Case Study on Taxi Drivers' Learning Curve Analysis". In ACM Transactions on Intelligent Systems and Technology (TIST), 11(1) (2020): 1-19.

[J.21]. Yichen Ding*, **Xun Zhou**†, Guojun Wu, Yanhua Li, Jie Bao, Yu Zheng, Jun Luo. "Mining Spatio-Temporal Reachable Regions With Multiple Sources over Massive Trajectory Data". IEEE Transactions on Knowledge and Data Engineering (TKDE),33(7) (2019): 2930-2942.

[J.20]. Amin Vahedian Khezerlou*, **Xun Zhou**†, Ling Tong*, Yanhua Li, Jun Luo. "Forecasting Gathering Events through Trajectory Destination Prediction: a Dynamic Hybrid Model". IEEE Transactions on Knowledge and Data Engineering(TKDE), 33(3) (2019): 991-1004.

[J.19]. Yiqun Xie, **Xun Zhou**†, Shashi Shekhar. "Discovering Interesting Sub-paths with Statistical Significance from Spatio-Temporal Datasets". ACM Transactions on Intelligent Systems and Technology (TIST), 11(1) (2020): 1-24.

[J.18]. Amr Magdy, **Xun Zhou**, Liang Zhao, Yan Huang, (Workshop Report) "2nd ACM SIGSPATIAL workshop on analytics for local events and news (LENS 2018) Seattle, Washington, USA-November 6, 2018". ACM SIGSPATIAL Special 10(3). pp. 21-22, 2019. ACM, New York, USA.

[J.17]. Michael T. Lash, Min Zhang, **Xun Zhou**, Charles F. Lynch, W. Nick Street. "Deriving Enhanced Geographical Representations via Similarity-based Spectral Analysis: Predicting Colorectal Cancer Survival Curves in Iowa". International Journal of Data Mining and Bioinformatics (IJDBM), 21.3 (2018): 183-211.

[J.16]. Tongxin Zhu, Tuo Shi, Jianzhong Li, Zhipeng Cai, **Xun Zhou**. "Task Scheduling in Deadline-Aware Mobile Edge Computing Systems". IEEE Internet of Things Journal, 6(3) (2018), pp. 4854-4866, IEEE. (Impact Factor = 9.515)

[J.15]. **Xun Zhou**†, Huigui Rong, Chang Yang, Qun Zhang, Amin Vahedian Khezerlou*, Zubair Shafiq, Alex Liu. "Optimizing Taxi Driver Revenue Efficiency: A Spatial Network-Based Markov Decision Process Approach". IEEE Transactions on Big Data (TBD), 6(1) (2018): 145-158.

[J.14]. Yichen Ding*, Yanhua Li, **Xun Zhou**†, Zhuojie Huang, Simin You, and Jun Luo. "Sampling Big Trajectory Data for Traversal Trajectory Aggregate Query". IEEE Tranasactions on Big Data (TBD), 5(4) (2018): 550-563.

[J.13]. Dixian Zhu, Changjie Cai, Tianbao Yang, **Xun Zhou**, "A Machine Learning Approach for Air Quality Prediction: Model Regularization and Optimization". MDPI Big Data and Cognitive Computing (BDCC) 2(1) (2018): 5.

[J.12]. Amr Magdy, **Xun Zhou**, and Yan Huang. (Workshop Report) "1st ACM SIGSPATIAL Workshop on Analytics for Local Events and News (LENS 2017): Redondo Beach, California, USA - November 7, 2017". SIGSPATIAL Special 9, 3 (January 2018), pp.28-29. ACM.

[J.11]. Amin Vahedian Khezerlou*, **Xun Zhou**†, Lufan Li, Zubair Shafiq, Alex Liu, Fan Zhang. "A Traffic Flow Approach to Early Detection of Gathering Events: Comprehensive Results". ACM Transactions on Intelligent Systems and Technology (TIST),8(6): 74, 2017. ACM.

[J.10]. James Tamerius, **Xun Zhou**, Ricardo Mantilla, and T. Greenfield-Huitt, "Precipitation Effects on Motor Vehicle Crashes Vary by Space, Time and Environmental Conditions". Weather, Climate, and Society, volume 8, no. 4, 2016, 399-407. American Meteorological Society.

[J.9]. Shekhar, Shashi, Zhe Jiang, Reem Y. Ali, Emre Eftelioglu, Xun Tang, Venkata Gunturi, and **Xun Zhou**. "Spatiotemporal Data Mining: A Computational Perspective." ISPRS International Journal of Geo-Information 4, no. 4 (2015): 2306-2338, 2015.

[J.8]. Michael McDermotta, Sushil K. Prasad, Shashi Shekhar, and **Xun Zhou**. "Interesting Spatio-Temporal Region Discovery Computations Over Gpu and Mapreduce Platforms." Best Paper Honorable Mention at 1st International Symposium on Spatio-temporal Computing (ISSC), July, 2015. Published at ISPRS Annals of Photogrammetry, Remote Sensing and Spatial Information Sciences 1 (2015): 35-41. 2015.

[J.7]. Zhe Jiang, Shashi Shekhar, **Xun Zhou**, Joseph Knight, and Jennifer Corcoran. "Focal-Test-Based Spatial Decision Tree Learning". IEEE Transaction on Knowledge and Data Engineering (TKDE), Jun 1(6):1547-1559, 2015.

[J.6]. Sushil K. Prasad, Michael McDermott, Satish Puri, Dhara Shah, Danial Aghajarian, Shashi Shekhar, **Xun Zhou**. "A Vision for GPU-accelerated Parallel Computation on Geo-Spatial Datasets". In ACM SIGSPATIAL Special 6 (3), 19-26. 2015

[J.5]. **Xun Zhou**†, Shashi Shekhar, Reem Y. Ali. "Spatiotemporal Change Footprint Pattern Discovery: An Inter-disciplinary Survey". Wiley's Interdisciplinary Review: Data Mining and Knowledge Discovery, Vol 4, Issue 1, January/February 2014, pp.1-23.

[J.4]. Mohamed Sarwat, Mohamed Mokbel, **Xun Zhou** and Suman Nath. "Generic and efficient framework for search trees on flash memory storage systems". GeoInformatica 17(3): 417-448 (2013). 2013.

[J.3]. Shashi Shekhar, KwangSoo Yang, Venkata M. V. Gunturi, Lydia Manikonda, Dev Oliver, **Xun Zhou**, Betsy George, Sangho Kim, Jeffrey M. R. Wolff, Qingsong Lu. "Experiences with evacuation route planning algorithms". International Journal of Geographical Information Science 26(12): 2253-2265 (2012). 2012.

