Tiankai Xie

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Professional Summary

Ph.D. in Computer Science with a research focus on visual analytics and explainable AI. Experienced in addressing the vulnerabilities of machine learning models, including adversarial machine learning, fairness, and data robustness, through innovative visual analytics solutions. Skilled in full-stack data pipeline design and development, with a strong commitment to enhancing the interpretability, transparency, and reliability of AI models, particularly in high-stakes and scientific applications.

Education

Arizona State University — Aug. 2018 – Aug. 2023
Ph.D. in Computer Science; Ross Maciejewski (Ph.D. advisor) — *Tempe, AZ*

Stevens Institute of Technology — Aug. 2015 – May 2017
M.S. in Computer Science — *Hoboken, NJ*

Beijing Forestry University — Sep. 2011 – Jul. 2015
B.S. in Computer Science — *Beijing, China*

Professional Experience

Postdoctoral Research Scholar — July 2023 – Present
VADER Lab, School of Computing and Augmented Intelligence, Arizona State University — *Tempe, AZ*

Visiting Researcher — May 2024 – Aug. 2024
Machine Learning and Analytics Group, Lawrence Berkeley National Laboratory — *Berkeley, CA*

Graduate Research Associate — Aug. 2018 – Aug. 2023
VADER Lab, School of Computing and Augmented Intelligence, Arizona State University — *Tempe, AZ*

Data Scientist, Intern — May 2021 – Aug 2021
Decision Science Visualization Team, Epsilon Data Management, LLC — *Chicago, IL*

Co-founder — Aug. 2017 – Jul. 2018
Robotgyms Inc. — *San Mateo, CA*

Publications

- Kang, J., **Xie, T.,** Wu, X., & Maciejewski, R.,Tong, H. InfoFair: Information-Theoretic Intersectional Fairness. IEEE International Conference on Big Data (Big Data), 2022
- **Xie, T.,** Ma, Y., Kang, J., Tong, H., & Maciejewski, R. FairRankVis: A Visual Analytics Framework for Exploring Algorithmic Fairness in Graph Mining Models. IEEE Transactions on Visualization and Computer Graphics, 2021.
- **Xie, T.,** Ma, Y., Tong, H., Thai, M. T., & Maciejewski, R. Auditing the Sensitivity of Graph-based Ranking with Visual Analytics. IEEE Transactions on Visualization and Computer Graphics, 2020.
- Ma, Y., **Xie, T.,** Li, J., & Maciejewski, R. Explaining vulnerabilities to adversarial machine learning through visual analytics. IEEE transactions on visualization and computer graphics, 2019.

Invited Talks

- **LossLens: Diagnostics for Machine Learning Models through Loss Landscape Visual Analytics** AI TIME, Jan. 2024.
- **FairRankVis: A Visual Analytics Framework for Exploring Algorithmic Fairness in Graph Mining Models.** IEEE Conference on Visualization and Visual Analytics, Oct. 2021.
- **Auditing the Sensitivity of Graph-based Ranking with Visual Analytics**. IEEE Conference on Visualization and Visual Analytics, Oct. 2020.
- **Explaining vulnerabilities to adversarial machine learning through visual analytics.** IEEE Conference on Visual Analytics Science and Technology (VAST). Oct. 2019, Vancouvor, Canada.

TEACHING EXPERIENCE

- Mentor for undergrad students in the ten-week VADER Lab summer research camp

PROFESSIONAL SERVICE

- Reviewer of IEEE Transactions on Visualization and Computer Graphics, 2024
- Reviewer of IEEE Computer Graphics & Applications, 2024
- Reviewer of IEEE Pacific Visualization Conference, 2024
- Reviewer of ACM Transactions on Intelligent Systems and Technology, 2024
- Reviewer of IEEE Transactions on Visualization and Computer Graphics, 2023
- Reviewer of IEEE Transactions on Visualization and Computer Graphics, 2022
- Reviewer of IEEE Computer Graphics & Applications, 2021