Dr. Tyler Derr

CONTACT INFORMATION	Office: A4030 Sony Building 1400 18th Ave S Nashville, TN 36240 E-mail: Tyler.Derr@vanderbilt.edu	Personal Homepage: http://www.TylerDerr.com NDS Lab Homepage: http://my.vanderbilt.edu/NDS LinkedIn: http://www.linkedin.com/in/TylersNetwork Twitter: http://www.twitter.com/TylersNetwork Google Scholar: https://scholar.google.com/citations?user=et6IhFcAAAAJ

BRIEF BIOGRAPHY

Dr. Tyler Derr is an Assistant Professor in the Department of Computer Science, Teaching and Affiliate Faculty in the Data Science Institute, and Faculty Fellow in the Frist Center for Autism and Innovation at Vanderbilt University. He received his PhD in Computer Science from Michigan State University in 2020 under the supervision of Dr. Jiliang Tang and was a member of the Data Science and Engineering (DSE) Lab and Teachers in Social Media (TISM) Project. He completed his MS in Computer Science at The Pennsylvania State University in 2015 and earned dual BS degrees in Computer Science and Mathematical Sciences at The Pennsylvania State University in 2013.

Tyler directs the *Network and Data Science (NDS) lab*, which conducts research in the areas of data mining and machine learning, with emphasis on social network analysis, deep learning on graphs, and responsible AI for social good with applications in drug discovery, education, political science, and autism research. His PhD students received Vanderbilt's C. F. Chen Best Paper Award in Computer Science in 2022 and Runner-Up Award in 2023. He is actively involved in top conferences in his field, both in terms of publishing and serving as an SPC/PC member, while receiving recognition such as the Best Student Poster Award at SDM'19 and Best Reviewer Awards at ICWSM'19 and '21, as well as WSDM'22. He has contributed to the organization of international conferences, including KDD as Publicity Co-Chair ('22 and '23) and Proceedings Co-Chair ('21), and WSDM as Doctoral Consortium Co-Chair ('22) and Student Travel Award Co-Chair ('24). Also, he co-organizes multiple workshops, including co-founding Machine Learning on Graphs (MLoG), which has been held at WSDM'22 and '23 along with at ICDM'22 and '23; he has delivered tutorials on Graph Neural Networks at KDD'20 and AAAI'21. He serves as Associate Editor for Elsevier Big Data Research and IEEE Transactions on Big Data. Additionally, he was honored with the Fall 2020 *Teaching Innovation Award* from the School of Engineering at Vanderbilt University, highlighting his dedication to exceptional teaching. Tyler received the prestigious *National Science Foundation (NSF) CAREER Award* in 2023.

For more detailed information, please visit his website at https://www.TylerDerr.com.

POSITIONS

Assistant Professor, Vanderbilt University — Aug 2020 – Present
Computer Science in the Department of CS
(Previously Department of EECS and separated into CS and ECE in July 2021)

Teaching & Affiliate Faculty Member, Vanderbilt University — Aug 2020 – Present
Data Science Insitute (DSI)

Faculty Fellow, Vanderbilt University — Aug 2020 – Present
Frist Center for Autism and Innovation

EDUCATION

Michigan State University

Doctor of Philosophy (**Ph.D.**) in Computer Science — Aug 2020
- Dissertation: Network Analysis with Negative Links
- Advisor: Dr. Jiliang Tang
- Research areas: Social Network Analysis, Deep Learning on Graphs, Data Science for Social Good
- Cumulative GPA: 4.00 / 4.00

The Pennsylvania State University

Master of Science (**M.S.**) in Computer Science — May 2015
- Thesis: A Clustering Approach to the Bounded Diameter Minimum Spanning Tree Problem Using Ants
- Advisor: Dr. Thang N. Bui
- Research areas: Graph Algorithms, Evolutionary Computation, Ant Systems
- Cumulative GPA: 3.97 / 4.0

Dual Bachelor of Science (**B.S.**) in Computer Science and Mathematical Sciences — May 2013
- Cumulative GPA: 3.35 / 4.00

RESEARCH EXPERIENCE	**Network and Data Science Lab**, Vanderbilt University	
	Director	Aug 2020 – Present

	• Research Interests:
	    data mining, network anlaysis, graph neural networks, graph mining,
	    machine learning, responsible AI, data science for social good
	    (e.g., drug discovery, education, political science, and autism research)	

	Information Directorate (AFRL/RI), The Air Force Research Laboratory	
	Visiting Faculty, Visiting Faculty Research Program (VRFP)	May 2023 – Jul 2023
	• Project: "Towards Advances in Graph Analytics" • AFRL Mentors: Dr. Erika Ardiles Cruz, Leah Chance, & Phil Morrone	
	Teachers in Social Media, Michigan State University	
	PhD Student, Computer Science and Engineering Department	Feb 2019 – Aug 2020
	• Projects: Incorporating Online Social Media in Educational Research • Principal Investigator: Dr. Kaitlin Torphy	
	Data Science and Engineering Lab, Michigan State University	
	PhD Student, Computer Science and Engineering Department	Jan 2017 – Aug 2020
	• Projects: Signed Network Anlaysis, Deep Learning on Graphs, Data Science for Social Good • Advisor: Dr. Jiliang Tang	
	Center for Computational Network Intelligence, HRL Laboratories	
	Research Scientist Intern/Contractor	May 2019 – Jul 2020
	• Projects: (Related to my general research interests, but can not disclose.) • Principal Investigator: Dr. Jiejun Xu	
	BEACON | An NSF Center for the Study of Evolution in Action, Michigan State University	
	PhD Student, Computer Science and Engineering Department	Aug 2015 – Dec 2016
	• Projects: Evolving Multi-Layer Markov Network Brains Using Adaptive Complexification • Advisor: Dr. William F. Punch • Research areas: Evolving A.I., Evolutionary Reinforcement Learning, Genetic Programming	
	Yue Lab, The Pennsylvania State University College of Medicine	
	Research Assistant, Institute for Personalized Medicine	Jun 2014 – Aug 2015
	• Projects: Prediction and Analysis of Chromatin Spatial Organization in Cells • Principal Investigator: Dr. Feng Yue • Research areas: Machine Learning & Computational Genomics/Epigenomics	
	Dr. Thang N. Bui's Lab, Penn State Harrisburg	
	Master's Student, Computer Science & Mathematical Sciences Department	May 2014 – Aug 2015
	• Projects: Ant-Based Optimization for Bounded Diameter Minimum Spanning Tree Problem • Advisor: Dr. Thang N. Bui • Research areas: Ant Systems, Evolutionary Computation, Graph Algorithms	

