Xueqi Cheng

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Summary of Qualification

In-depth knowledge and research experience with applications of **data mining**, **machine learning on graphs**, and **social network analysis**. Strong systematic problem-solving ability and communication skills.

Education

Vanderbilt University — Nashville, TN
Ph.D. in Computer Science — *May. 2023 – present*

Vanderbilt University — Nashville, TN
Ph.D. in Critical Infrastructure System Engineering (Transfer to C.S.) — *Aug. 2021 – May. 2023*

University of Michigan — Ann Arbor, MI
M.S.E. in Civil Engineering (Structures) — *Aug. 2018 – Dec. 2019*

Southwest Jiaotong University (SWJTU) — Chengdu, China
B.S. in Civil Engineering (Bridge Engineering) — *Sep. 2014 – Jul. 2018*

Selected Research Experiences

Modeling dynamic and uncertain interdependencies in smart cities — Aug. 2021 – Dec. 2022
Ph.D. Research Assistant at Vanderbilt University — *Nashville, TN*

- Developed machine learning and network models to evaluate the performance of coupled systems during disasters.
- Developed a methodology to generate a system of power and transportation networks and model its performance during the 2010 Nashville flood.
- Applied supervised machine learning, graph neural network (GNN), and mixed membership stochastic block model to predict the existence and importance of interdependencies between infrastructure networks.
- Evaluated the risk of infrastructure assets in coupled systems using Katz centrality and PageRank scores.

Assessing the record-to-record variability in wind-excited buildings — Jan. 2019 – Dec. 2019
Independent Research Assistant at University of Michigan — *Ann Arbor, MI*

- Quantified the impact of record-to-record variability on high-rise buildings based on OpenSees fiber models.
- Generated wind load for different load characteristics from a wind tunnel stochastic model.
- Performed incremental dynamic analysis, generated collapse fragility based on the understanding of the collapse.
- Calculated median and dispersion of collapse fragility and made an assessment of the record to record variability.

Selected Publications

- **Cheng, Xueqi**, 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.

Scholarships and Awards

- IBM Ph.D. Fellowship 2021 -2023
- National Encouragement Scholarship 2015, 2026
- Merit Student of SWJTU 2015, 2026
- Best Debater in Freshman Debate Competition held by the School of Civil Engineering, SWJTU 2014

Teaching

- **TA** for CE 2200: Statics at Vanderbilt University Jan.2023 – May. 2023
- **TA** for CE 3205: Structural Design at Vanderbilt University Jan. 2022 – May. 2022
- **TA** for CE 3200: Structural Analysis at Vanderbilt University Aug. 2021 – Dec. 2021
- **Grader** for CEE 511: Structural Dynamics at University of Michigan, Ann Arbor Sep. 2019 – Dec. 2019