[J.2]. **Xun Zhou**, Betsy George, Sangho Kim, Jeffrey M. R. Wolff, Qingsong Lu, Shashi Shekhar. "Evacuation Planning: A Spatial Network Database Approach." IEEE Data Engineering Bulletin. 33(2): 26-31, 2010.

[J.1]. **Xun Zhou**, Jianzhong Li, Shengfei Shi, "Distributed Aggregations for Two Queries over Uncertain Data". Journal of Computer Research and Development 47(5):762-772, 2010 (In Chinese). (Best student paper award of China National Database Conference, 2009)

- **Refeerred Conference & Workshop Proceedings**

[C.66]. Bang An*, **Xun Zhou**†, Zirui Zhou, Ronilo Ragodos, Zenglin Xu and Jun Luo. GeoPro-Net: Learning Interpretable Spatiotemporal Prediction Models through Statistically-Guided Geo-Prototyping. In AAAI Conference on Artificial Intelligence (AAAI'25) (accepted).

[C.65]. Bang An*, **Xun Zhou**†, Amin Vahedian Khezerlou, W. Nick Street, Jinping Guan, Jun Luo. LISA: Learning-Integrated Space Partitioning Framework for Traffic Accident Forecasting on Heterogeneous Spatiotemporal Data. In IEEE International Conference on Data Mining (ICDM'24).

[C.64]. Mingzhi Hu, Xin Zhang, Yanhua Li, Yiqun Xie, Xiaowei Jia, **Xun Zhou**, Jun Luo. Only Attending What Matter within Trajectories – Memory-Efficient Trajectory Attention. In SIAM International Conference on Data Mining (SDM'24)

[C.63]. Weiye Chen, Yiqun Xie, Xiaowei Jia, Erhu He, Han Bao*, Bang An* and **Xun Zhou**. Referee-Meta-Learning for Fast Adaptation of Locational Fairness. AAAI Conference on Artificial Intelligence (AAAI'24). Vancouver, Canada, 2024 (Accepted).

[C.62]. Bang An*, **Xun Zhou**†, Yongjian Zhong, Tianbao Yang. SpatialRank: Urban Event Ranking with NDCG Optimization on Spatiotemporal Data. In Proc. 37th Neural Information Processing Systems (**NeurIPS'23**)

[C.61]. Mingzhi Hu, Xin Zhang, Yanhua Li, **Xun Zhou**, and Jun Luo. ST-iFGSM: Enhancing Robustness of Human Mobility Signature Identification Model via Spatial-Temporal Iterative FGSM. In Proc. the 29th ACM SIGKDD conference on Knowledge Discovery and Data Mining (KDD'23).

[C.60]. Yingxue Zhang**, Yanhua Li, **Xun Zhou**, Ziming Zhang and Jun Luo. STM-GAIL: Spatial-Temporal Meta-GAIL for Learning Diverse Human Driving Strategies. In SIAM International Conference on Data Mining (SDM'23).

[C.59]. Palawat Busaranuvong, Xin Zhang, Yanhua Li†, Xun Zhou†, and Jun Luo. CAC: Enabling Customer-Centered Passenger-Seeking for Self-Driving Ride Service with Conservative Actor-Critic. In IEEE International Conference on Data Mining (ICDM), 2023 (Accepted as full paper, ratio = 9.37%).

[C.58]. Mingzhi Hu, Zhuoyun Zhong, Xin Zhang, Yanhua Li, Yiqun Xie, Xiaowei Jia, Xun Zhou, and Jun Luo. Self-supervised Pre-training for Robust and Generic Spatial-Temporal Representations. In IEEE International Conference on Data Mining (ICDM), 2023 (Accepted as full paper, ratio = 9.37%).

[C.57]. Yiqun Xie, Zhili Li, Han Bao*, Xiaowei Jia, Dongkuan Xu, **Xun Zhou** and Sergii Skakun. Auto-CAM: Label-Free Earth Observation Imagery Composition and Masking Using Spatio-Temporal Dynamics. AAAI Conference on Artificial Intelligence (AAAI'23). Washington D.C., 2023.

[C.56]. Guojun Wu, Xin Zhang, Ziming Zhang, Yanhua Li, **Xun Zhou**, Christopher Brinton, Zhenming Liu. Learning Lightweight Neural Networks via Channel-Split Recurrent Convolution. In IEEE/CVF Winter Conference on Applications of Computer Vision 2023 (WACV'23) (accepted).

[C.55]. Ronilo Ragodos, Tong Wang, Qihang Lin, and **Xun Zhou**. Explaining a Reinforcement Learning Agent via Prototyping. Thirty-sixth Conference on Neural Information Processing Systems (NeurIPS'22) (accepted).

[C.54]. Han Bao, **Xun Zhou**, Yiqun Xie, Yanhua Li and Xiaowei Jia, STORM-GAN: Spatio-Temporal Meta-GAN for Cross-City Estimation of Human Mobility Responses to COVID-19. In Proc. IEEE International Conference on Data Mining (ICDM'22), Orlando, FL, Nov. 28- Dec. 1, 2022 (accepted).

[C.53]. Yingxue Zhang**, Yanhua Li, Xun Zhou, Xiangnan Kong, and Jun Luo, STrans-GAN: Spatially-Transferable Generative Adversarial Networks for Urban Traffic Estimation. In Proc. IEEE International Conference on Data Mining (ICDM'22), Orlando, FL, Nov. 28- Dec. 1, 2022 (accepted).

[C.52]. Yingxue Zhang**, Yanhua Li, **Xun Zhou**, and Jun Luo, Mest-GAN: Cross-City Urban Traffic Estimation with Meta Spatial-Temporal Generative Adversarial Networks. In Proc. IEEE International Conference on Data Mining (ICDM'22), Orlando, FL, Nov. 28- Dec. 1, 2022 (accepted).

[C.51]. Yichen Ding, Ziming Zhang, Yanhua Li, Xun Zhou. EgoSpeed-Net: Forecasting Speed-Control in Driver Behavior from Egocentric Video Data. In Proceedings of the ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (SIGSPATIAL'22) (accepted).

[C.50]. Erhu He, Yiqun Xie, Xiaowei Jia, Weiye Chen, Han Bao, Xun Zhou, Zhe Jiang, Rahul Ghosh and Praveen Ravirathinam. Sailing in the Location-Based Fairness-Bias Sphere. In Proceedings of the ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (SIGSPATIAL'22) (accepted).