HONORS & AWARDS	• **National Science Foundation (NSF) CAREER Award**	Jun 2023
	CAREER: Harnessing the Positive Power of Negative Links for Network Analytics	
	• Student Yuying Zhao awarded **Vanderbilt's C. F. Chen Best Paper Runner-up Award**	May 2023
	in Computer Science based on our AAAI'23 paper	
	"Fairness and Explainability: Bridging the Gap Towards Fair Model Explanations"	
	• **Visiting Faculty Research Program (VFRP)** of The Air Force Research Lab's	Summer 2023
	Information Directorate **(AFRL/RI)** and Information Institute (II)	
	• Student Yu Wang awarded **Vanderbilt's C. F. Chen Best Paper Award**	May 2022
	in Computer Science based on our CIKM'21 paper	
	"Tree Decomposed Graph Neural Network"	
	• Outstanding PC Member Award at WSDM'22.	2022
	• Best Reviewer Award at ICWSM'21.	2021
	• SIAM Early Career Travel Award for SDM'21 supported by NSF	2021
	• Fall 2020 **Teaching Innovation Award from the School of Engineering** at Vanderbilt	2021

- Student Registration Award for KDD'20 from NSF and ACM SIGKDD.   2020
  (Including partial registration for KDD'21)
- Student Travel Award for WSDM'20 from ACM SIGIR.   2020
- MSU COGS Professional Development Award (with fellowship funding)   2019
- MSU COGS Conference Award (with fellowship funding)   2019
- Student Travel Award for CIKM'19 from ACM SIGIR.   2019
- MSU Engineering Graduate Leadership Fellow   Aug 2019 – May 2020
- MSU Education Opportunity Fellowship   Aug 2019 – May 2020
- Best Reviewer Award at ICWSM'19.   Jun 2019
- **Best Student Poster Award** at SDM'19.   May 2019
   Title: Network Analysis with Negative Links
- Student Travel Award for SDM'19 from NSF.   2019
- My PhD advisor Dr. Jiliang Tang was awarded the NSF CAREER Award based on my research. 2019
- **"People's Choice" Award** for 3 Minute Thesis Competition at Michigan State   Feb 2019
- Student Travel Award for ICDM'18.   2018
- Student Travel Award for CIKM'18 from ACM SIGIR.   2018
- 2nd Prize at the Southeast Michigan Postdoctoral Symposium   Oct 2018
   University of Michigan Postdoctoral Association
- Department Fellowship, Michigan State University   Spring: 2018,2019, Summer: 2017,2018
   The Department of Computer Science and Engineering
- Student Travel Award for KDD'17.   2017
- Student Travel Award for SDM'17 from NSF.   2017
- Graduate Student Chancellor's Award   Aug 2013 – May 2014
- Robert W. Graham Fellowship   Aug 2013 – May 2014
- Undergraduate Dean's List   Spring: 2010-2013
        & Fall: 2012
- Webclients.net Trustee Scholarship   Aug 2010 – May 2011
        & Aug 2012 – May 2013
- Schwab Trustee Scholarship   Aug 2008 – May 2009

PUBLICATIONS   Please note the following symbols below to signify certain author types in the below lists:

*	denotes co-first authors
†	denotes *graduate student (co-)advised* by Tyler Derr
‡	denotes *graduate student mentored (not as formal advisor, e.g., committee member)* by Tyler Derr
‡	denotes *postgraduate mentored (not as formal advisor)* by Tyler Derr
††	denotes *undergraduate researcher/intern mentored* by Tyler Derr

Conference Papers (acceptance based on peer review of full paper):

[C38]   Anwar Said‡ , Mudassir Shabbir, Tyler Derr, Waseem Abbas, Xenofon Koutsoukos. Enhanced Graph Neural Networks with Ego-Centric Spectral Subgraph Embeddings Augmentation. In Proceedings of the 22nd IEEE International Conference on Machine Learning and Applications (ICMLA), Jacksonville, FL, December 15-17, 2023. (acceptance rate unknown)

[C37]   Anwar Said‡ , Roza G. Bayrak‡ , Tyler Derr, Mudassir Shabbir, Daniel Moyer, Catie Chang, and Xenofon Koutsoukos. NeuroGraph: Benchmarks for Graph Machine Learning in Brain Connectomics. Advances in Neural Information Processing Systems (NeurIPS), New Orleans, LA, USA, December 10-16, 2023. (acceptance rate 32.7%)

[C36]   Yu Wang† , Yuying Zhao† , Yi Zhang† , Tyler Derr. Collaboration-Aware Graph Neural Network for Recommender Systems. In Proceedings of the ACM Web Conference (TheWebConf), Austin, TX USA, April 30 - May 4, 2023. (acceptance rate 19.2%)

[C35]   Yuying Zhao† , Yu Wang† , Tyler Derr. Fairness and Explainability: Bridging the Gap Towards Fair Model Explanations. In Proceedings of the 37th AAAI Conference on Artificial Intelligence (AAAI), Washington, DC, USA, February 7-14, 2023. (acceptance rate 19.6%)

[C34] Yunchao "Lance" Liu[†] , Yu Wang[†] , Oanh Vu, Rocco Moretti, Bobby Bodenheimer, Jens Meiler, Tyler Derr. Interpretable Chirality-Aware Graph Neural Network for Quantitative Structure Relationship Modeling in Drug Discovery. In Proceedings of the 37th AAAI Conference on Artificial Intelligence (AAAI), Washington, DC, USA, February 7-14, 2023. (acceptance rate 19.6%)

[C33] Shivam Agarwal[††] , Ramit Sawhney, Megh Thakkar, Preslav Nakov, Jiawei Han, and Tyler Derr. THINK: Temporal Hypergraph Hyperbolic Network. In Proceedings of the 22nd International Conference on Data Mining (ICDM), Orlando, FL, USA, November 28 - December 1, 2022. (acceptance rate 20%)

[C32] Hamid Karimi and Tyler Derr. Decision Boundaries of Deep Neural Networks. In Proceedings of the 21th IEEE International Conference on Machine Learning and Applications (ICMLA), Nassau, The Bahamas, December 12-15, 2022. (acceptance rate 32%)

[C31] Hamid Karimi, Muhammad Fawad Akbar Khan, Haochen Liu, Tyler Derr, and Hui Liu. Enhancing Individual Fairness through Propensity Score Matching. In Proceedings of the 9th IEEE International Conference on Data Science and Advanced Analytics (DSAA), Virtual, October 13-16, 2022. (acceptance rate 20%)

[C30] Yu Wang[†] , Yuying Zhao[†] , Neil Shah, Tyler Derr. Imbalanced Graph Classification via Graph-of-Graph Neural Network. In Proceedings of the 31th ACM International Conference on Information and Knowledge Management (CIKM), Atlanta, GA, USA, October 17-21, 2022. (acceptance rate unknown)

[C29] Xinmeng Zhang[*] , Yuying Zhao[* †] , Chao Yan, Tyler Derr, and You Chen. Inferring EHR Utilization Workflows through Audit Logs. AMIA Annual Symposium Proceedings. Vol. 2022. American Medical Informatics Association, Washington D.C., USA, November 5-9, 2022. (acceptance rate unknown)

