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Zhiqian Chen

Employment History

2020–present **Assistnat Professor**, *Mississippi State University*.

Education

2014–2020 **PhD, Computer Science**, *Virginia Tech*, Virginia, United States.
2010–2013 **MS, Software Engineering**, *Peking University*, China.
2005–2009 **BE, Software Engineering; BA, Japanese Language**, *Huazhong Univ. of Sci. & Tech.*, China.

Funding Awards, Honor & Patent

Funding Sole-PI, NSF Funding on Graph Flow (# 2153369)
Funding Co-PI, USDA Funding on Computational Biology
Funding Sole-PI/Co-PI, Undergraduate Research Program at Mississippi State, 2022, 2023
Award Best Paper Award at ACM SIGSPATIAL 2020
Award Best Paper Award at GISTAM 2015
Award Outstanding Contribution Award, 2016, Toyota Research Institute, North America (TRI-NA)
Award Travel Award: SEC Faculty, ICDM 2018, SDM 2022, KDD 2019 DLG
Honor Editor's Choice Article, www.mdpi.com/journal/sensors/editors_choice
Honor 22nd in *Top 50 Chemistry and Materials Sciences Articles*, www.nature.com/collections/giacagiaca
U.S. Patent High-throughput method to predict bulk properties of inorganic materials

Mentoring

Ph.D. Zonghan Zhang, Zijian Zhang, Amin George, Jiashan Wu, Suman Adhikari
M.S. Ramyasri Veerapaneni, Rajeev Jogi
Undergrad Jack Maloney, Ethan Rogers
Alumni Ben Moore, Prathyusha Mustiyala, Rajeev Jogi, Piero Bracamonte

Teaching

Split-level CSE 4633/6633 Artificial Intelligence
Split-level CSE 4693/6693 Intro to Machine Learning
Graduate CSE 8673 Machine Learning
Graduate CSE 8990 Graph Machine Learning

Editor/Review Service

Reviewer International Conference on Machine Learning (*ICML*), 2021, 2022
Reviewer International Conference on Learning Representations (*ICLR*), 2022, 2023
Reviewer Neural Information Processing System (*NeurIPS*), 2020, 2021, 2022
Reviewer AAAI conference on Artificial Intelligence (*AAAI*), 2021, 2022, 2023
Reviewer International Joint Conference on Artificial Intelligence (*IJCAI*), 2022, 2023
Reviewer ACM SIG on Knowledge Discovery and Data Mining (*KDD*), 2020, 2022, 2023
Reviewer ACM SIG on Information Retrieval (*SIGIR*), 2020, 2022, 2023
Reviewer Reviewer, IEEE Transactions on Knowledge and Data Engineering (*TKDE*), 2020
Reviewer Reviewer, ACM Transactions on Knowledge Discovery from Data (*TKDD*), 2021
Reviewer Knowledge-Based Systems, 2021
Reviewer Reviewer, Neurocomputing by Elsevier 2021, 2022
Editorial Board Frontiers in Big Data - Data Science, 2022-present
Panelist NSF Panel, 2021, 2023

Publications

[1] Subhodip Biswas, Fanglan Chen, Zhiqian Chen, Chang-Tien Lu, and Naren Ramakrishnan. Memetic algorithms for spatial partitioning problems. *ACM Transactions on Spatial Algorithms and Systems*, 9(1):1–31, 2023.

[2] Fanglan Chen, Subhodip Biswas, Zhiqian Chen, Shuo Lei, Naren Ramakrishnan, and Chang-Tien Lu. Exploring tradeoffs in automated school redistricting: Computational and ethical perspectives. In *Proceedings of the AAAI Conference on Artificial Intelligence 2023*, 2023.

[3] Zonghan Zhang and Zhiqian Chen. Understanding influence maximization via higher-order decomposition. In *Proceedings of the*

2023 SIAM International Conference on Data Mining (SDM), pages 766–774. Society for Industrial and Applied Mathematics, 2023.

[4] Kourosh T Baghaei, Amirreza Payandeh, Pooya Fayyazsanavi, Shahram Rahimi, Zhiqian Chen, and Somayeh Bakhtiari Ramezani. Deep representation learning: Fundamentals, perspectives, applications, and open challenges. *arXiv preprint arXiv:2211.14732*, 2022.

[5] Subhodip Biswas, Fanglan Chen, Zhiqian Chen, Chang-Tien Lu, and Naren Ramakrishnan. Sampling-based techniques for designing school boundaries. *arXiv preprint arXiv:2206.03703*, 2022.

[6] Zhiqian Chen and Zonghan Zhang. Demystifying graph convolution with a simple concatenation. *arXiv preprint arXiv:2207.12931*, 2022.

