YU WANG

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Personal webpage ◇ Github ◇ LinkedIn

EDUCATION

Vanderbilt University *Fall 2019 - Present*
Ph.D. in Computer Science
- GPA: 3.95/4.00
- *Relevant Coursework:*
  Machine Learning, Nonlinear Optimization, Probabilistic Methods & Design, Graph Theory, Uncertainty Quantification, Advanced Algorithms, Social Network Analysis, Visual Analytics and Machine Learning

University of Illinois at Urbana-Champaign *Summer 2017*
Undergraduate Study Abroad Program
- GPA: 94.5/100

Harbin Institute of Technology *Fall 2015 - Spring 2019*
Bachelor in Engineering
- Degree Program Rank: 1 of 79
- GPA: 4.0/4.0

RESEARCH EXPERIENCE

Network and Data Science Lab, Vanderbilt University *Spring 2021 - Present*
- Phd Student, Computer Science Department
- Research topics: Graph Neural Networks, Social Network Analysis, Learning with imbalanced and large-scale graph-structured data
- Advisor: Dr. Tyler Derr

Baroud Research Group, Vanderbilt University *Fall 2019 - Fall 2021*
- Phd Student, Civil and Environmental Engineering Department
- Research topics: Risk and Resilience of Infrastructure, Machine Learning Statistical Network Analysis
- Advisor: Dr. Hiba Baroud

Taciroglu Research Group, University of California, Los Angeles *Summer 2018*
- Undergraduate Summer Researcher, Civil and Environmental Engineering Department
- Selected for Cross-disciplinary Scholars in Science and Technology (UCLA-CSST)
- Research topics: Designed a modeling analysis tool for automatic bridge generation
- Advisor: Dr. Ertugrul Taciroglu

Qingfei Research Group, Harbin Institute of Technology *Spring 2018 - Fall 2019*
- Undergraduate Researcher, Civil and Environmental Engineering Department
- Research topics: Designed a novel adaptation to the percolation algorithm for automatic detection of bridge cracks
- Advisor: Dr. Qingfei Gao

PUBLICATIONS

• Yu Wang and Tyler Derr. "Tree Decomposed Graph Neural Network." In Proceedings of the 30th ACM International Conference on Information and Knowledge Management (CIKM), 2021.

• Yu Wang, Wei Jin, and Tyler Derr. "Graph Neural Networks: Self-supervised Learning." In Graph Neural Networks: Foundations, Frontiers, and Applications (Eds. Lingfei Wu, Peng Cui, Jian Pei, and Liang Zhao). Springer, (2021).

• Ao Qu, Yu Wang, Yue Hu, Yanbing Wang, and Hiba Baroud. "A Data-Integration Analysis on Road Emissions and Traffic Patterns." Smoky Mountains Computational Sciences and Engineering Conference. Springer, 2020. **Best Paper Award**

• Yu Wang, Jin-Zhu Yu, and Hiba Baroud. "Quantifying the Interdependency Strength Across Critical Infrastructure Systems Using a Dynamic Network Flow Redistribution Model." ESREL 2020 PSAM 15, 2020.

• Qingfei Gao, Yu Wang, Jun Li, Kejian Sheng, and Chenguang Liu. "An Enhanced Percolation Method for Automatic Detection of Cracks in Concrete Bridges." Advances in Civil Engineering, 2020.

Symposiums and Workshops

• Yu Wang. Tackling Over-squashing in Graph Neural Networks via Higher-order Neighborhood Disentanglement. International Conference on Data Mining (SDM) Doctoral Forum, SIAM, Poster, 2021.

Preprints and Submissions

• Yu Wang, Yuying Zhao, Neil Shah, and Tyler Derr. "Imbalanced Graph Classification via Graph Neural Networks on Graph of Graphs." 2021 (under review)

• Yu Wang, Charu Aggarwal, and Tyler Derr. "Distance-wise Prototypical Graph Neural Network in Node Imbalance Classification." 2021 (under review)

• Yu Wang, Jin-Zhu Yu, and Hiba Baroud. "Generating Synthetic Systems of Interdependent Critical Infrastructure Networks." 2020 (under review)

AWARDS & HONORS

• IJCAI2021 Volunteers & Grants Program 08/2021
• SDM2021 Student Travel Award 03/2021
• IJCAI2020 Volunteers & Grants Program 01/2020
• Vanderbilt University Graduate School Travel Grant 10/2020
• **Best Paper Award** in 2020 Smoky Mountain Data Challenge Competition by ORNL 09/2020
• **Outstanding Research and Presentation Skills Award** by UCLA-CSST Program 08/2018
• First-class People's Scholarship×4 09/2016, 04/2017, 09/2017, 04/2018
• **National Scholarship** ×2 09/2016, 09/2017
• **Second Prize in the National College Student Mathematics Competition** 11/2016

EXTERNAL SERVICES

Conference Volunteering

- KDD Session chair for Applied Data Science "Recommendation System" 08/2021
- IJCAI Student Volunteer 08/2021
- IJCAI Student Volunteer 12/2020

Program Committee Member

- Association for the Advancement of Artificial Intelligence (AAAI) 10/2021

Conference Sub-Reviewer

- ACM International Conference on Information and Knowledge Management (CIKM) 2021-2022
- IEEE/ACM Conference on Advances in Social Network Analysis and Mining (ASONAM) 2021-2022
- ACM International Conference on Web Science (WebSci 21) 2021-2022
- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 21) 2021-2022

Journal Reviewer

- Springer Social Network Analysis and Mining (SNAM) 2021-Present

TEACHING EXPERIENCE

Vanderbilt University

Teaching Assistant, Department of Computer Science 08/2021 - Present

- CS3891/5891-03: Social Network Analysis (Undergraduate/Graduate Level, Fall 21)

Teaching Assistant, Department of Civil and Environmental Engineering 08/2019 - 08/2020

- CE3300: Risk, Reliability, and Resilience Engineering (Undergraduate Level, Spring 20)
- CE2101-01: Civil Engineering Information Systems (Undergraduate Level, Fall 19)

OTHER PROFESSIONAL SKILLS

- Python (including PyTorch, PyTorch-Geometric, Tensorflow-Keras, NetworkX, scikit-learn, etc.)
- C/C++, Visual Basic, Tcl, Apache Spark, MATLAB, Julia
- Skilled in object-based programming (for modeling networks and analyzing properties of network topology and flow statistically)
- In-depth knowledge of applying Bayesian inference (to detect network structures)
- Much experienced with optimization solvers: Pulp & Cplex (Docplex) & IPOPT
- Experienced in designing and building novel deep learning models
  especially graph neural network models on geometric data