[C28] Yu Wang[†] , Yuying Zhao[†] , Yushun Dong, Huiyuan Chen, Jundong Li, Tyler Derr. Improving Fairness in Graph Neural Networks via Mitigating Sensitive Attribute Leakage. In Proceedings of the 28th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), Washington D.C., USA, August 14-18, 2022. (acceptance rate 14.9% (research track))

[C27] Yushun Dong, Song Wang, Yu Wang[†] , Tyler Derr, and Jundong Li. On Structural Explanation of Bias in Graph Neural Networks. In Proceedings of the 28th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), Washington D.C., USA, August 14-18, 2022. (acceptance rate 14.9% (research track))

[C26] Benedek Rozemberczki, Charles Hoyt, Anna Gogleva, Piotr Grabowski, Klas Karis, Andrej Lamov, Andriy Nikolov, Sebastian Nilsson, Michael Ughetto, Yu Wang[†] , Tyler Derr, and Benjamin Gyori. ChemicalX: A Deep Learning Library for Drug Pair Scoring. In Proceedings of the 28th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), Washington D.C., USA, August 14-18, 2022. (acceptance rate 25.9% (applied data science track))

[C25] Yu Wang[†] and Tyler Derr. Tree Decomposed Graph Neural Network. In Proceedings of the 30th ACM International Conference on Information and Knowledge Management (CIKM), pp. 2040-2049. Virtual Conference, November 1-5, 2021. (acceptance rate 21.7%)

[C24] Tyler Derr, Hamid Karimi, Xiaorui Liu, Jiejun Xu, and Jiliang Tang. Deep Adversarial Network Alignment. In Proceedings of the 30th ACM International Conference on Information and Knowledge Management (CIKM), pp. 352-361. Virtual Conference, November 1-5, 2021. (acceptance rate 21.7%)

[C23] Wei Jin[‡] , Xiaorui Liu, Yao Ma, Tyler Derr, Charu Aggarwal and Jiliang Tang. Graph Feature Gating Network. In Proceedings of the 30th ACM International Conference on Information and Knowledge Management (CIKM), pp. 813-822. Virtual Conference, November 1-5, 2021. (acceptance rate 21.7%)

[C22] Aaron Brookhouse[*] [††] , Tyler Derr [*] , Hamid Karimi[*] , H. Russell Bernard, and Jiliang Tang. Road to the White House: Analyzing the Relations Between Mainstream and Social Media During the US Presidential Primaries. In Proceedings of the 32nd ACM Conference on Hypertext and Social Media, pp.57-66. Virtual Conference, August 30 - September 2, 2021. (acceptance rate for 2021 unknown, but prev. 3 year avg. was 28%)

[C21] Xuejiao Tang, Wenbin Zhang, Yi Yu, Kea Turner, Tyler Derr, Mengyu Wang, Eirini Ntoutsi. Interpretable Visual Understanding with Cognitive Attention Network. In Proceedings of the 30th International Conference on Artificial Neural Networks (ICANN), pp. 555-568. Springer. Virtual Conference, September 14-17, 2021. (acceptance rate unknown)

[C20] Yao Ma, Suhang Wang, Tyler Derr, Lingfei Wu, and Jiliang Tang. Graph Adversarial Attack via Rewiring. In Proceedings of the 27th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (KDD), pp. 1161-1169. Singapore (Virtual Conference), August 14-18, 2021. (acceptance rate 15.4%)

[C19] Ramit Sawhney[*] , Shivam Agarwal[*] [††] , Arnav Wadhwa, Tyler Derr, Rajiv Shah. Stock Selection via Spatiotemporal Hypergraph Attention Network: A Learning to Rank Approach. In Proceedings of the 35th AAAI Conference on Artificial Intelligence (AAAI), pp. 497-504. Virtual Conference, February 2-9, 2021. (acceptance rate 21.4%)

[C18] Wei Jin[‡] , Tyler Derr, Yiqi Wang, Yao Ma, Zitao Liu, and Jiliang Tang. Node Similarity Preserving Graph Convolutional Networks. In Proceedings of the 14th ACM International Conference on Web Search and Data Mining (WSDM), pp. 148-156. Jerusalem, Israel, March 8-12, 2021. (acceptance rate 18.6%)

[C17] Wenqi Fan, Tyler Derr, Xiangyu Zhao, Yao Ma, Hui Liu, Jianping Wang, Jiliang Tang, Qing Li. Attacking Black-box Recommendations via Copying Cross-domain User Profiles. In Proceedings of the IEEE 37th International Conference on Data Engineering (ICDE), pp. 1583-1594. Chania, Greece, April 19-22, 2021. (acceptance rate 18%)

[C16] Hamid Karimi, Kaitlin T. Torphy, Tyler Derr, Kenneth A. Frank, and Jiliang Tang. Understanding and Promoting Teacher Connections in Online Social Media: A Case Study on Pinterest. IEEE International Conference on Teaching, Assessment, and Learning for Engineering (TALE), Takamatsu, Japan, December 8-11, 2020. (acceptance rate unknown)

[C15] Yu Rong, Tingyang Xu, Junzhou Huang, Wenbing Huang, Hong Cheng, Yao Ma, Yiqi Wang, Tyler Derr, Lingfei Wu, Tengfei Ma. Deep Graph Learning: Foundations, Advances and Applications. In Proceedings of the 26th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (KDD), pp. 3555-3556. San Diego, USA, (Virtual Conference) August 23-27, 2020. (acceptance rate of tutorials unknown)

[C14] Wentao Wang[‡] , Tyler Derr, Yao Ma, Suhang Wang, Hui Liu, Zitao Liu, and Jiliang Tang. Learning from Incomplete Labeled Data via Adversarial Data Generation. International Conference on Data Mining (ICDM), pp. 1316-1321. Sorrento, Italy, November 17-20, 2020. (acceptance rate - full long 9.8%, shortened papers 9.9%)

[C13] Hamid Karimi[*] , Tyler Derr[*] , Jiangtao Huang, and Jiliang Tang. Online Academic Course Performance Prediction using Relational Graph Convolutional Neural Network. International Educational Data Mining Society (EDM), Ifrane, Morocco, July 10-13, 2020. (acceptance rate 25%)

[C12] Hamid Karimi, Kaitlin Torphy, Tyler Derr, Kenneth Frank and Jiliang Tang. Characterizing Teacher Connections in Online Social Media: A Case Study on Pinterest. (WIP) In Proceedings of the 7th Learning@ Scale (L@S), pp. 249-252. Atlanta, USA, August 12-14, 2020. (acceptance rate unknown, but last three years known 2019-2017 is 29.3%)

[C11] Tyler Derr, Yao Ma, Wenqi Fan, Xiaorui Liu, Charu Aggarwal, and Jiliang Tang. Epidemic Graph Convolutional Network. In Proceedings of the 13th ACM International Conference on Web Search and Data Mining (WSDM), pp. 160-168. Houston, USA, February 3-7, 2020. (acceptance rate 14.8%)