[7] Guangyu Meng, Qisheng Jiang, Kaiqun Fu, Beiyu Lin, Chang-Tien Lu, and Zhqian Chen. Early forecasting of the impact of traffic accidents using a single shot observation. In *Proceedings of the 2022 SIAM International Conference on Data Mining (SDM)*, pages 100–108. SIAM, 2022.

[8] Setareh Rafatirad, Houman Homayoun, Zhiqian Chen, and Sai Manoj Pudukotai Dinakarrao. Adversarial machine learning. In *Machine Learning for Computer Scientists and Data Analysts: From an Applied Perspective*, pages 305–328. Springer International Publishing Cham, 2022.

[9] Setareh Rafatirad, Houman Homayoun, Zhiqian Chen, and Sai Manoj Pudukotai Dinakarrao. Applied machine learning for cloud resource management. In *Machine Learning for Computer Scientists and Data Analysts: From an Applied Perspective*, pages 405–427. Springer International Publishing Cham, 2022.

[10] Setareh Rafatirad, Houman Homayoun, Zhiqian Chen, and Sai Manoj Pudukotai Dinakarrao. A brief review of probability theory and linear algebra. *Machine Learning for Computer Scientists and Data Analysts: From an Applied Perspective*, pages 35–79, 2022.

[11] Setareh Rafatirad, Houman Homayoun, Zhiqian Chen, and Sai Manoj Pudukotai Dinakarrao. Graph learning. In *Machine Learning for Computer Scientists and Data Analysts: From an Applied Perspective*, pages 277–304. Springer International Publishing Cham, 2022.

[12] Setareh Rafatirad, Houman Homayoun, Zhiqian Chen, and Sai Manoj Pudukotai Dinakarrao. Online learning. In *Machine Learning for Computer Scientists and Data Analysts: From an Applied Perspective*, pages 235–256. Springer International Publishing Cham, 2022.

[13] Setareh Rafatirad, Houman Homayoun, Zhiqian Chen, and Sai Manoj Pudukotai Dinakarrao. Recommender learning. In *Machine Learning for Computer Scientists and Data Analysts: From an Applied Perspective*, pages 257–276. Springer International Publishing Cham, 2022.

[14] Setareh Rafatirad, Houman Homayoun, Zhiqian Chen, and Sai Manoj Pudukotai Dinakarrao. Reinforcement learning. In *Machine Learning for Computer Scientists and Data Analysts: From an Applied Perspective*, pages 217–232. Springer International Publishing Cham, 2022.

[15] Setareh Rafatirad, Houman Homayoun, Zhiqian Chen, and Sai Manoj Pudukotai Dinakarrao. Sensornet: An educational neural network framework for low-power multimodal data classification. In *Machine Learning for Computer Scientists and Data Analysts: From an Applied Perspective*, pages 331–357. Springer International Publishing Cham, 2022.

[16] Setareh Rafatirad, Houman Homayoun, Zhiqian Chen, and Sai Manoj Pudukotai Dinakarrao. Supervised learning. In *Machine Learning for Computer Scientists and Data Analysts: From an Applied Perspective*, pages 81–162. Springer International Publishing Cham, 2022.

[17] Setareh Rafatirad, Houman Homayoun, Zhiqian Chen, and Sai Manoj Pudukotai Dinakarrao. Transfer learning in mobile health. In *Machine Learning for Computer Scientists and Data Analysts: From an Applied Perspective*, pages 359–382. Springer International Publishing Cham, 2022.

[18] Setareh Rafatirad, Houman Homayoun, Zhiqian Chen, and Sai Manoj Pudukotai Dinakarrao. Unsupervised learning. In *Machine Learning for Computer Scientists and Data Analysts: From an Applied Perspective*, pages 163–216. Springer International Publishing Cham, 2022.

[19] Setareh Rafatirad, Houman Homayoun, Zhiqian Chen, and SM Pudukotai Dinakarrao. Machine learning for computer scientists and data analysts, 2022.

[20] Jason Wang, Kaiqun Fu, Zhiqian Chen, and Chang-Tien Lu. Augmentation of chinese character representations with compositional graph learning (student abstract). In *Proceedings of the AAAI Conference on Artificial Intelligence*, volume 36, pages 13075–13076, 2022.

[21] Lei Zhang, Zhiqian Chen, Chang-Tien Lu, and Liang Zhao. From "dynamics on graphs" to "dynamics of graphs": An adaptive echo-state network solution (student abstract). In *Proceedings of the AAAI Conference on Artificial Intelligence*, volume 36, pages 13111–13112, 2022.