[C.49]. Zhe Jiang, Liang Zhao, **Xun Zhou**, Robert N. Stewart, Junbo Zhang, Shashi Shekhar, and Jieping Ye. DeepSpatial'22: The 3rd International Workshop on Deep Learning for Spatiotemporal Data, Applications, and Systems. In Proceedings of the 28th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), Washington, DC, USA, 2022. ACM.

[C.48]. Yiqun Xie, Erhu He, Xiaowei Jia, Han Bao, **Xun Zhou**, Rahul Ghosh and Praveen Ravirathinam. Statistically-Guided Deep Network Transformation to Harness Heterogeneity in Space (Extended Abstract). The 31st International Joint Conference on Artificial Intelligence (IJCAI-ECAI'22), Sister Conference Best Paper Track. 2022.

[C.47]. Bang An*, Amin Vahedian*, **Xun Zhou**†, W. Nick Street, Yanhua Li. HintNet: Hierarchical Knowledge Transfer Networks for Traffic Accident Forecasting on Heterogeneous Spatio-Temporal Data. In Proc. SIAM International Conference on Data Mining (SDM'22), 2022 (acceptance ratio = 27.8%).

[C.46]. Amin Vahedian* and **Xun Zhou**. Precise Bayes Classifier: Summary of Results. In Proc. IEEE International Conference on Data Mining (ICDM'21), Auckland, New Zealand, Dec. 7-10, 2021. (Full paper, acceptance ratio = 9.9%)

[C.45]. Yiqun Xie, Erhu He, Xiaowei Jia, Han Bao*, **Xun Zhou**, Rahul Ghosh and Praveen Ravirathinam. A Statistically-Guided Deep Network Transformation and Moderation Framework for Data with Spatial Heterogeneity. In Proc. IEEE International Conference on Data Mining (ICDM'21), Auckland, New Zealand, Dec. 7-10, 2021. (Full paper, acceptance ratio = 9.9%) [Best Paper Award].

[C.44]. Xin Zhang, Yanhua Li, **Xun Zhou**, Oren Mangoubi, Ziming Zhang, Vincent Filardi, and Jun Luo, DAC-ML: Domain Adaptable Continuous Meta-Learning for Urban Dynamics Prediction. In Proc. IEEE International Conference on Data Mining (ICDM'21), Auckland, New Zealand, Dec. 7-10, 2021. (Full paper, acceptance ratio = 9.9%).

[C.43]. Ziming Zhang, Guojun Wu, Yue Yue, Yanhua Li, and **Xun Zhou**. Deep Incremental RNN for Learning Sequential Data: A Lyapunov Stable Dynamical System. In Proc. IEEE International Conference on Data Mining (ICDM'21), Auckland, New Zealand, Dec. 7-10, 2021. (Full paper, acceptance ratio = 9.9%)

[C.42]. Yingxue Zhang**, Yanhua Li, **Xun Zhou**, Zhenming Liu, and Jun Luo. C^3-GAN: Complex-Condition-Controlled Urban Traffic Estimation through Generative Adversarial Networks In Proc. IEEE International Conference on Data Mining (ICDM'21), Auckland, New Zealand, Dec. 7-10, 2021. (Short paper, acceptance ratio = 20%)

[C.41]. Menghai Pan**, Xin Zhang, Yanhua Li, **Xun Zhou** and Jun Luo. Learning Decision Making Strategies of Non-experts: A NEXT-GAIL Model for Taxi Drivers. In Proc. 29th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (SIGSPATIAL'21), Beijing, China, Nov. 2-5, 2021. (pp. 149-158) (Full paper, acceptance rate: 22.4%).

[C.40]. Yiqun Xie, Xiaowei Jia, Han Bao*, **Xun Zhou**, Jia Yu, Rahul Ghosh and Praveen Ravirathinam. SpatialNet: A Self-Adaptive and Model-Agnostic Deep Learning Framework for Spatially Heterogeneous

Datasets. In Proc. 29th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (SIGSPATIAL'21), Beijing, China, Nov. 2-5, 2021. (pp. 313-323) (Full paper, acceptance rate: 22.4%).

[C.39]. **Xun Zhou**, Liang Zhao, Zhe Jiang, Robert N. Stewart, Shashi Shekhar, Jieping Ye. DeepSpatial'21: 2nd International Workshop on Deep Learning for Spatiotemporal Data, Applications, and Systems. In Proc. ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD'21), pp.4183-4184. Virtual Conference, August 14-18, 2021 (Workshop report).

[C.38]. Han Bao*, **Xun Zhou**†, Yingxue Zhang**, Yanhua Li, and Yiqun Xie. COVID-GAN: Estimating Human Mobility Responses to COVID-19 Pandemic through Spatio-Temporal Conditional Generative Adversarial Networks. In Proc. 28th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (SIGSPATIAL'20), Seattle, WA, Nov 3-6, 2020 (pp. 273-282) (Full paper, acceptance rate=22.1%).

[C.37]. Yichen Ding*, **Xun Zhou**†, Han Bao, Yanhua Li, Cara Hamann, Steven Spears and Zhuoning Yuan. Cycling-Net: A Deep Learning Approach to Predicting Cyclist Behaviors from Geo-Referenced Egocentric Video Data. In Proc. 28th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (SIGSPATIAL'20), Seattle, WA, Nov 3-6, 2020 (pp. 337-346) (Full paper, acceptance rate=22.1%).

[C.36]. Menghai Pan**, Weixiao Huang, Yanhua Li, **Xun Zhou**, Zhenming Liu, Jie Bao, Yu Zheng and Jun Luo. Is Reinforcement Learning the Choice of Human Learners? A Case Study of Taxi Drivers. In Proc. 28th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (SIGSPATIAL'20), Seattle, WA, Nov 3-6, 2020 (pp. 357-366) (Full paper, acceptance rate=22.1%).

[C.35]. Xin Zhang, Yanhua Li, **Xun Zhou**, Ziming Zhang, and Jun Luo. TrajGAIL: Trajectory Generative Adversarial Imitation Learning for Long-term Decision Analysis. In Proc. 20th IEEE International Conference on Data Mining (ICDM'20), (Full paper, acceptance rate=9.8%).

[C.34]. Yingxue Zhang**, Yanhua Li, **Xun Zhou** and Jun Luo. cST-ML: Continuous Spatial-Temporal Meta-Learning for Traffic Dynamics Prediction. In Proc. 20th IEEE International Conference on Data Mining (ICDM'20) (Short paper, acceptation rate 19.7%).