[C10] Tyler Derr. Network Analysis with Negative Links. In Proceedings of the 13th ACM International Conference on Web Search and Data Mining (WSDM), pp. 917-918. Houston, USA, February 3-7, 2020. (acceptance rate of DC unknown), but conf. in general 14.8%)

[C09] Hamid Karimi, Tyler Derr, Kaitlin T. Torphy, Kenneth A. Frank, and Jiliang Tang. Towards Improving Sample Representativeness of Teachers on Online Social Media: A Case Study on Pinterest. In Proceedings of the 21st International Conference on Artificial Intelligence in Education (AIED), Ifran, Morocco, July 6-10, 2020. (acceptance rate 22.9%)

[C08] Amin Javari[‡], Tyler Derr, Pouya Esmalian, Jiliang Tang, Kevin Chen-Chuan Chang. ROSE: Role-based Signed Network Embedding. The World Wide Web Conference, pp. 2782-2788. Taipei, Taiwan, April 20-24, 2020. (acceptance rate 24.7%)

[C07] Tyler Derr, Cassidy Johnson[††], Yi Chang, and Jiliang Tang. Balance in Signed Bipartite Networks. In Proceedings of the 28th ACM International Conference on Information and Knowledge Management (CIKM), pp. 1221-1230. Beijing, China, November 3-7, 2019. (acceptance rate 19.4%)

[C06] Hamid Karimi[*], Tyler Derr[*], Aaron Brookhouse[††], and Jiliang Tang. Multi-Factor Congressional Vote Prediction. In Proceedings of the 2019 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), pp. 266-273. Vancouver, Canada, August 27-30, 2019. (acceptance rate 14%)

[C05] Wenqi Fan, Tyler Derr, Yao Ma, Qing Li, Jiliang Tang, and Jianping Wang. Deep Adversarial Social Recommendation. In Proceedings of the 28th International Joint Conference on Artificial Intelligence (IJCAI), pp. 1351-1357. Macao, China, August 10-16, 2019. (acceptance rate 17.9%)

[C04] Tyler Derr, Yao Ma, and Jiliang Tang. Signed Graph Convolutional Networks. In Proceedings of the 18th International Conference on Data Mining (ICDM), pp. 929-934. Singapore, November 17-20, 2018. (acceptance rate - full long 8.9%, shortened papers 11.1%)

[C03] Tyler Derr, Charu Aggarwal, and Jiliang Tang. Signed Network Modeling Based on Structural Balance Theory. In Proceedings of the 27th ACM International Conference on Information and Knowledge Management (CIKM), pp. 557-566. Turin, Italy, October 22-26, 2018. (acceptance ratio 17.0%)

[C02] Tyler Derr, Zhiwei Wang, and Jiliang Tang. Opinions Power Opinions: Joint Link and Interaction Polarity Predictions in Signed Networks. In Proceedings of the IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), pp. 363-366. Barcelona, Spain, August 28-31, 2018. (acceptance rates - long 16% and short 15%)

[C01] Zhiwei Wang, Tyler Derr, Dawei Yin, and Jiliang Tang. Understanding and Predicting Weight Loss with Mobile Social Networking Data. In Proceedings of the 26th ACM International Conference on Information and Knowledge Management (CIKM), pp. 1269-1278. Singapore, November 6-10, 2017. (acceptance rate 20.0%)

Journal Papers:

[J04] Wenqi Fan, Xiangyu Zhao, Qing Li, Tyler Derr, Yao Ma, Hui Liu, Jianping Wang, Jiliang Tang. Adversarial Attacks for Black-box Recommender Systems via Copying Transferable Cross-domain User Profiles. IEEE Transactions on Knowledge and Data Engineering (TKDE), 2023.

[J03] [J03] Yuying Zhao[* †], Yunfei Hu[*], Curtis T. Schunk, Yingxiang Ma, Tyler Derr, and Xin Maizie Zhou. ADEPT: Autoencoder with Differentially Expressed Genes and Imputation for a Robust Spatial Transcriptomics Clustering. iScience (also accepted and presented at RECOMB-Seq), 2023.

[J02] Tyler Derr, Zhiwei Wang, Jamell Dacon[‡], and Jiliang Tang. Link and Interaction Polarity Predictions in Signed Networks. Social Network Analysis and Mining (SNAM), 10(1), pp. 1-14. 2020.

[J01]   Hamid Karimi, Tyler Derr, Kaitlin Torphy, Ken Frank, and Jiliang Tang.   A Roadmap for Incorporating Online Social Media in Educational Research. Teachers College Record, 121(14), pp. 1-24. 2019.

Book Chapters:

[B01]   Yu Wang[†] , Wei Jin[‡] , and Tyler Derr. Graph Neural Networks: Self-supervised Learning. Graph Neural Networks: Foundations, Frontiers, and Applications (Lingfei Wu, Peng Cui, Jian Pei, and Liang Zhao (Eds.)), Springer, Chapter 18, pp. 391-420. 2022.

Workshop Papers:

[W02]   Yu Wang[†] and Tyler Derr. Degree-related Bias in Link Prediction. In Proceedings of the 22nd International Conference on Data Mining Workshop (ICDMW), Orlando, FL, USA, November 28, 2022. (acceptance rate unknown)

[W01]   Tyler Derr and Jiliang Tang. Congressional Vote Analysis using Signed Networks.   In Proceedings of the 18th International Conference on Data Mining Workshops (ICDMW), 2018. (acceptance rate unknown)

Preprints

[Pre10]   Anwar Said[‡] , Tyler Derr, Mudassir Shabbir, Waseem Abbas, Xenofon Koutsoukos. Graph Unlearning: A Review. arXiv preprint arXiv:2310.02164 2023.

[Pre9]   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. arXiv preprint arXiv:2308.16375 2023.

[Pre08]   Yu Wang[†] , Nedim Lipka, Ryan A Rossi, Alexa Siu, Ruiyi Zhang, and Tyler Derr. Knowledge Graph Prompting for Multi-Document Question Answering. arXiv preprint arXiv:2308.11730 2023.

[Pre07]   Yuying Zhao[†] , Yu Wang[†] , Yunchao Liu[†] , Xueqi Cheng[†] , Charu Aggarwal, and Tyler Derr. Fairness and Diversity in Recommender Systems: A Survey. arXiv preprint arXiv:2307.04644 2023.

[Pre06]   Catherine Yang[††] , Yuying Zhao[†] , and Tyler Derr. The Friendship Paradox: An Analysis on Signed Social Networks with Positive and Negative Links. 2023.

[Pre05]   Yunchao "Lance" Liu[†] , Rocco Moretti, Yu Wang[†] , Bobby Bodenheimer, Tyler Derr, and Jens Meiler. Integrating Expert Knowledge with Deep Learning Improves QSAR Models for CADD Modeling . bioRxiv preprint 10.1101/2023.04.17.537185 2023.

