

Xueqi Cheng

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EDUCATION

Vanderbilt University

M.S. in Computer Science

M.S. in Critical Infrastructure System Engineering

Nashville, TN

Aug. 2023 – May. 2025

Aug. 2021 – Aug. 2023

University of Michigan

M.S.E. in Civil Engineering (Structures)

Ann Arbor, MI

Aug. 2018 – Dec. 2019

Southwest Jiaotong University (SWJTU)

B.S. in Civil Engineering (Bridge Engineering)

Chengdu, China

Sep. 2014 – Jul. 2018

SELECTED RESEARCH EXPERIENCES

Network and Data Science (NDS) Lab

Research/Teaching Assistant, Computer Science Department

Aug. 2023 – present

Vanderbilt University

- Dissertation: Edge-centric Network Analytics
- Advisor: Dr. Tyler Derr
 - * **Project I:** Edge Classification on Graphs: New Directions in Topological Imbalance (**WSDM'25**)
 - * **Project II:** A Comprehensive Analysis of Social Tie Strength: Definitions, Prediction Methods, and Future Directions (In submission and preprint on Arxiv)
 - * **Project III:** Evaluating the Evolutionary Impact of Social Ties in Polarization (Coming Soon)

Baroud Research Group (BRG)

Research/Teaching Assistant, Civil and Environmental Engineering Department

Aug. 2021 – May. 2023

Vanderbilt University

- Research topics: Machine learning, network modeling, resilience assessment
- Advisor: Dr. Hiba Baroud

Resilient and Efficient Structures Laboratory (RESLab)

M.S. student, Department of Civil and Environmental Engineering

Jan. 2019 – Dec. 2019

University of Michigan, Ann Arbor

- Research topics: Performance-based wind engineering
- Advisor: Dr. Seymour M.J. Spence

SCHOLARSHIPS AND AWARDS

- Engineering Graduate Fellowship from Vanderbilt University 2023 – Present
- Vanderbilt University IBM Ph.D. Fellowship 2021 – Present
- National Encouragement Scholarship 2015, 2016
- Merit Student of SWJTU 2015, 2016
- Best Debater in Freshman Debate Competition held by the School of Civil Engineering, SWJTU 2014

EMPLOYMENT

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Machine Learning Research Engineer Intern

Dec. 2024 – Present

Remote

- Research Project: Deep learning pipelines for time series forecasting
 - * Leveraging video prediction technologies to develop end-to-end deep learning pipelines for time series forecasting, with applications in wind and light power forecasting.

Southwest Jiaotong University Chengdu Design Institute Co., Ltd.

Research Engineer Intern, Team of Bridge Design led by Dr. Wei He

Jul. 2016 – Aug. 2016

Chengdu, China

- Research Project: Urban Bridge Conceptual Design with VR Graphic Engine
 - * Led a team of four, secured four patents, authored multiple papers, e.g., IABSE 2017

TECHNICAL SKILLS

General: Geometric deep learning, network analysis, computational social science, large language models

Programming Languages: Python, Matlab, LaTeX

Tools & Framework: Numpy, Pandas, PyTorch, PyG, NetworkX, Scikit-learn

Operation System: Ubuntu, MacOS, Windows

PUBLICATIONS

1. Xueqi Cheng, Yu Wang, Yunchao Liu, Yuying Zhao, Charu C. Aggarwal, and Tyler Derr. “Edge Classification on Graphs: New Directions in Topological Imbalance.” In Proceedings of the 18th ACM International Conference on Web Search and Data Mining (**WSDM**) (2025).
2. Xueqi Cheng. “Edge-centric Network Analytics” In Proceedings of the 18th ACM International Conference on Web Search and Data Mining (**WSDM**) (2025).
3. Yu Wang, Tong Zhao, Yuying Zhao, Yunchao Liu, Xueqi Cheng, Neil Shah, and Tyler Derr. “A Topological Perspective on Demystifying GNN-Based Link Prediction Performance.” International Conference on Learning Representations (**ICLR**) (2024).
4. Yi Zhang, Yuying Zhao, Zhaoqing Li, Xueqi Cheng, Yu Wang, Olivera Kotevska, Philip S. Yu, and Tyler Derr. “A Survey on Privacy in Graph Neural Networks: Attacks, Preservation, and Applications.” IEEE Transactions on Knowledge and Data Engineering (**TKDE**) (2024).
5. Yuying Zhao, Yu Wang, Yunchao Liu, Xueqi Cheng, Charu C. Aggarwal, and Tyler Derr. “Fairness and diversity in recommender systems: a survey.” ACM Transactions on Intelligent Systems and Technology (**TIST**) (2023).
6. Xueqi Cheng, Yan Zhang, Sining Lu, Yinqiao Zhu, and Wei He. “Urban Bridge Conceptual Design Based on Virtual Reality Graphic Engine.” In ***IABSE** Symposium Report*, vol. 108, no. 1, pp. 74-75. International Association for Bridge and Structural Engineering, 2017.

PREPRINTS

1. Xueqi Cheng, Catherine Yang, Yuying Zhao, Yu Wang, Hamid Karimi, and Tyler Derr. “A Comprehensive Analysis of Social Tie Strength: Definitions, Prediction Methods, and Future Directions.” arXiv preprint arXiv:2410.19214 (2024).

SYMPOSIUMS AND WORKSHOPS

- **Urban Bridge Conceptual Design Based on Virtual Reality Graphic Engine**
International Association for Bridge and Structural Engineering (IABSE) Symposium Apr. 2017

GUEST LECTURES

- **Intro to PyTorch and PyG**
CS 4352/5352: Social Network Analysis at Vanderbilt University Oct. 2023

TEACHING

- **TA** for CS 3892/5892: Project in Data-Centric AI at Vanderbilt University Fall 2024
- **TA** for CS 4352/5352: Social Network Analysis at Vanderbilt University Fall 2023
- **TA** for CE 2200: Statics at Vanderbilt University Spring 2023
- **TA** for CE 3205: Structural Design at Vanderbilt University Spring 2022
- **TA** for CE 3200: Structural Analysis at Vanderbilt University Fall 2021

ACADEMIC SERVICES

- **Organizer**
 - Publicity Chair: The 5th International Workshop on Machine Learning on Graphs (MLog) at WSDM'24
- **Program Committee**
 - The 5th International Workshop on Machine Learning on Graphs (MLog) at WSDM'24
 - IEEE BigData: The 7th Workshop on Graph Techniques for Adversarial Activity Analytics (CTA3'23)
- **Reviewer/ Sub Reviewer** KDD'25, IEEE Big Data' 25, ICWSM'24, WSDM'24, AAAI'24, WWW'24, SDM'24, GTA3'24, TKDD'24, KDD'24

EXTRACURRICULAR ACTIVITIES

- **President**, University Student Entrepreneurship Incubation Association of SWJTU Jun. 2016 – May. 2017
- **Volunteer Teacher**, Tuoxin Primary School, Anhui, China Jun. 2015 – Aug. 2015