Guanchu Wang

CONTACT INFORMATION	Computer Science and Engineering Anne and Charles Duncan Hall, 6100 Main Street, Houston, TX 77005, USA,	832-875-9593 gw22@rice.edu [Homesite] [Google Scholar] [Github] [LinkedIn]

OBJECTIVE

To look for an intern position.

RESEARCH INTERESTS

- **Explainable Machine Learning**: Post-hoc explanation, Learn to Explain, Real-time Interpretation, Shapley value
- **Fairness in Deep Learning**: Bias Mitigation, Shortcut Learning, Social Good
- **Anomaly Detection**: Anomaly Detection, Time-series Anomaly Detection, Deep Anomaly Detection
- **Others**: Compression of Deep Learning, Acceleration, Deep Reinforcement Learning

EDUCATIONAL BACKGROUND

- Rice University — Ph.D., Computer Science — Aug. 2020 - May 2025 (expected)
  - *Advisor: Dr. Xia "Ben" Hu*
- University of Science and Technology of China — M.S., Computer Science — Sep 2016 - May 2019
  - *Advisor: Dr. Chen Gong*
- Dalian University of Technology — B.S., Communication Engineering — Sep 2012 - May 2016
  - *GPA: Top 2% among 400+ students*

RESEARCH EXPERIENCE

- Graduate research assistant, Rice University, Houston — Aug 2021 - present
  - *Explainable machine learning, compression of deep learning, object detection on edge devices.*
  - *Two conference publications in ICML 2022, and CIKM 2022.*
- Graduate research assistant, Texas A&M University, College Station — Feb 2020 - July 2021
  - *Anomaly detection, Fairness in deep learning.*
  - *One opensource package for time-series anomaly detection (500+k star, 90+ fork).*
  - *Three conference publications in AAAI 2021, and NIPS 2021.*
- Research assistant, Westlake University, Zhejiang, P.R.C — Aug 2019 - Jan 2020
  - *Deep reinforcement learning for robotics.*
  - *Two conference publications in IJCAI 2020, and IJCNN 2021*
- Graduate research assistant, University of Science and Technology of China, Anhui, P.R.C — Sep 2016 - May 2019
  - *Wireless communication algorithms and protocols, FPGA platform of UV communication system.*
  - *Two conference publications in Globecom 2017, and ICC 2018*
  - *Four journal publications in PJ 2018, TCOM 2018, PJ 2019, and TCOM 2021*

OPENSOURCE & DEMO WORK

- TODS: Time-series Anomaly Detection Package. (500+k star, 90+ fork)
  - *Algorithms of data preprocessing, feature engineering and Point/Time-series/System anomaly detection.*
  - *Automated pipeline search and hyper-parameter tuning.*
  - *Sk-learn interface, data visualization and graphical user interface (GUI).*

- BED: Object Detection on edge devices.
  - *An integrated system with a MAX78000 microchip as CPU, and a camera and a screen as IO devices.*
  - *Efficient on-chip inference (300KB DNN model, 1.845 mJ power, and 91.9 ms inference time per sample).*

PUBLICATIONS

Conference Publications

[C1] **Guanchu Wang***, Zaid Pervaiz Bhat*, Zhimeng Jiang*, Yi-Wei Chen*, Daochen Zha*, Alfredo Costilla Reyes*, et al. "BED: A Real-Time Object Detection System for Edge Devices." International Conference on Information and Knowledge Management, CIKM 2022, Demo Track

[C2] **Guanchu Wang***, Yu-Neng Chuang*, Mengnan Du, Fan Yang, Quan Zhou, Pushkar Tripathi, Xuanting Cai and Xia Hu. "Accelerating Shapley Explanation via Contributive Cooperator Selection." International Conference on Machine Learning, ICML 2022.

[C3] Mengnan Du, Subhabrata Mukherjee, **Guanchu Wang**, Ruixiang Tang, Ahmed Hassan Awadallah, and Xia Hu, "Fairness via Representation Neutralization." Neural Information Processing Systems, NeurIPS 2021.

[C4] Kwei-Herng Lai, Daochen Zha, Junjie Xu, Yue Zhao, **Guanchu Wang**, and Xia Hu, "Revisiting Time Series Outlier Detection: Definitions and Benchmarks." Neural Information Processing Systems, NeurIPS 2021.

[C5] Qiangxing Tian, Jinxin Liu, **Guanchu Wang**, and Donglin Wang, "Learning Transitional Skills with Intrinsic Motivation." International Joint Conference on Neural Networks, IJCNN 2021.

[C6] Kwei-Herng Lai*, Daochen Zha*, **Guanchu Wang**, Junjie Xu, Yue Zhao, Devesh Kumar, Yile Chen, Purav Zumkhawaka, Minyang Wan, Diego Martinez, Xia Hu, "TODS: An Automated Time Series Outlier Detection System." AAAI Conference on Artificial Intelligence, demo track, AAAI 2021.

[C7] Qiangxing Tian, **Guanchu Wang**, Jinxin Liu, and Donglin Wang, "Independent Skill Transfer for Deep Reinforcement Learning." International Joint Conference on Artificial Intelligence, IJCAI 2020.

[C8] **Guanchu Wang**, Chen Gong, Zhimeng Jiang, et al. "Signal Characterization for Multiple Access Non-line of Sight Scattering Communication." IEEE International Conference on Communications, ICC 2018.

[C9] **Guanchu Wang**, Chen Gong, et al. "Signal detection and achievable rates for multiple access optical wireless scattering communication." IEEE Global Communication Conference, Globecom 2017.

Journal Publications

[J1] Zhimeng Jiang, Chen Gong, **Guanchu Wang**, et al. "On the Achievable Rate and Capacity for a Sample-based Practical Photon-counting Receiver." IEEE Transaction on Communication, TCOM 2021.

[J2] **Guanchu Wang**, Chen Gong, Zhimeng Jiang, et al. "Multi-layer Superimposed Transmission for Optical Wireless Scattering Communication." IEEE Photonics Journal, PJ 2019.

[J3] **Guanchu Wang**, Chen Gong, and Zhengyuan Xu, "Signal Characterization for Multiple Access Non-line of Sight Scattering Communication." IEEE Transaction on Communication, TCOM 2018.

[J4] **Guanchu Wang**, Kun Wang, Chen Gong, et al. "A 1Mbps Real-time NLOS UV Scattering Communication System with Receiver Diversity over 1km." IEEE Photonics Journal, PJ 2018.

TEACHING AND TALKS

- Teaching Assistant at Rice University — Jan 2022 - May 2022
  - *Graduate course: Machine Learning with Graph*

ACADEMIC SERVICE

- Reviewer & External reviewer:
  - *ICML 2022, KDD 2022, CIKM 2022, AAAI 2022, TAI 2022, Intelligence System 2021, InfoRM 2021, SDM 2021, SIGIR 2021, CIKM 2021, NeurIPS 2021, PKDD 2020*