[Pre04]   Yu Wang[†] , Charu Aggarwal, and Tyler Derr. Distance-wise Prototypical Graph Neural Network for Imbalanced Node Classification. arXiv preprint arXiv:2110.12035 2021.

[Pre03]   Wei Jin[‡] , Tyler Derr, Haochen Liu[‡] , Yiqi Wang, Suhang Wang, Zitao Liu, and Jiliang Tang. Self-supervised Learning on Graphs: Deep Insights and New Directions. arXiv preprint arXiv:2006.10141 2020.

[Pre02]   Haochen Liu[‡] , Zhiwei Wang, Tyler Derr, Zitao Liu, and Jiliang Tang. Chat as Expected: Manipulating Black-box Neural Dialogue Models. arXiv preprint arXiv:2005.13170 2020.

[Pre01]   Haochen Liu[‡] , Tyler Derr, Zitao Liu, and Jiliang Tang. Say What I Want: Towards the Dark Side of Neural Dialogue Models. arXiv preprint arXiv:1909.06044 2019.

MENTORING IN NDS LAB (AS ADVISOR)

Network and Data Science Lab, Vanderbilt University

Ph.D. Students

• Bo Ni, Ph.D. Computer Science   Officially Spring 2024
  -Research topics: Deep learning on graphs, knowledge graphs,
     and causal reasoning

- Anne Tumlin, Ph.D. Computer Science   Fall 2023 – Present
  - -Co-advised – PhD student in VeriVITAL Lab @ VU
  - -Research topics: Provable Fairness in ML and fairness in NLP applications
  - -Awarded Vanderbilt Provost's Graduate Fellowship Award

- Xueqi Cheng, Ph.D. Computer Science   Fall 2023 – Present
  - -Research topics: Deep learning on complex graphs, out of distribution
      and imbalanced learning on graphs
  - -Awarded Vanderbilt IBM Fellowship Award

- Yuying Zhao, Ph.D. Computer Science   Fall 2021 – Present
  - -Research topics: Data science for social good, beyond utility metrics,
      including model explainability and algorithmic fairness
  - -Awarded Vanderbilt IBM Fellowship Award
  - -Awarded Vanderbilt's C. F. Chen Best Paper Runner-Up Award in Computer Science in 2023

- Yunchao (Lance) Liu, Ph.D. Computer Science   Spring 2021 – Present
  - -Co-advised – PhD student in Meiler Lab @ VU
  - -Research topics: computer-aided drug discovery, geometric deep learning,
      self-supervised learning, molecular representation learning

- Yu Wang, Ph.D. Computer Science   Spring 2021 – Present
  - -Research topics: data issues including class imbalance, fairness, heterophily,
      in graph neural networks, recommender systems, advanced link prediction
  - -Awarded Vanderbilt Russell G. Hamilton Graduate Scholars Award
  - -Awarded Vanderbilt's C. F. Chen Best Paper Award in Computer Science in 2022

M.S. Students
- Qinwen Ge, M.S. Computer Science,   Oct 2023 – Present
  - -Research topic: deep learning on graphs for neuroimaging

- Xin Wang, M.S. Computer Science,   Aug 2023 – Present
  - -Research topic: topological deep learning with biomedical applications

- Catherine Yang, B.S. Computer Science,   Aug 2022 – Present
      and accelerated M.S. Computer Science
  - -Research topic: signed social networks
  - -KDD'23 Undergrad Consortium on the friendship paradox in signed social networks

B.S. Students
(Note that undergraduate students who started in Summer/Fall 2023 are yet to be updated...)
- Macharia Kanyatte, B.S. Electrical and Computer Engineering   Nov 2022 – Present
  - -Tennessee Louis Stokes Alliance Program
  - -Preprocessing signed network datasets and basic network analysis toolkit
  - -Georgia Tech REU program during Summer'23

Former M.S. Students
- Benjamin Van Sleen, B.S. Computer Engineering, B.S. Economics,   Dec 2020 – May 2023
      and accelerated M.S. Computer Science
  - -2021 Data Science Institute Summer Research Program (DSI-SRP) Fellow
  - -Independent study on relations between Bitcoin network and energy sector (Spring'22)

- Kayla Johnson, M.S. Data Science   Feb 2021 – May 2022
  - -Awarded the Neurodiversity Inspired Science & Engineering (NISE)
          Graduate Trainee Fellowship
  - -Trained in mentoring two summer interns through the Frist Center
      for Autism and Innovation during Summer'21 and assisted on
      analysis of PredictIt.org project
  - -Final MS Project on (fair) chatbots for job interviews

Former B.S. Students

- Emily Doehring, B.S. Computer Science   Aug 2021 – May 2022
  - Project on analysis of PredictIt.org

- Ao Qu, B.S. Computer Science, B.S. Economics, B.S. Mathematics   Aug 2021 – Dec 2021
  - Project on adaptive views in contrastive learning for GNNs
  - Next Position: Ph.D. student at Massachusetts Institute of Technology

- Sam Libaire, B.S. Computer Science   May 2021 – Aug 2021
  - Clark Scholars Program
  - Project on predicting unfollower links in online social media
  - Established initial NDS Lab signed network dataset repository

- Chet Weissberg, B.S. Computer Science   Feb 2021 – Aug 2021
  - 2021 Data Science Institute Summer Research Program (DSI-SRP) Fellow
  - Project on Understanding Neurodiversity on Social Media

- Trevor Pillow, B.S. Computer Science   Dec 2020 – Aug 2021
  - 2021 Vanderbilt Undergraduate Summer Research Program (VUSRP)
  - Project on analyzing the (un)friendship paradox in online social networks

- Jack M. O'Keefe, B.S. Computer Science, B.S. Economics   Dec 2020 – May 2021
  - Project on analysis and predictions in Venmo network

Former Research Interns

- Shivam Agarwal, B.S. Electrical and Computer Engineering   Jul 2020 – Jul 2022
  - Remote from IIIT-Delhi/Cisco
  - Co-authored "Stock Selection via Spatiotemporal Hypergraph Attention
      Network: A Learning to Rank Approach" AAAI'21
  - Co-authored "THINK: Temporal Hypergraph Hyperbolic Network" ICDM'22
  - Wrote him letters of recommendation for PhD programs starting Fall 2022
  - Next Position: Graduate student at University of Illinois Urbana-Champaign

- Kaleb Briggs, B.S. Computer Information Systems   Summer 2021
  - Visiting from Austin Peay State University
  - Frist Center for Autism and Innovation Summer Intern (2021)
  - Project on data collection from and analysis of PredictIt.org

- Norman Jetmundsen, B.S. Computer Science   Summer 2021
  - Visiting from University of Tennessee at Chattanooga
  - Frist Center for Autism and Innovation Summer Intern (2021)
  - Project on data collection from and analysis of PredictIt.org

- Aaron Brookhouse, B.S. Electrical Engineering   Aug 2020 – Aug 2021
  - Remote from Michigan State University
  - Published one first-author paper in ACM HyperText'21
  - Wrote him letters of recommendation for Fall'22 CS PhD programs
  - Nominated him for the 2021 CRA Outstanding Undergraduate Researchers Award

