

Shuhan Yuan

ASSISTANT PROFESSOR

Computer Science Department, Utah State University

☎ +1 435-797-0759 | ✉ shuhan.yuan@usu.edu | 🌐 <http://yuan.shuhan.org>

Professional Experience

Utah State University

ASSISTANT PROFESSOR

University of Arkansas

POSTDOCTORAL RESEARCH FELLOW

Logan, UT

Jan. 2020 - present

Fayetteville, AR

Feb. 2018 - Dec. 2019

Education

Tongji University

PH.D. IN COMPUTER SCIENCE

University of Arkansas

VISITING PH.D. STUDENT

Huaqiao University

M.E. IN COMPUTER APPLIED TECHNOLOGY

Huaqiao University

B.E. IN NETWORK ENGINEERING

Shanghai, China

Sep. 2012 - Dec. 2017

Fayetteville, AR

Sep. 2015 - Sep. 2017

Fujian, China

Sep. 2009 - Jun. 2012

Fujian, China

Sep. 2005 - Jun. 2009

Publications

PEER REVIEWED CONFERENCE PUBLICATIONS (STUDENT AUTHORS ADVISED BY ME MARKED WITH *)

1. Farsheed Haque, Depeng Xu, and Shuhan Yuan. "Discovering and Mitigating Indirect Bias in Attention-Based Model Explanations". In the Findings of 2024 Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL), 2024.
2. He Cheng* and Shuhan Yuan. "Backdoor Attack against One-Class Sequential Anomaly Detection Models." In the Proceedings of the 2024 Pacific-Asia International Conference on Knowledge Discovery and Data Mining (PAKDD), 2024.
3. Vinay M.S., Shuhan Yuan, and Xintao Wu. "Contrastive Learning for Fraud Detection from Noisy Labels". In the Proceedings of the 40th IEEE International Conference on Data Engineering (ICDE), 2024.
4. Vinay M.S., Shuhan Yuan, and Xintao Wu. "Robust Fraud Detection via Supervised Contrastive Learning." In the Proceedings of the 2023 IEEE International Conference on Big Data (BigData), 2023.
5. Xiao Han*, Shuhan Yuan, and Mohamed Trabelsi. "LogGPT: Log Anomaly Detection via GPT." In the Proceedings of the 2023 IEEE International Conference on Big Data (BigData), 2023. (short paper)
6. Xiao Han*, Lu Zhang, Yongkai Wu, and Shuhan Yuan. "On Root Cause Localization and Anomaly Mitigation through Causal Inference." In the Proceedings of the 32nd ACM International Conference on Information and Knowledge Management (CIKM), 2023.
7. He Cheng*, Depeng Xu, and Shuhan Yuan. "Explainable Sequential Anomaly Detection via Prototypes." In the Proceedings of the International Joint Conference on Neural Networks (IJCNN), 2023.
8. Xiao Han*, Lu Zhang, Yongkai Wu, and Shuhan Yuan. "Achieving Counterfactual Fairness for Anomaly Detection." In the Proceedings of the 27th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 2023.
9. He Cheng*, Depeng Xu, and Shuhan Yuan. "Sequential Anomaly Detection with Local and Global Explanations." In the Proceedings of the 2022 IEEE International Conference on Big Data (BigData), 2022.
10. Vinay M.S., Shuhan Yuan, and Xintao Wu. "Fraud Detection via Contrastive Positive Unlabeled Learning." In the Proceedings of the 2022 IEEE International Conference on Big Data (BigData), 2022.
11. Xingyi Zhao*, Lu Zhang, Depeng Xu, and Shuhan Yuan. "Textual Adversarial Attacking as Combinatorial Optimization in a Reduced Search Space." In Findings of the Association for Computational Linguistics: EMNLP 2022, Short paper Track, 2022.
12. Kshitiz Tiwari, Shuhan Yuan, and Lu Zhang. "Robust Hate Speech Detection via Mitigating Spurious Correlations." In the Proceedings of the 2nd Conference of the Asia-Pacific Chapter of the Association for Computational Linguistics