[C.33]. Huigui Rong, Qun Zhang, **Xun Zhou**†, Hongbo Jiang, Da Cao, Keqin Li. TESLA: A Centralized Taxi Dispatching Approach to Optimizing Revenue Efficiency with Global Fairness. ACM SIGKDD International Workshop on Urban Computing (UrbComp'20).

[C.32]. Yingxue Zhang**, Yanhua Li, **Xun Zhou**, Xiangnan Kong, Jun Luo. Curb-GAN: Conditional Urban Traffic Estimation through Spatio-Temporal Generative Adversarial Networks. ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2020.

[C.31]. Huimin Ren, Menghai Pan**, Yanhua Li, **Xun Zhou**, Jun Luo. ST-SiameseNet: Spatio-Temporal Siamese Networks for Human Mobility Signature Identification. ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2020.

[C.30]. Menghai Pan**, Weixiao Huang, Yanhua Li, **Xun Zhou**, Jun Luo. xGAIL: Explainable Generative Adversarial Imitation Learning for Explainable Human Decision Analysis. In Proc. ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2020.

[C.29]. Mingzhou Yang, Yanhua Li, **Xun Zhou**, Hui Lu, Zhihong Tian, Jun Luo, Inferring Passengers' Interactive Choices on Public Transits via MA-AL: Multi-Agent Apprenticeship Learning. In Proc. the Web Conference (WWW), 2020.

[C.28]. Zhengcong Yin, Haoyi Xiong, **Zhou, X.**, Daniel W Goldberg, Dave Bennett, Chong Zhang. A Deep Learning based Illegal Parking Detection Platform. In Proc. 3rd ACM International Workshop on AI for Geographic Knowledge Discovery (GeoAI), 2019.

[C.27]. Xin Zhang, Yanhua Li, **Xun Zhou**, Jun Luo. "Unveiling Taxi Drivers' Strategies via cGAIL – Conditional Generative Adversarial Imitation Learning". In Proc. IEEE International Conference on Data Mining (ICDM'19), Beijing, China.

[C.26]. Yingxue Zhang**, Yanhua Li, **Xun Zhou**, Xiangnan Kong, Jun Luo. "TrafficGAN: Off-Deployment Traffic Estimation with Traffic Generative Adversarial Networks". In Proc. IEEE International Conference on Data Mining (ICDM'19), Beijing, China.

[C.25]. Yichen Ding*, **Xun Zhou**†, and Gautam Pant. "Deep Learning with Interaction Terms: An Experimental Exploration". 3rd INFORMS Workshop on Data Science. 2019.

[C.24]. Amin Vahedian*, Xinyi Li*, Haoyi Xiong*, **Xun Zhou**†, Amy Colbert. "Motivated or Exhausted: A Data-Driven Study of Taxi Driver Behaviors Following Traffic Congestions". 3rd INFORMS Workshop on Data Science. 2019.

[C.23]. Menghai Pan**, Yanhua Li, **Xun Zhou**, Zhenming Liu, Rui Song, Hui Liu, Jun Luo. "Dissecting the Learning Curve of Taxi Drivers: A Data Driven Approach". In Proc. SIAM International Conference on Data Mining (SDM'19), pp.783-791. May 2019. (Acceptance rate = 22.7%)[Best Applied Data Science Paper Award].

[C.22]. Amin Vahedian Khezerlou*, **Xun Zhou**†, Ling Tong*, W. Nick Street, Yanhua Li, "Predicting Urban Dispersal Events: A Two-Stage Framework through Deep Survival Analysis on Mobility Data". In Proc. 33rd AAAI International Conference on Artificial Intelligence (AAAI'19). Jan. 2019. (Acceptance rate = 16.2%)

[C.21]. Haoyi Xiong*, Amin Vahedian Khezerlou*, **Xun Zhou**†, Yanhua Li, Jun Luo. Predicting Traffic Congestion Propagation Patterns: A Propagation Graph Approach. In Proceedings of the 11th ACM SIGSPATIAL International Workshop on Computational Transportation Science (IWCTS'18), pp.60-69. Nov. 2018. ACM.

[C.20]. Xiangyu Wang, Apoorva Joshi, **Xun Zhou**, Kang Zhao. "Social Support and User Churn Prediction for Online Health Communities – A Trajectory-based Deep Learning Method". In Proc. 28th Workshops on Information Technology and Systems (WITS), Dec. 2018.

[C.19]. Xiaoxuan Zhang, Mingrui Liu, **Xun Zhou**, Tianbao Yang, "Faster Online Learning of Optimal Threshold for Consistent F-measure Optimization". In Proceedings of Conference on Neural Information Processing Systems (NeurIPS'18), pp. 3890-3900, Montreal Canada, 2018.(Acceptance Rate = 21%).

[C.18]. Jeffrey Chiu*, Amin Vahedian Khezerlou*, **Xun Zhou**†. "Understanding Business Location Choice Pattern: A Co-Location Analysis on Urban POI Data". In Proceedings of the 2nd INFORMS workshop on Data Science, Phoenix, AZ, 2018.

[C.17]. Zhuoning Yuan*, **Xun Zhou**†, Tianbao Yang. "Hetero-ConvLSTM: A Deep Learning Approach to Traffic Accident Prediction on Heterogeneous Spatio-Temporal Data". In Proc. 24th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining **(KDD '18)**, London, UK, 2018, (pp. 984-992) (Applied Data Science Track, Acceptance rate 22.6%).

[C.16]. Michael T. Lash*, Yuqi Sun*, **Xun Zhou**†, Charles F. Lynch and W. Nick Street. "Learning rich geographical representations: Predicting colorectal cancer survival in the state of Iowa". In Proceedings of IEEE International Conference on Bioinformatics and Biomedicine (BIBM'17), Kansas City, MO, Nov 13-16, 2017. IEEE. (Acceptance rate = 19%)

[C.15]. Amin Vahedian Khezerlou*, **Xun Zhou**†, Ling Tong*, Yanhua Li, Jun Luo. "Forecasting Gathering Events through Continuous Destination Prediction on Big Trajectory Data". In Proceedings of the 25th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (SIGSPATIAL'17), Redondo Beach, CA, 2017, 34:1-34:10. ACM. (Acceptance rate = 18%)

[C.14]. Zhuoning Yuan*, **Xun Zhou**†, Tianbao Yang, James Tamerius, Ricardo Mantilla. "Predicting Traffic Accidents Through Heterogeneous Urban Data: A Case Study". In Proc. 6th International Workshop on Urban Computing (UrbComp 2017) in conjunction with ACM KDD'17, Halifax, NS, Canada, August 2017.