Former High School Students

- Xinran Pan   Jun 2021 – May 2022
  - Project on Social Good and Simpson's Paradox
  - Wrote her letters of recommendation for BS programs starting Fall 2022
  - Next position: Undergraduate student at Carnegie Mellon University

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MENTORING (NOT AS ADVISOR)	**Network and Data Science Lab**, Vanderbilt University

- Effat Farhana, Postdoctoral Fellow Scholar   Oct 2022 – Present
  - Effat was working with Maithilee Kunda
  - Mentored for her faculty search materials in 2023

- Anwar Said, Postdoctoral Research Scholar   Sep 2022 – Present
    -Anwar was working with Xenofon Koutsoukos
    -Mentored and co-authored on 3 papers

Data Science and Engineering Lab, Michigan State University
- Wei Jin, Ph.D. Computer Science & Engineering   Nov 2019 – May 2022
    -Mentored and co-authored on 3 papers
    -Next position: Assistant Professor of Computer Science at Emory University

- Jamell Dacon, Ph.D. Computer Science & Engineering   Aug 2018 – May 2021
    -MSU Enrichment Fellowship (UEF)
    -Mentored on 2 projects and co-authored on 1 paper
    -Next position: Assistant Professor of Computer Science at Morgan State University

- Hua Liu, Ph.D. Mathematics at Shandong University   Nov 2019 – Nov 2020
    -Mentored on a project for signed network analysis

- Namratha Shah, M.S. Computer Science & Engineering   May 2020 – Aug 2020
    -Project on social media and mental health
    -Next Position: Software Engineer at Informed.IQ

- Andrew McDonald, B.S. in Computer Science, Mathematics, and Statistics   Mar 2019 – Aug 2020
    -Work accepted at AAAI'20 Undergrad Consortium
    -Mentored through the Graduate Women in Science Mentor Program
    -Next position: Ph.D. stutdent at Cambridge University

- Aaron Brookhouse, B.S. Electrical Engineering   Aug 2018 – Jun 2020
    -MSU Professorial Assistantship Program
    -Mentored and co-authored on 2 papers
    -Next position: WSU's Smart Environments REU Program

- Haochen Liu, Ph.D. Computer Science & Engineering   Jan 2019 – Dec 2019
    - Mentored and co-authored 2 papers
    -Next position: Senior Data Scientist at Fidelity Investments

- Daniel K. Ofori-Dankwa, M.S. Computer Science & Engineering   May 2018 – May 2019
    -Mentored a project on "Bitcoin Price Predictions"
    -Next position: Software Engineer at Microsoft

- Linghao Ji, B.S. Computer Science & Engineering   Aug 2018 – Aug 2019
    -Project a project on "Analyzing Swing Voters in Congress"
    -Supported as a letter writer for M.S. applications
    -Next position: Applied Data Analytics M.S. student at Boston University

- Cassidy Johnson, B.S. Computer Science & B.S. Mathematics   May 2018 – Aug 2018
    -2018 Summer Research Opportunities Program
    -Mentored and co-authored on 1 paper
    -Next position: Lawrence Livermore National Lab Intern

- Mitansh Madan, B.S. Computer Science & Engineering   Oct 2017 – May 2018
    -Independent study through CSE department

- Pegah Varghaei, B.S. Computational Mathematics   Mar 2017 – May 2018
    -Next position: Comp. Math Science and Eng. Ph.D. student at MSU

- Chenxing Wang, M.S. Statistics   Feb 2017 – May 2018
    -Co-authored "Relevance Measurements in Online Signed Social Networks" MLG'18
    -Next position: Computer Science Ph.D. student at IUPUI

Yue Lab, The Pennsylvania State University College of Medicine

- Simon Kuang, High School student   Jun 2014 – Apr 2015
    Project nominated for Google Science Fair Regional Finalist (2014)
    Next Position: Computer Science & Electrical Engineering B.S. student at UC Berkeley

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SYMPOSIUMS / WORKSHOPS / (NON-ARCHIVAL)

[S23] Yu Wang[†] , Nedim Lipka, Ryan A Rossi, Alexa Siu, Ruiyi Zhang, and Tyler Derr. Knowledge Graph Prompting for Multi-Document Question Answering. New Frontiers in Graph Learning (GLFrontiers) Workshop @ NeurIPS, Oral Presentation, 2023.

[S22] Catherine Yang[††] , Yuying Zhao[†] , and Tyler Derr. The Friendship Paradox: An Analysis on Signed Social Networks with Positive and Negative Links. 29th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD) - Undergraduate Consortium, Presentation and Poster, 2023.

[S21] Yuying Zhao[* †] , Yunfei Hu[*] , Curtis T. Schunk, Yingxiang Ma, Tyler Derr, and Xin Maizie Zhou. ADEPT: Autoencoder with Differentially Expressed Genes and Imputation for a Robust Spatial Transcriptomics Clustering. RECOMB-Seq Conference, Presentation and poster, 2023.

[S20] Yu Wang[†] , Charu Aggarwal, and Tyler Derr. Distance-wise Prototypical Graph Neural Network for Imbalanced Node Classification. The 17th International Workshop on Mining and Learning with Graphs (MLG) @ KDD, Presentation and poster, 2022.

[S19] Yu Wang[†] , Yuying Zhao[†] , Neil Shah, Tyler Derr. Imbalanced Graph Classification via Graph-of-Graph Neural Network. The 1st International Workshop on Machine Learning on Graphs (MLoG) @ WSDM, Poster, 2022.

[S18] Wei Jin[‡] , Tyler Derr, Haochen Liu, Yiqi Wang, Suhang Wang, Zitao Liu, and Jiliang Tang. Self-supervised Learning on Graphs: Deep Insights and New Directions. The Workshop on Self-Supervised Learning for the Web @ WWW, Presentation and poster, 2021.

[S17] Tyler Derr and Jiliang Tang. Network Analysis with Negative Links. *Michigan State University Engineering Graduate Research Symposium*, Poster, 2020.

[S16] Tyler Derr. Analyzing Negative Links in Online Social Media. *Michigan State University Graduate Academic Conference*, Presentation, 2020.

[S15] Hamid Karimi, Jiangtao Huang, Tyler Derr. A Deep Model for Predicting Online Course Performance. *Workshop on Artificial Intelligence for Education (AI4EDU) @ AAAI*, Presentation, 2020.

[S14] Tyler Derr. Network Analysis with Negative Links. *Michigan AI Symposium - AI For Society*, Poster, 2019.

[S13] Tyler Derr. Network Analysis with Negative Links. *International Conference on Data Mining (SDM19) Doctoral Forum*, SIAM, Poster, 2019. **Best Poster Award at SDM'19**

[S12] Aaron Brookhouse[††] , Tyler Derr, Hamid Karimi, and Jiliang Tang. Why Do People Unfollow on Twitter. *Mid-Michigan Symposium for Undergraduate Research Experiences (MID-SURE)*, Poster, 2019.