- and the 12th International Joint Conference on Natural Language Processing (AAACL-IJCNLP), Short Paper Track, 2022.
13. Xiao Han*, Depeng Xu, Shuhan Yuan and Xintao Wu. "Few-shot Anomaly Detection and Classification Through Reinforced Data Selection." In the Proceedings of the 22nd IEEE International Conference on Data Mining (ICDM), 2022. (short paper)
 14. Depeng Xu, Shuhan Yuan, Yueyang Wang, Angela Uchechukwu Nwude, Lu Zhang, Anna Zajicek and Xintao Wu. "Coded Hate Speech Detection via Contextual Information." In the Proceedings of the 26th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 2022.
 15. Vinay M.S., Shuhan Yuan and Xintao Wu. "Contrastive Learning for Insider Threat Detection." In the Proceedings of the 27th International Conference on Database Systems for Advanced Applications (DASFAA), 2022. (short paper)
 16. Xiao Han*, He Cheng*, Depeng Xu and Shuhan Yuan. "InterpretableSAD: Interpretable Anomaly Detection in Sequential Log Data." In the Proceedings of 2021 IEEE International Conference on Big Data (BigData), 2021.
 17. Panpan Zheng, Shuhan Yuan, Xintao Wu and Yubao Wu. "Hidden Buyer Identification in Darknet Markets via Dirichlet Hawkes Process." In the Proceedings of 2021 IEEE International Conference on Big Data (BigData), 2021.
 18. Depeng Xu, Shuhan Yuan, and Xintao Wu. Achieving Differential Privacy in Vertically Partitioned Multiparty Learning. In the Proceedings of the 2021 IEEE International Conference on Big Data (BigData), 2021. (special session of privacy and security of big data).
 19. Xiao Han* and Shuhan Yuan. "Unsupervised Cross-system Log Anomaly Detection via Domain Adaptation." In the Proceedings of the 30th ACM International Conference on Information and Knowledge Management (CIKM), Short Paper Track, 2021.
 20. Haixuan Guo*, Shuhan Yuan and Xintao Wu. "LogBERT: Log Anomaly Detection via BERT." In the Proceedings of the International Joint Conference on Neural Networks (IJCNN), 2021.
 21. Shuhan Yuan, Panpan Zheng, Xintao Wu, and Hanghang Tong. "Few-shot Insider Threat Detection." In the Proceedings of the 29th ACM International Conference on Information and Knowledge Management (CIKM), Short Paper Track, 2020.
 22. Shuhan Yuan, Panpan Zheng, Xintao Wu and Qinghua Li. "Insider Threat Detection via Hierarchical Neural Temporal Point Processes." In the Proceedings of 2019 IEEE International Conference on Big Data (BigData), 2019.
 23. Depeng Xu, Shuhan Yuan, Lu Zhang and Xintao Wu. "FairGAN+: Achieving Fair Data Generation and Fair Classification through Generative Adversarial Networks." In the Proceedings of 2019 IEEE International Conference on Big Data (BigData), 2019.
 24. Depeng Xu, Yongkai Wu, Shuhan Yuan, Lu Zhang and Xintao Wu. "Achieving Causal Fairness through Generative Adversarial Networks." In the Proceedings of the 28th International Joint Conference on Artificial Intelligence (IJCAI), 2019.
 25. Depeng Xu, Shuhan Yuan and Xintao Wu. "Achieving Differential Privacy and Fairness in Logistic Regression." In the Companion Proceedings of The 2019 World Wide Web Conference (WWW), 2019.
 26. Panpan Zheng, Shuhan Yuan and Xintao Wu. "SAFE: A Neural Survival Analysis Model for Fraud Early Detection." In the Proceedings of the 33rd AAAI Conference on Artificial Intelligence (AAAI), 2019.
 27. Panpan Zheng, Shuhan Yuan, Xintao Wu, Jun Li and Aidong Lu. "One-Class Adversarial Nets for Fraud Detection." In the Proceedings of the 33rd AAAI Conference on Artificial Intelligence (AAAI), 2019.
 28. Yuemeng Li, Aidong Lu, Xintao Wu and Shuhan Yuan. "Dynamic Anomaly Detection using Vector Autoregressive Model." In the Proceedings of the Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 2019.
 29. Depeng Xu, Shuhan Yuan, Lu Zhang and Xintao Wu. "FairGAN: Fairness-aware Generative Adversarial Networks." In the Proceedings of the IEEE International Conference on Big Data, 2018.
 30. Depeng Xu, Shuhan Yuan, Xintao Wu and HaiNhat Phan. "DPNE: Differentially Private Network Embedding." In the Proceedings of the Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 2018.
 31. Shuhan Yuan, Xintao Wu and Yang Xiang. "SNE: Signed Network Embedding." In the Proceedings of the Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 2017.
 32. Shuhan Yuan, Xintao Wu, Aidong Lu and Jun Li. "Spectrum-based Deep Neural Networks for Fraud Detection." In the Proceedings of the 26th ACM International Conference on Information and Knowledge Management (CIKM), 2017. (short paper)
 33. Shuhan Yuan, Panpan Zheng, Xintao Wu and Yang Xiang. "Wikipedia Vandal Early Detection: from User Behavior to User Embedding." In the Proceedings of the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML/PKDD), 2017.
 34. Shuhan Yuan, Xintao Wu and Yang Xiang. "Incorporating Pre-Training in Long Short-Term Memory Networks for Tweets Classification." In the Proceedings of the IEEE International Conference on Data Mining (ICDM), 2016.
 35. Shuhan Yuan, Xintao Wu and Yang Xiang. "A Two Phase Deep Learning Model for Identifying Discrimination from Tweets." In the Proceedings of the 19th International Conference on Extending Database Technology (EDBT), 2016. (poster)