[C.13]. Liang Wang, Xiaolong Xue, and **Xun Zhou**. "Measuring the Resilience of Transportation Infrastructure Systems: A Case Study in China's Railway Network". In 2017 International Conference on Maintenance

and Rehabilitation of Constructed Infrastructure Facilities, International Society for Maintenance and Rehabilitation of Transportation infrastructures (iSMARTi), Seoul, South Korea, 2017.

[C.12]. **Xun Zhou**†, Amin Vahedian Khezerlou*, Alex Liu, Zubair Shafiq and Fan Zhang. "A Traffic Flow Approach to Early Detection of Gathering Events". In Proceedings of the 24th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (SIGSPATIAL '16), Article No.4., 2016. ACM. (Acceptance rate (full paper) = 18%).

[C.11]. Huigui Rong#, **Xun Zhou**#†, Chang Yang, Zubair Shafiq, Alex Liu. "The Rich and the Poor: A Markov Decision Process Approach to Improve Taxi Driver Revenue Efficiency". In Proc. ACM International Conference on Information and Knowledge Management (CIKM'16), pp. 2329-2334, Indianapolis, 2016. (# co-first authors) (Acceptance rate (full + short) = 28.9%)

[C.10]. Emre Eftelioglu, Shashi Shekhar, Dev Oliver, **Xun Zhou**, Michael Evans, Yiqun Xie, James Kang, Renee Laubscher, and Christopher Farah. "Ring-Shaped Hotspot Detection: A Summary of Results". In Proceedings of 14th IEEE International Conference on Data Mining (ICDM 2014), pp. 815-820, Shenzhen, China, Dec. 2014. (Acceptance rate (full + short) = 19%)

[C.9]. Dev Oliver, Shashi Shekhar, **Xun Zhou**, Emre Eftelioglu, Michael Evans, Qiaodi Zhuang, James Kang, Renee Laubscher and Christopher Farah. "Significant Route Discovery: A Summary of Results". In Proc. 8th International Conference on Geographic Information Science (GIScience 2014), pp. 284-300, Vienna, Austria. Sept. 2014. (Acceptance rate = 27%)

[C.8]. Sushil K. Prasad, Shashi Shekhar, Michael McDermott, **Xun Zhou**, Michael R. Evans, Satish Puri. "GPGPU-accelerated Interesting Interval Discovery and other Computations on GeoSpatial Datasets: A Summary of Results". In Proc. 2nd ACM SIGSPATIAL Workshop on Analytics for Big Geospatial Data (BigSpatial), pp. 65-72, Orlando, FL, Nov. 2013, ACM.

[C.7]. **Xun Zhou**, Shashi Shekhar, Dev Oliver. "Discovering Persistent Change Windows in Spatiotemporal Datasets: A Summary of Results". 2nd ACM SIGSPATIAL Workshop on Analytics for Big Geospatial Data (BigSpatial), pp. 37-46, Orlando FL, Nov. 2013. ACM. [Best Paper Award].

[C.6]. Zhe Jiang, Shashi Shekhar, **Xun Zhou**, Joseph Knight, Jennifer Cocoran. "Focal-Test-Based Spatial Decision Tree Learning: A Summary of Results". In Proceedings of IEEE International Conference on Data Mining (ICDM), pp.320-329, Dallas, TX, Dec. 2013. IEEE. (Acceptance rate (full paper) = 11.6%).

[C.5]. Sushil K. Prasad, Shashi Shekhar, Xi He, Satish Puri, Michael McDermott, **Xun Zhou**, Michael Evans. 2013. "GPGPU-based data Structures and Algorithms for GeoSpatial Computation A Summary of Results and Future Roadmap". Position paper. In Proc. the All Hands Meeting of the NSF CyberGIS project. Seattle, Sept. 2013.

[C.4]. Pradeep Mohan, **Xun Zhou**, Shashi Shekhar. "Quantifying Resolution Sensitivity of Spatial Autocorrelation: A Resolution Correlogram Approach". In Proc. International Conference on Geographic Information Science (GIScience) 2012, Columbus, OH, September 18-21, 2012, pp.132-145..

[C.3]. **Xun Zhou**, Shashi Shekhar, Pradeep Mohan, Stefan Liess and Peter K. Snyder. "Discovering Interesting Sub-paths in Spatiotemporal Datasets: A Summary of Results". In Proc. 19th ACM SIGSPATIAL GIS, Chicago, USA, Nov. 1-4, 2011, pp. 44-53, 2011. (Acceptance rate (full) = 23%)

[C.2]. Mohamed Sarwat, Mohamed Mokbel, **Xun Zhou** and Suman Nath. "FAST: A Generic Framework for Flash-Aware Spatial Trees," In Proc. International Symposium on Spatial and Temporal Databases (SSTD), pp. 149-167, Minneapolis, MN, Aug. 2011. [Best Research Paper Award].

[C.1]. **Xun Zhou**, Shengfei Shi, Jizhou Luo, Wei Zhang, "Lifetime Optimized Methods of Correlated Data Gathering on Sensor Networks", In Proc. 8th ACIS International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing (SNPD 2007), Qingdao, China, pp. 3-8. 2007.

- **Technical Reports and Other Unpublished Work**

[T.3]. **Xun Zhou**, Shashi Shekhar, Reem Y. Ali. "Spatiotemporal Change Footprint Pattern Discovery: An Inter-disciplinary Survey". Technical Report, Department of Computer Science and Engineering, University of Minnesota, 2014.

[T.2]. Pradeep Mohan, Shashi Shekhar, Dev Oliver, **Xun Zhou**, "Crime pattern analysis: A spatial frequent pattern mining approach". Technical Report, Department of Computer Science and Engineering, University of Minnesota, 2013.

[T.1]. Dev Oliver, Michael R. Evans, **Xun Zhou**, Zhe Jiang, Shashi Shekhar. "Space-Time Big Data: An Analytics Perspective". Working Paper.