[22] Zonghan Zhang, Subhodip Biswas, Fanglan Chen, Kaiqun Fu, Taoran Ji, Chang-Tien Lu, Naren Ramakrishnan, and Zhiqian Chen. Blocking influence at collective level with hard constraints (student abstract). In *Proceedings of the AAAI Conference on Artificial Intelligence*, volume 36, pages 13115–13116, 2022.

[23] Zhiqian Chen. Tutorial: Studying spread patterns of covid-19 based on spatiotemporal data. In *SIAM Data Mining 2021*, 2021.

[24] Zhiqian Chen, Fanglan Chen, Lei Zhang, Taoran Ji, Kaiqun Fu, Liang Zhao, Feng Chen, Lingfei Wu, Charu Aggarwal, and Chang-Tien Lu. Bridging the gap between spatial and spectral domains: A unified framework for graph neural networks. *arXiv preprint arXiv:2107.10234*, 2021.

[25] Zhiqian Chen, Lei Zhang, Gaurav Kolhe, Hadi Mardani Kamali, Setareh Rafatirad, Sai Manoj Pudukotai Dinakarrao, Houman Homayoun, Chang-Tien Lu, and Liang Zhao. Deep graph learning for circuit deobfuscation. *Frontiers in big Data*, 4:608286, 2021.

[26] Kaiqun Fu, Taoran Ji, Nathan Self, Zhiqian Chen, and Chang-Tien Lu. A hierarchical attention graph convolutional network for traffic incident impact forecasting. In *2021 IEEE International Conference on Big Data (Big Data)*, pages 1619–1624. IEEE, 2021.

[27] Taoran Ji, Nathan Self, Kaiqun Fu, Zhiqian Chen, Naren Ramakrishnan, and Chang-Tien Lu. Dynamic multi-context attention networks for citation forecasting of scientific publications. In *Proceedings of the AAAI Conference on Artificial Intelligence*, volume 35, pages 7953–7960, 2021.

[28] Guoming Li, Yanbo Huang, Zhiqian Chen, Gary D Chesser, Joseph L Purswell, John Linhoss, and Yang Zhao. Practices and applications of convolutional neural network-based computer vision systems in animal farming: A review. *Sensors*, 21(4):1492, 2021.

[29] Guoming Li, Xue Hui, Zhiqian Chen, Gary D Chesser Jr, and Yang Zhao. Development and evaluation of a method to detect broilers continuously walking around feeder as an indication of restricted feeding behaviors. *Computers and Electronics in Agriculture*, 181:105982, 2021.

[30] Padmaksha Roy, Shailik Sarkar, Subhodip Biswas, Fanglan Chen, Zhiqian Chen, Naren Ramakrishnan, and Chang-Tien Lu. Deep diffusion-based forecasting of covid-19 by incorporating network-level mobility information. In *Proceedings of the 2021 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining*, pages 168–175, 2021.

[31] Subhodip Biswas, Fanglan Chen, Zhiqian Chen, Chang-Tien Lu, and Naren Ramakrishnan. Incorporating domain knowledge into memetic algorithms for solving spatial optimization problems. In *Proceedings of the 28th International Conference on Advances in Geographic Information Systems*, pages 25–35, 2020.

[32] Subhodip Biswas, Fanglan Chen, Andreea Sistrunk, Sathappan Muthiah, Zhiqian Chen, Nathan Self, Chang-Tien Lu, and Naren Ramakrishnan. Geospatial clustering for balanced and proximal schools. In *Proceedings of the AAAI Conference on Artificial Intelligence*, volume 34, pages 13358–13365, 2020.

[33] Fanglan Chen, Zhiqian Chen, Subhodip Biswas, Shuo Lei, Naren Ramakrishnan, and Chang-Tien Lu. Graph convolutional networks with kalman filtering for traffic prediction. In *Proceedings of the 28th international conference on advances in geographic information systems*, pages 135–138, 2020.

[34] Zhiqian Chen, Gaurav Kolhe, Setareh Rafatirad, Chang-Tien Lu, Sai Manoj PD, Houman Homayoun, and Liang Zhao. Estimating the circuit de-obfuscation runtime based on graph deep learning. In *2020 Design, Automation & Test in Europe Conference & Exhibition (DATE)*, pages 358–363. IEEE, 2020.

[35] Zhao Ding, Zhiqian Chen, Tianyi Ma, Chang-Tien Lu, Wenhui Ma, and Leon Shaw. Predicting the hydrogen release ability of libh4-based mixtures by ensemble machine learning. *Energy Storage Materials*, 27:466–477, 2020.

[36] Zhao Ding, Shaoyuan Li, Yang Zhou, Zhiqian Chen, Weijie Yang, Wenhui Ma, and Leon Shaw. Libh4 for hydrogen storage-new perspectives. *Nano Materials Science*, 2(2):109–119, 2020.