36. Shuhan Yuan, Yang Xiang and Maozhen Li. "A Knowledge Resources Based Neural Network for Learning Word and Relation Representations." In the Proceedings of the IEEE 17th International Conference on High Performance Computing and Communications, 2015.

PEER REVIEWED JOURNAL PUBLICATIONS

1. Panpan Zheng, Shuhan Yuan, and Xintao Wu. "Using Dirichlet Marked Hawkes Processes for Insider Threat Detection." *Digital Threats: Research and Practice* 3, 1, Article 5 (March 2022).
2. Shuhan Yuan and Xintao Wu. "Deep Learning for Insider Threat Detection: Review, Challenges and Opportunities." *Computers & Security*, 2021.
3. Jianting Chen, Shuhan Yuan, Dongdong Lv and Yang Xiang. "A novel self-learning feature selection approach based on feature attributions." *Expert Systems with Applications*, 183, 2021.
4. Molla Hafizur Rahman, Shuhan Yuan, Charles Xie and Zhenghui Sha. "Predicting human design decisions with deep recurrent neural network combining static and dynamic data." *Design Science* 6, 2020.
5. Yuemeng Li, Shuhan Yuan, Xintao Wu and Aidong Lu. "On Spectral Analysis of Directed Signed Graphs." *International Journal of Data Science and Analytics*, 6(2):147-162, 2018.
6. Shuhan Yuan, Xintao Wu and Yang Xiang. "Incorporating Pre-Training in Long Short-Term Memory Networks for Tweets Classification." *Social Network Analysis and Mining*, 8(1):52:1-16, 2018.
7. Shuhan Yuan, Xintao Wu and Yang Xiang. "Task-specific Word Identification from Short Texts Using a Convolutional Neural Network." *Intelligent Data Analysis*, 22(3):533-550, 2018.
8. Shuhan Yuan, Yang Xiang and Shijia E. "Text Big Data Content Understanding and Development Trend Based on Feature Learning." *Big Data Research*, 1(3), 2017. (in Chinese)
9. Shuhan Yuan, Yang Xiang. "A Review on Lexical Semantic Representation." *Journal of Chinese Information Processing*, 30(5): 1-8, 2016. (in Chinese)
10. Shuhan Yuan, Weibin Chen and Shunkai Fu. "User behavior similarity analysis of location based social network." *Journal of Computer Applications*, 32(2):322-325, 2012. (in Chinese)

TUTORIAL

1. Shuhan Yuan, Depeng Xu, and Xintao Wu. "Trustworthy Anomaly Detection." 2024 SIAM International Conference on Data Mining.