6. GRANTS (BEFORE 2023)

6.1 AWARDED RESEARCH GRANTS

- Co-PI (w/ C. Markfort, G. LeFevre, S. Meerdink, P. Thorne, E. Pizzi). Iowa Healthy Lakes Initiative: A multi-dimensional approach to measuring informing, and solving Iowa's Harmful Algal Bloom Challenge. Jumpstarting Tomorrow Seed Grant, University of Iowa, $150,000, 1/2022 - 1/2023.
- PI (w/ C. Markfort, A. Jannesari, C. Stanier). Smart Algal Blooms Detection and Forecasting through an AI-Powered UAV System. The Interdisciplinary, Scalable Solutions for a Sustainable Future (ISSSF) Seed Grant, University of Iowa. $40,000. 9/2020 - 8/2021.
- PI (w/ J. Sa-Aadu), "Understanding Co-location Patterns of Businesses through Mining Spatio-temporal Big Data". Tippie College of Business Research Excellence Grant, $6,000, 1/2020 - 12/2020.
- PI (w/ Cara Hamann & Steven Spears), "Understanding Bicyclists' Behaviors Through Learning from Big Trip Data", **SAFER-SIM University Transportation Center, U.S. DOT**, **$60,000**, 7/2019 - 12/2020 (no-cost extension to 12/2021).
- PI(single-PI), "Deep Learning Methods for Traffic Accident Prediction", NVIDIA GPU Grant. Awarded an NVIDIA Titan XP Graphic Card for research. Awarded in December 2017.
- PI (single-PI), "CRII: III: Discovering Complex Change Footprint Patterns on Spatio-temporal Big Data for Urban Sustainability", **NSF CISE Research Initiation Initiative (CRII)**. $155,767, 7/2016 - 6/2018 (no-cost extension to 6/2019).
- PI (w/ Z. Shafiq), "Heterogeneous Network Data Analytics to Improve Urban Sustainability". Interdisciplinary Research Grant, Obermann Center for Advanced Studies, University of Iowa. $12,000, June 2016 (awarded in Dec. 2015).
- Old Gold Summer Research Fellowship, University of Iowa, 2015.

6.2 EDUCATIONAL GRANTS

- PI(single-PI), "Fall 2019 Big Data Management and Analytics at University of Iowa". Educational grant proposal to XSEDE. 8/2019-12/2019.
- PI(single-PI), "Spring 2019 Advanced Database Management and Big Data at University of Iowa". Educational grants from XSEDE. Awarded PSC Regular Memory (Bridges): 104,160.0 SU's and PSC Storage (Bridges Pylon): 500.0 GB. Estimated value $2,411.30. 03/2019-05/2019.
- PI(single-PI), "Fall 2018 Big Data Management and Analytics at University of Iowa". Educational grants from XSEDE. Awarded PSC Regular Memory (Bridges): 80,000.0 SU's (with Supplement of 215072.0 SUs) and PSC Storage (Bridges Pylon): 600.0 GB. Estimated value $1852.00. Aug. 3, 2018 - Aug.2, 2019.
- PI(single-PI), "Big Data Management and Analytics at University of Iowa". Educational grants from XSEDE. Awarded PSC Regular Memory (Bridges): 60,000.0 SU's and PSC Storage (Bridges Pylon): 625.0 GB. Estimated value $2,480.25. Aug. 28, 2017 - Aug.27, 2018.

7. SELECTED TALKS AND PRESENTATIONS

P25. "Harnessing Heterogeneity in Spatiotemporal Big Data for Robust GeoAI". Keynote Talk at ICDM Workshop on Spatial and Spatiotemporal Data Mining (SSTDM), Shanghai, China, December 1, 2023.

P24. "Spatio-Temporal Big Data Intelligence: Urban Event Footprint Analytics". Department of Computer Science, Southern University of Science and Technology (SusTech), China. March 2022 (online).

P23. "Estimating Human Mobility Responses to the COVID-19 Pandemic through Spatio-temporal Generative Adversarial Networks". Kohn Colloquium, Department of Geographical and Sustainability Sciences, University of Iowa. Sept. 24, 2021.

P22. "Spatio-Temporal Big Data Analytics: Techniques and Applications". Mid-West Big Data Summer School, Iowa State University, May 23, 2019.

P21. "Deep Learning Spatio-temporal Big Data for Urban Intelligence". In the UI3 Informatics Symposium 2019, University of Iowa.

P20. "Understanding Business Location Choice Patterns: A Co-location Analysis on Urban POI Data", 2nd INFORMS Workshop on Data Science. Phoenix, AZ, Nov. 3, 2018.

P19. "Mining Spatio-Temporal Big Data for Urban Intelligence", School of Computer Science, Harbin Institute of Technology (HIT), China, June 2018.

P18. "Mining Spatio-Temporal Big Data for Urban Intelligence", School of Computer Science, Southeast University, China, June 2018.

P17. "Mining Spatio-Temporal Big Data for Urban Intelligence", School of Computer Science, Wuhan University, China, June 2018.

P16. "Mining Spatio-Temporal Big Data for Urban Intelligence", School of Management, Harbin Institute of Technology (HIT), China, June 2018.

P15. "Mining Spatio-Temporal Big Data for Urban Intelligence", JD Digits, China, May 2018.

P14. "Mining Spatio-Temporal Big Data for Urban Event Footprint Analytics", Department of Computer Science & Engineering Colloquium, University of Minnesota.

P13. "Mining Spatio-Temporal Big Data for Urban Event Footprint Analytics", Poster Presentation at Computing Community Consortium (CCC) Symposium on Computing Research Addressing National Priorities and Societal Needs, Washington D.C., Oct 23-24, 2017. Video: `https://www.youtube.com/watch?v=qZYNCzWSPkk&feature=youtu.be`

P12. "Mining Spatio-Temporal Big Data for Urban Event Footprint Analytics", Department of Computer Science Colloquium, University of Iowa, September 2017.

P11. "Mining Spatio-Temporal Big Data for Urban Event Footprint Analytics", Department of Computer Science, Worcester Polytechnic Institute (WPI), August 2017.

P10. "Predicting Traffic Accidents through Heterogeneous Urban Big Data: A Case Study", 6th International Workshop on Urban Computing in conjunction with SIGKDD 2017, Halifax NS, Canada, August 2017.

P9. "Mining Spatio-Temporal Big Data for Urban Sustainability", Department of Statistic and Actuarial Science Colloquium, University of Iowa, Feb. 2017.

P8. "A Markov Decision Process Approach to Optimizing Taxi Driver Revenue Efficiency", INFORMS Annual Meeting, Nashville, TN, Nov. 14, 2016.

P7. "A Traffic Flow Approach to Early Detection of Gathering Event", in ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (SIGSPATIAL GIS'16), Nov 1, 2016.

P6. "Spatiotemporal Big Data Analytics: Change Footprint Pattern Discovery". Kohn Colloquium at Department of Geographical and Sustainability Sciences , University of Iowa, February 27, 2015.

P5. "Spatiotemporal Big Data Analytics: Change Footprint Pattern Discovery". Colloquium at Computer Science Department, University of Iowa, October 10, 2014.