[S11] Tyler Derr, Yao Ma, and Jiliang Tang. Signed Graph Convolutional Networks. *Michigan State University Engineering Graduate Research Symposium*, Poster, 2019 .

[S10] Tyler Derr, Hamid Karimi, and Jiliang Tang. Multi-Factor Congressional Vote Prediction. *Michigan State University Graduate Academic Conference - Three-Minute Thesis Competition*, Presentation 2019. **"People's Choice" Award**

[S09] Tyler Derr, Hamid Karimi, and Jiliang Tang. Deep Congressional Vote Prediction. *Southeast Michigan Postdoctoral Symposium*, Presentation 2018. **Second Prize** Awarded by University of Michigan's Postdoctoral Association

[S08] Tyler Derr and Jiliang Tang. Congressional Vote Analysis using Signed Networks. *IEEE International Conference on Data Mining (ICDM18) Ph.D. Forum*, Presentation, 2018.

[S07] Tyler Derr, Chenxing Wang[‡] , Suhang Wang, and Jiliang Tang. Relevance Measurements in Online Signed Social Networks. In ACM SIGKDD 14th International Workshop on Mining and Learning with Graphs (MLG), 2018.

[S06] Tyler Derr, Chenxing Wang[‡] , Suhang Wang, and Jiliang Tang. Node Relevance Measurements in Online Signed Social Networks. *Michigan State University Engineering Graduate Research Symposium*, Poster, 2018 .

[S05] Tyler Derr. Opinions Power Opinions: Joint Link and Interaction Polarity Predictions in Signed Networks. *International Conference on Data Mining (SDM17) Doctoral Forum*, SIAM, Poster, 2017.

[S04] Tyler Derr, Zhiwei Wang, and Jiliang Tang. Opinions Power Opinions: Joint Link and Interaction Polarity Predictions in Signed Networks. *Michigan State University Engineering Graduate Research Symposium*, Poster, 2017 .

[S03] Tyler Derr, Yanli Wang, and Feng Yue. A Supervised Learning Approach to the Prediction of Hi-C Data. *ENCODE 2015: Research Applications and Users Meeting*, Poster and presentation, 2015 .

[S02] Yanli Wang, Gal Yaroslavsky, Tyler Derr, and Feng Yue. Visualizing three-dimensional organization and long-range interactions of the mammalian genome with the 3D Genome Browser. *ENCODE 2015: Research Applications and Users Meeting*, Poster, 2015 .

[S01] Tyler Derr. Archimedes and His Approximation of $\sqrt{3}$. *MAA-EPaDel Regional Spring Conference*, Student Paper Session Talk, Dickinson College, 2013.

TUTORIALS

Data Quality-Aware Graph Machine Learning   2023
- Yu Wang[†] , Yijun Tian, Tong Zhao, Xiaorui Liu, Jian Kang, and Tyler Derr.
- In submission to the 2023 SIAM International Conference on Data Mining (SDM)

Graph Neural Networks: Models and Applications   2021
- Yao Ma, Wei Jin, Yiqi Wang, Tyler Derr, and Jiliang Tang.
- 35th AAAI Conference on Artificial Intelligence (AAAI)

Deep Graph Learning: Foundations, Advances and Applications   2020
- Yu Rong, Tingyang Xu, Junzhou Huang, Wenbing Huang, Hong Cheng, Yao Ma, Yiqi Wang, Tyler Derr, Lingfei Wu, Tengfei Ma.
- 26th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (KDD)
- One of the most popular tutorials at KDD'20 with more than 800 attendees

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TALKS

Keynote Presentations:

[KT02] Data-Centric AI for Real-World Graph Applications   Dec 2023
Graph Techniques for Adversarial Activity Analytics
IEEE BigData 2023

[KT02] Overcoming Data Quality Issues in Graph Learning   Nov 2022
Knowledge Graph Workshop
IEEE International Conference on Data Mining (ICDM) 2022

[KT01] Self-supervised Learning on Graphs: Deep Insights and New Directions   Aug 2020
Workshop on Deep Learning on Graphs: Methods and Applications (DLG-KDD'20)/
Workshop on Mining and Learning with Graphs (MLG'20)
ACM SIGKDD Conference on Knowledge Discovery and Data Mining

Invited Presentations:

[IT29] Data-Centric AI for Real-World Graph Applications   Nov 2023
ORNL Core Universities AI Workshop
Georgia Institute of Technology

[IT28]	Computational Social Science Topics in the NDS Lab: An Introduction Quantitative Methods Colloquium Vanderbilt University	Sep 2023
[IT27]	Data Quality-Aware Learning on Graphs Computer Science Speaker Series Brandeis University	Sep 2023
[IT26]	Enhancing Graph Neural Networks with Data Quality-Aware Learning Foundation Model Research Center, Institute for A.I. Tsinghua University	Aug 2023
[IT25]	Towards Data-Centric Graph Learning for Real-World Applications Graph Neural Networks Mini Meeting Max Planck Institute for Mathematics in the Sciences (MPI MiS)	Jun 2023
[IT24]	Advanced Graph Analytics for Real-World Applications Griffiss Institute Tech Talks Air Force Research Lab Information Directorate (AFRL/RI)	Jun 2023
[IT23]	Creating and Leveraging Knowledge Graphs in Real-World Applications Invited Speaker at Knowledge Graph Day ACM Web Conference	Apr 2023
[IT22]	Overcoming Data Quality Issues in Graph Learning AI Seminar North Carolina State University	Nov 2022
[IT21]	Overcoming Data Quality Issues in Graph Learning Mathematics and Data Science Forum Shandong University, China	Nov 2022
[IT20]	Overcoming Data Quality Issues in Graph Learning ORNL Core Universities AI Workshop Virginia Tech	Oct 2022
[IT19]	Machine Learning on Graphs Computer Science and Mathematics Division Oak Ridge National Laboratory	Aug 2022
[IT18]	AI in Intellectual and Developmental Disabilities Research: A Network Perspective AI in IDD Research Dinner Conversation Vanderbilt Kennedy Center	Mar 2022
[IT17]	Navigating the Faculty Job Search College of Engineering Graduate Lunch & Learn Michigan State University (virtual due to COVID-19)	Oct 2020
[IT16]	Demystifying the Black Box: AI/Machine Learning in the Modern Era Change++ (virtual due to COVID-19)	Sep 2020
[IT15]	Graph Neural Networks: Social Networks and Beyond Biomedical Engineering Vanderbilt University (virtual due to COVID-19)	Sep 2020
[IT14]	Analyzing Signed Social Networks Seminar in Computer Science University of Texas Rio Grande Valley (virtual due to COVID-19)	Sep 2020
[IT13]	Data Science for Social Good Data Science Institute Vanderbilt University (virtual due to COVID-19)	Spring 2020