BOOK CHAPTERS

1. Xintao Wu, Depeng Xu, Shuhan Yuan, and Lu Zhang. "Fair Data Generation and Machine Learning Through Generative Adversarial Networks." Book chapter in "Generative Adversarial Learning: Architectures and Applications" 2022: 31-55. Springer Publishing (editors: Roozbeh Razavi-Far, Ariel Ruiz-Garcia, Vasile Palade, and Juergen Schmidhuber).

Extramural Funding

- NSF SaTC: CORE: Small: Deep Learning for Insider Threat Detection. Sole PI: Shuhan Yuan. Amount: \$498,618. Duration: 2021-2024

Awards

2022 **Faculty Research Award**, Computer Science Department, Utah State University

Teaching

- CS 6665: *Data Mining*. Spring 2020, Spring 2021, Spring 2022, Spring 2023, Spring 2024.
- CS 5665: *Introduction to Data Science*. Fall 2020, Fall 2021, Fall 2022, Fall 2023.
- CS 4320: *Introduction to Machine Learning*. Fall 2022, Fall 2023.

Student Supervision

- Ph.D. Students
 - He Chen, August 2020 - present, Utah State University
 - Xiao Han, August 2020 - present, Utah State University
 - Xingyi Zhao, August 2021 - present, Utah State University
- Master Students
 - Kevin Park, January 2024 - present, Utah State University

- Kevin Vulcano, Utah State University, Graduated 2023.
- Haixuan Guo, Utah State University, Graduated 2021. (First Employment: Apple Inc.)
- Peiyu Li, Utah State University, Graduated 2021. (First Employment: PhD student at USU)
- Undergraduate Students
 - Zach Harrison, Fall 2023, Utah State University

Professional Activities

PANELIST

- National Science Foundation SaTC: 2022

EDITORIAL BOARD

- Guest Associate Editor for Data Mining and Management, Frontiers, 2022
- Editorial Board in Frontiers in Big Data, since 2020
- Editorial Board in Intelligent Data Analysis, IOS Press, since 2022

PROGRAM COMMITTEE IN CONFERENCES

- Association for Computational Linguistics (ACL) Rolling Review: 2023
- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD): 2020, 2021, 2022
- ACM SIGIR Conference on Research and Development in Information Retrieval: 2021, 2023
- ACM International Conference on Information and Knowledge Management (CIKM): 2021, 2022, 2023 (short paper track)
- Conference on Neural Information Processing Systems (NeurIPS): 2020, 2021, 2023
- International Joint Conference on Artificial Intelligence (IJCAI): 2020, 2021
- AAAI Conference on Artificial Intelligence (AAAI): 2018, 2019, 2020, 2021, 2022
- ACM International Conference on Web Search and Data Mining (WSDM): 2021
- Pacific-Asia Knowledge Discovery and Data Mining Conference (PAKDD): 2018, 2019, 2020, 2021, 2022
- European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML/PKDD): 2022
- International Conference on Learning Representations (ICLR): 2023

JOURNAL REVIEWER

- Computers & Security
- IEEE Transactions on Neural Networks and Learning Systems
- IEEE Transactions on Big Data
- IEEE Transactions on Fuzzy Systems
- IEEE Transactions on Cybernetics
- IEEE Transactions on Computational Social Systems
- ACM Transactions on Asian and Low-Resource Language Information Processing
- ACM Transactions on the Web
- World Wide Web Journal
- Social Network Analysis and Mining
- Neural Computing and Applications
- Journal of Intelligent Information Systems
- International Journal of Data Science and Analytics
- International Journal of Embedded Systems
- International Journal of Computational Science and Engineering
- Concurrency and Computation: Practice and Experience
- IEEE Access

DEPARTMENTAL SERVICE

- Graduate Admission Committee