P4. "Discovering Persistent Change Windows in Spatiotemporal Datasets: A Summary of Results", in 2nd ACM SIGSPATIAL International Workshop on Big Geospatial Data Analytics (BigSpatial'13), Orlando, FL, Nov. 5, 2013.

P3. "Discovering Persistent Change Windows in Spatiotemporal Datasets", (Poster) 3rd Workshop on Understanding Climate Change through Data, Evanston, IL, Aug. 15, 2012.
P2. "Quantifying Resolution Sensitivity of Spatial Autocorrelation: A Resolution Correlogram Approach", GIScience, Columbus, OH, Sept. 21, 2012.
P1. "Discovering Interesting Sub-paths in Spatiotemporal Datasets: A Summary of Results", ACM SIGSPATIAL GIS, Chicago, IL, Nov. 2, 2011.

8. TEACHING AND ADVISING

- **Courses Taught at University of Iowa**

- BAIS/IGPI:7000 Spatial Big Data: Analytics and Computing. S18, S21. (Most recent score: 5.54/6.00)
- BAIS:6110 Big Data Management and Analytics. Master's in Business Analytics Program. F16, F17, F18, F19, F20, F22 (Most recent score: 5.58/6.00)
- MSCI:3200 Databse Management, F17, S18. (Most recent score: 5.43/6.00)
- BAIS:4220 Advanced Database Management and Big Data, S15, S16, S17, S19, S20, S21, S23. (Most recent score: 5.81/6.00)
- MSCI:9230 Database Systems, Master of Business Analytics Program. F14, F15, S16. (Most recent score: 5.41/6.00)

- **Earlier Teaching Experiences:**

- Co-instructor, Csci 8715 Spatial Database Research, University of Minnesota, F13.
- Teaching Assistant, Csci 4707 Practices of Database Systems, University of Minnesota, F09.

- **Ph.D. Students Advised**

1. **Dr. Amin Vahedian Khezerlou**, Business Analytics, (Enrolled: 8/2014, Defense: 6/2019).
   Thesis Title: Mining Big Mobility Data for Large Urban Event Analytics.
   Initial Placement: Assistant Professor, College of Business and Economics, University of Wisconsin at Whitewater. Now Assistant Professor at College of Business, Northern Illinois University
2. Dr. Yichen Ding, Business Analytics, University of Iowa (Enrolled: 8/2017, Defense: 6/2022).
   Thesis Title: Predicting and Understanding Road User Behaviors through Big Geo-referenced Egocentric Video Data.
   Initial Placement: Associate Professor, Shanghai Normal University, Shanghai, China.
3. Haoyi Xiong, Geography, University of Iowa (Co-advising with Prof. Dave Bennett), Defense: 12/2022
4. Han Bao, Geoinformatics, University of Iowa (Enrolled: 08/2019, Defense June 2024).
5. Bang An, Business Analytics, University of Iowa (Enrolled: 08/2020, Defense May 2024).

- **Ph.D. Thesis Committees**

1. Dr. Fahrettin Cakir (Business Analytics), Title: Data-Centric Solution Methodologies For Vehicle Routing Problems. (Proposal: May 2015, Defense: July 2016)
2. Dr. Wenjun Wang (Business Analytics), Title: Modeling Influence Diffusion in Networks for Community Detection, Resilience Analysis And Viral Marketing. (Proposal: May 2015, Defense: July 2016)
3. Dr. Xiaoxuan Zhang (Computer Science). Title: Online Learning for Imbalanced Data: Optimizing the Asymmetric Measrues. (Proposal: Jan 2018, Defense: May 2018)
4. Zhongrun Xiang, (Civil and Environmental Engineering). Title: Hybrid Data-Driven Rainfall-Runoff Modeling in Iowa Using Deep Learning. Comprehensive Exam: September 2019, Defense May 2022.
5. Menghai Pan, (Computer Science, Worcester Polytechnic Institute, external member). Title: Making Sense of Human-generated Spatio-temporal Data from Urban Environment. Defense: April 2021.
6. Xiangyu Wang (Informatics). Proposal: Nov. 2021, Defense May 2022.
7. Hoeyun Kwon, (Geographical and Sustainability Sciences), Proposal: Dec. 2021.

8. Yingxue Zhang (Data Science, Worcester Polytechnic Institute, external member), 2022.
9. Zhuoning Yuan, Computer Science, Title: Deep AUC Maximization. Defense: April 2023.
10. Dixian Zhu, Computer Science, Proposal November 2021, Defense May 2023.

- **PhD Comprehensive & Qualifying Exam Committees**
  - Business Analytics: Ling Tong, Maryam Rahmani Moghaddam, Sadjad Anzabi Zadeh, Ronilo Ragodos
  - Computer Science: Hankyu Jang
  - Chemical & Biochemical Engineering: Beiming Tang
  - Geography: Neal MacDonald
  - Informatics: Muhammed Sit
- **Master Thesis Committee**
  1. Apoorva Joshi (Master, Electrical and Computer Engineering). Thesis Title: Trajectory-based Methods to Predict User Churn in Online Health Communities. (Defense: April 2018)
  2. Yang Wei (Master, Information Science)(Defense: April 2017)
- **Undergraduate Honor Theses Advised**
  1. Ms. Xinyi Li, Business Analytics and Information Systems (BAIS). Title: Semantic Clustering of Spatial Regions For Urban Event Analysis. Fall 2018. (Featured in the University of Iowa's "Dare to Discover" campaign of 2019). Now master student at Johns Hopkins University.
- **Directed Research and Mentoring**
  1. Mr. Jeffrey Chiu, Irvington High School, CA. Advised in the Secondary Student Training Program (SSTP) at University of Iowa, June-July 2018. Topic: Co-location analysis of business location patterns. Won SSTP best poster award (IT & CS group). Admitted to Harvard Class of 2023.
  2. Mr. Jiajie (Jason) Ma, Pudong Jiaozhong Private Junior High School, Shanghai, China. Advised in the Secondary Student Training Program (SSTP) at University of Iowa, June-July 2017. Topic: An efficient approach to trajectory similarity range query based on Fréchet distance. Won SSTP best poster presenter award (IT & CS group). Admitted to Haverford College Class of 2022.
  3. Ms. Ling Tong (Management Sciences Undergrad/Informatics Master), volunteer research assistant, Spring 2017. Topic: taxi data analysis for event detection.. Now PhD student of Business Analtyics at University of Iowa.
  4. Ms. Yuqi Sun (Informatics Undergrad), volunteer research assistant. Spring 2017. Topic: learning rich geographical representations for cancer survival analysis in Iowa. Admitted to Carnegie Mellon University MS program.
  5. Mr. Zhuoning Yuan (Master, Computer Science), graduate research assistant. Project: traffic accident prediction. Fall 2016 - Summer 2018. Now PhD student of Computer Science.
  6. Ms. Haoming Li (Master, Statistical and Actuarial Sciences), Directed Research (MSCI:7950), University of Iowa, Spring 2015. Topic: Statistical modeling of vegetation change patterns.
  7. Mr. Mudit Gupt, IIT Bombay, Summer Intern at University of Minnesota, June-July, 2013. Topic: New algorithms for interesting region discovery and visual analytics of eco-climate data to understand climate change.
  8. Ms. Rahni Sumler, North Carolina A&T State University (NCAT), Summer Intern at University of Minnesota, June-August, 2012. Topic: analyzing climate extreme patterns using spatial hotspot detection techniques.