[37] Jianfeng He, Xuchao Zhang, Shuo Lei, Zhiqian Chen, Fanglan Chen, Abdulaziz Alhamadani, Bei Xiao, and ChangTien Lu. Towards more accurate uncertainty estimation in text classification. In *Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, pages 8362–8372, 2020.

[38] Subhodip Biswas, Fanglan Chen, Zhiqian Chen, Andreea Sistrunk, Nathan Self, Chang-Tien Lu, and Naren Ramakrishnan. Regal: A regionalization framework for school boundaries. In *Proceedings of the 27th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, pages 544–547, 2019.

[39] Taoran Ji, Zhiqian Chen, Nathan Self, Kaiqun Fu, Chang-Tien Lu, and Naren Ramakrishnan. Patent citation dynamics modeling via multi-attention recurrent networks. In *Proceedings of the Twenty-Eighth International Joint Conference on Artificial Intelligence (IJCAI-19)*, 2019.

[40] Ying Zhang, Xingfeng He, Zhiqian Chen, Qiang Bai, Adelaide M Nolan, Charles A Roberts, Debasish Banerjee, Tomoya Matsunaga, Yifei Mo, and Chen Ling. Unsupervised discovery of solid-state lithium ion conductors. *Nature communications*, 10(1):5260, 2019.

[41] Zhiqian Chen, Feng Chen, Rongjie Lai, Xuchao Zhang, and Chang-Tien Lu. Rational neural networks for approximating graph convolution operator on jump discontinuities. In *2018 IEEE International Conference on Data Mining (ICDM)*, pages 59–68. IEEE, 2018.

[42] Kaiqun Fu, Zhiqian Chen, and Chang-Tien Lu. Streetnet: preference learning with convolutional neural network on urban crime perception. In *Proceedings of the 26th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, pages 269–278, 2018.

[43] Manu Shukla, Zhiqian Chen, and Chang-Tien Lu. Dimpl: a distributed in-memory drone flight path builder system. *Journal of Big Data*, 5:1–29, 2018.

[44] Bingsheng Wang, Zhiqian Chen, Arnold P Boedihardjo, and Chang-Tien Lu. Virtual metering: An efficient water disaggregation algorithm via nonintrusive load monitoring. *ACM Transactions on Intelligent Systems and Technology (TIST)*, 9(4):1–30, 2018.

[45] Xuchao Zhang, Liang Zhao, Zhiqian Chen, and Chang-Tien Lu. Distributed self-paced learning in alternating direction method of multipliers. *arXiv preprint arXiv:1807.02234*, 2018.

[46] Zhiqian Chen, Chih-Wei Wu, Yen-Cheng Lu, Alexander Lerch, and Chang-Tien Lu. Learning to fuse music genres with generative adversarial dual learning. In *2017 IEEE International Conference on Data Mining (ICDM)*, pages 817–822. IEEE, 2017.

[47] Zhiqian Chen, Xuchao Zhang, Arnold P Boedihardjo, Jing Dai, and Chang-Tien Lu. Multimodal storytelling via generative adversarial imitation learning. In *Proceedings of the Twenty-Sixth International Joint Conference on Artificial Intelligence (IJCAI-17)*, 2017.

[48] Xuchao Zhang, Zhiqian Chen, Liang Zhao, Arnold P Boedihardjo, and Chang-Tien Lu. Traces: Generating twitter stories via shared subspace and temporal smoothness. In *2017 IEEE International Conference on Big Data (Big Data)*, pages 1688–1693. IEEE, 2017.

[49] Xuchao Zhang, Liang Zhao, Zhiqian Chen, Arnold P Boedihardjo, Jing Dai, and Chang-Tien Lu. Trendi: Tracking stories in news and microblogs via emerging, evolving and fading topics. In *2017 IEEE International Conference on Big Data (Big Data)*, pages 1590–1599. IEEE, 2017.

[50] Xuchao Zhang, Zhiqian Chen, Weisheng Zhong, Arnold P Boedihardjo, and Chang-Tien Lu. Storytelling in heterogeneous twitter entity network based on hierarchical cluster routing. In *2016 IEEE International Conference on Big Data (Big Data)*, pages 1522–1531. IEEE, 2016.

[51] Manu Shukla, Ziqian Chen, and Chang-Tien Lu. Difpl: Distributed drone flight path builder system. In *2015 1st International Conference on Geographical Information Systems Theory, Applications and Management (GISTAM)*, pages 1–10. IEEE, 2015.

[52] Zhiqian Chen and Wenya Feng. Detecting impolite crawler by using time series analysis. In *2013 IEEE 25th International Conference on Tools with Artificial Intelligence*, pages 123–126. IEEE, 2013.