

Tiankai Xie

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EDUCATION

Arizona State University

Tempe, AZ

Ph.D. candidate in Computer Science; Ross Maciejewski (Ph.D. advisor);
Dissertation: "Explaining the Vulnerability of Machine Learning through Visual Analytics"

Aug. 2018 – Present

Stevens Institute of Technology

Hoboken, NJ

M.S. in Computer Science

Aug. 2015 – May 2017

Beijing Forestry University

Beijing, China

B.S. in Computer Science

Sep. 2011 – Jul. 2015

EXPERIENCE

Graduate Research Associate

Aug. 2018 – Present

VADER Lab, Arizona State University

Tempe, AZ

- Developed a visual analytics framework for exploring the vulnerabilities to adversarial machine learning
- Developed a visual analytics framework for auditing the sensitivity of graph ranking models
- Developed a visual analytics framework for diagnosing the algorithmic fairness for graph mining models

Data Science Intern

May 2021 – Aug 2021

Epsilon Data Management, LLC

Chicago, IL

- Designed and implemented the Intelligent Audience Profile (IAP) of DiME analytics system
- Designed and implemented the algorithm to extract highlights from the aggregated audience data across 2500+ companies
- Designed, implemented and integrated the Intelligent Audience Profile visualization view driven by the designed highlighting algorithm into the DiME

Co-founder

Aug. 2017 – Jul. 2018

Robotgymns Inc.

San Mateo, CA

- Designed and developed curriculum in robotics with 20+ hands-on projects
- Developed the lab environment and facility management methods of organizing over 50+ devices and online curriculum resources
- Gave lectures in a class of 40+ students
- Conducted SEO and SMO for branding programs and the company

PUBLICATIONS

- **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.

ACADEMIC PROJECTS

Faster GCN on Large Scale graph | *Python*

Feb. 2019 – May 2019

- Implemented with several different types of weighted sampling techniques (5 degree-based algorithms and PageRank) to improve the convergence rate of GCN
- Achieved the result that the approach is faster than FastGCN by up to **50%** of total training time on certain datasets at a cost of a decreased (but comparable) accuracy number.

TECHNICAL SKILLS

Languages: Python, JavaScript

Frameworks: D3.js, React & Redux, Node.js, Flask