9. SERVICES

9.1 SERVICES TO THE UNIVERSITY OF IOWA

- Director of Graduate Studies (DGS), Department of Business Analytics (2022-2023)
- Ph.D. Program Committee Member, Department of Business Analytics, 2015 - 2021
- Departmental Seminar Committee, Department of Business Analytics, 2014-2019.
- Geoinformatics sub-track coordinating committee member, the Interdisciplinary Graduate Program in Informatics (IGPI), University of Iowa (2015 - 2020).
- Graduate Studies committee member, the Interdisciplinary Graduate Program in Informatics (IGPI) program (2021-2023).
- Session Co-Chair (w/ Dr. Tianbao Yang), "Machine Learning: What does your Data Say?", Informatics Days, University of Iowa, Feb. 2017.
- Session Chair and Organization Committee, UI Informatics Symposium, Feb. 2019.
- Judge, Mid-west Big Data Hackathon, University of Iowa. Oct. 2018.

9.2 JOURNAL & ENCYCLOPEDIA EDITOR

- Co-Editor-in-Chief, Springer Encyclopedia of GIS, 2nd Edition(2017), 3rd Edition (ongoing).
- Associate Editor, Frontiers in Big Data, Data Mining and Management Section, 2022-now.
- Guest Co-Editor, Springer Geoinformatica special issue on Analytics for Local Events and News, 2018.
- Guest Co-Editor, Big Data and Cognitive Computing (BCDD) special issue "Learning with Big Data: Scalable Algorithms and Novel Applications". 2018
- Guest Co-editor, Frontiers in Big Data special topic on "Big Data for Urban Intelligence", 2021.

9.3 CONFERENCE ORGANIZER

- Organizing Co-Chair
  - ACM KDD Workshop on Deep Learning for Spatiotemporal Data, Applications, and Sytems (DeepSpatial) 2020, 2021, 2022, 2024.
  - IEEE ICDM Workshop on Deep Learning for Spatiotemporal Data, Algorithms, and Sytems (DeepSpatial 2019).
  - ACM SIGSPATIAL Workshop on GeoAI, 2019.
  - ACM SIGSPATIAL Workshop on Analytics for Local Events and News (LENS), 2017-2018.
- Vice PC Co-Chair, ACM SIGSPATIAL (2024).
- Poster/Demo Co-Chair, ACM SIGSPATIAL (2017, 2018, 2020).
- Junior Faculty Workshop Co-Chair, International Symposium on Spatial and Temporal Databases (SSTD'17), Washington D.C., USA.
- Session Chair, "Urban Data Analytics and Mining", INFORMS Annual Meeting, 2015,2016,2018.

9.4 MAJOR CONFERENCE AND WORKSHOP COMMITTEES

- PC (2020-2024), Area Chair (2025) for ACM SIGKDD.
- International Joint Conference on Artificial Intelligence (IJCAI) (PC 2020-2024, SPC 2021).
- International Conference on Neural Information Processing Systems (NeurIPS) (2020-2024).
- International Conference on Machine Learning (ICML) (2020-2023)
- AAAI Conference on Artificial Intelligence (AAAI) (2019-2024)
- International Conference on Learning Representations (ICLR) (2021-2024)
- IEEE International Conference on Data Mining (ICDM) (2017-2024)
- SIAM International Conference on Data Mining (SDM) (2021, 2024 SPC).
- ACM International Conference on Knowledge and Information Management (CIKM) (2017-2020)
- ACM SIGSPATIAL (2016-2023)
- IEEE International Conference on Tools for Artificial Intelligence (ICTAI)(2017-2018)

- International Symposium on Spatial and Temporal Databases (SSTD) (2017-2021) (Biennial)
- ACM KDD International Workshop on Urban Computing (UrbComp), 2018-2021.
- IEEE ICDM Workshop on Spatial and Spatiotemporal Data Mining (SSTDM), 2014-2022.
- ACM SIGSPATIAL Workshop on Big GeoSpatial Data Analytics (BigSpatial), 2015-2020.
- Workshop on Information Technologies and Systems (WITS), 2019-2021.
- INFORMS Workshop on Data Science: 2018-2021.

9.5 Journal and Adhoc Conference Reviewer

- MIS Quartarly (MISQ), Information Systems Research (ISR), IEEE Intelligent Systems, INFOMRS Journal on Computing, IEEE Transactions on Knowledge and Data Engineering (TKDE), Journal of Machine Learning Research (JMLR), ACM Transactions on Intelligent Systems and Technology (TIST), IEEE Transactions on Mobile Computing (TMC), Computer Communications (COMCOM), IEEE Transactions on Big Data (TBD), ACM Transactions on Knowledge Discovery from Data (TKDD), ACM Transactions on Database Systems (TODS), ACM Computing Surveys (CURS), ACM Transactions on Management Information Systems (TMIS), ACM Transactions on Spatial Algorithms and Systems (TSAS), Geoinformatica, Computers, Environment and Urban Systems (CEUS), Transactions in GIS, ISPRS International Journal of Geo-Information (IJGI), Distributed and Parallel Databases (DAPD), IEEE Communications Magazine, SCIENCE CHINA Information Sciences, International Conference on Information Systems (ICIS), Decision Sciences, Sensors, Big Data, Remote Sensing.

9.6 Proposal Reviewer and Panelist

- NSF panelist (2019, 2021, 2022), Research Grants Council (RGC) of Hong Kong, Safer-Sim UTC, UI Center for Global and Regional Environmental Research.

10. PROFESSIONAL MEMBERSHIPS

- Senior Member (2021), IEEE (Institute of Electrical and Electronics Engineers).
- Member, INFORMS (Institute for Operations Research and the Management Sciences)
- Member, ACM SIGSPATIAL.