[IT12]	Network Analysis with Negative Links Computer Science Department Binghamton University (virtual due to COVID-19)	Spring 2020
[IT11]	Network Analysis with Negative Links Computer Science Department Drexel University (virtual due to COVID-19)	Spring 2020
[IT10]	Network Analysis with Negative Links Computer Science Department Illinois Institute of Technology	Spring 2020
[IT09]	Network Analysis with Negative Links Ying Wu College of Computing New Jersey Institute of Technology	Spring 2020
[IT08]	Network Analysis with Negative Links School of Electrical Engineering and Computer Science Oregon State University (virtual due to COVID-19)	Spring 2020
[IT07]	Network Analysis with Negative Links Department of Computer Science University of Alabama at Birmingham (canceled due to COVID-19)	Spring 2020
[IT06]	Network Analysis with Negative Links Department of Computer Science University of Kentucky	Spring 2020
[IT05]	Network Analysis with Negative Links Department of Computer Science & Engineering University of Nebraska	Spring 2020
[IT04]	Network Analysis with Negative Links School of Computing and Information University of Pittsburgh	Spring 2020
[IT03]	Network Analysis with Negative Links Department of Electrical Engineering and Computer Science Vanderbilt University (virtual due to COVID-19)	Spring 2020
[IT02]	Network Analysis with Negative Links Center for Computational Network Intelligence HRL Laboratories	May 2019
[IT01]	Signed Network Analysis: Community Detection & Link Prediction Applying Social Network Methods and Theories Counseling, Educational Psychology, and Special Education Department, MSU	Mar 2017

Guest Lectures:

[LT03]	The Social-Side of Autism Spectrum Disorder and Deep Learning Predictions NISE6100: The Science of Neurodiversity-Inspired Science and Engineering Vanderbilt University	Mar/Sep 2023
[LT02]	Introduction to Social Network Analysis CS4959: Computer Science Seminar Vanderbilt University	Nov 2021
[LT01]	Interpretable Autism Identification via Deep Learning CS8395-05: Introduction to Neurodiversity Inspired Science & Engineering Vanderbilt University	Apr 2021

Conference/Workshop Paper Presentations:

Please see the full list of conference/workshop papers.
I have mostly presented the papers where I had been first-author.

TEACHING EXPERIENCE	**Vanderbilt University**	
	Instructor, Department of Computer Science	Jul 2021 – Present

- CS4352/5352: Social Network Analysis (Officially added in VU Course Catalog)
  (Undergraduate/Graduate Level, Fall 22 & 23)
- CS3891/5891-03: Social Network Analysis (Listed as Special Topics course)
  (Undergraduate/Graduate Level, Fall 21)

Instructor, Data Science Institute   Jan 2021 – Present
- DS5720: Social Network Analysis (Graduate Level, Spring 21 & 22 & 23)

Instructor, Department of Electrical Engineering and Computer Science   Aug 2020 – Jul 2021
- CS3891/5891-06: Social Network Analysis (Undergraduate/Graduate Level, Fall 20)
- Received the **Fall 2020 Teaching Innovation Award** from the School of Engineering
- Note: Our EECS department separated into ECE and CS in July 2021.

Michigan State University

Co-Instructor, Computer Science and Engineering Department   Aug 2018 – Dec 2019
- Big Data Analysis (Undergraduate Level, Fall 18, Fall 19)
- Data Mining (Graduate Level, Spring 18)

Teaching Assistant, Computer Science and Engineering Department   Aug 2015 – May 2017
- Operating Systems (Fall 15 & Summer 16)
- Intro to Programming I (Fall 16)
- Database Systems (Spring 16 & Spring 17)

The Pennsylvania State University

Grader, Computer Science and Mathematical Sciences Department   Aug 2014 – Dec 2015
- Course: Theory of Computation (Graduate level)

Graduate Assistant, Computer Science and Mathematical Sciences Department   Aug 2013 – May 2014
Teaching assistant for:
- Artificial Intelligence (Spring 14)
- Formal Languages (Spring 14)
- Discrete Mathematics (Fall 13)
- Intermediate Programming in C++ (Fall 13)

Math & Computer Science Tutor, Russell E. Horn Sr. Learning Center   Aug 2012 – May 2013
- Tutor and provide mentorship to students in mathematics and programming courses
- Received training on learning techniques, cross-cultural communication, and critical thinking

OTHER WORK EXPERIENCE	United BioSource Corp., Harrisburg, PA, USA	
	Software Developer Intern	May 2012 – Aug 2012

- Redesigned and then programmed a software configuration management system

Computer Aid, Inc., Harrisburg, PA, USA
Technical Developer Intern   May 2011 – Dec 2011
- Received training in ASP.NET, SQL, and C# for Web Application Development

OLDER RESEARCH/ PROJECTS (MS,BS)	A Clustering Approach to the Bounded Diameter Minimum Spanning Tree Problem Using Ants	May 2014 – Aug 2015

- **Master's Thesis** under the supervision of Dr. Thang N. Bui at Penn State Harrisburg
- Using ant-based optimization to find good intra- and inter-cluster edges to cluster the nodes,
  build constrained spanning trees per cluster, connect them, then use local optimization.

Micromouse for the IEEE Region 2 Student Activities Conference   Jan 2014 – May 2014
- Worked in a team to design, build, and program a robotic mouse to solve the IEEE maze.

Software Verification and Security Analysis by Modeling System Specifications   Aug 2012 – Aug 2013
- Creating statecharts, modeling them using PROMELA, and designing safety/liveness
  properties in Linear Temporal Logic (LTL) to prove correctness using the Spin Model Checker

Voice-to-Braille Translation System   May 2012 – May 2013
- Worked in a team to design and create a refreshable braille display based on utilizing an
  Arduino and Android app communicating via bluetooth to our custom refreshable braille device.

EXTERNAL SERVICES	**Grant Proposal Panelist**	
	• National Science Foundation (NSF) (x2)	2023

• National Science Foundation (NSF) (x2)	2022
• National Science Foundation (NSF) (x2)	2021

Journal Editor

• Associate Editor, IEEE Transactions on Big Data	2023 - Present
• Associate Editor, Frontiers in Big Data	2023 - Present
• Associate Editor, Elsevier Big Data Research	2022 - Present
• Topic Editor, Machine Learning on Complex Graphs	2022 - Present
Frontiers in Big Data	

Conference Organizer Chairships

• Publicity Co-Chair, DSAA	2024
IEEE International Conference on Data Sicnece and Advanced Analytics	
• Student Travel Awards Co-Chair, WSDM	2024
ACM International Conference on Web Search and Data Mining	
• Social Media and Publicity Co-Chair, KDD	2023
ACM Conference on Knowledge Discovery and Data Mining	
• Social Media and Publicity Co-Chair, KDD	2022
ACM Conference on Knowledge Discovery and Data Mining	
• Doctoral Consortium Co-Chair, ACM International Conference on Web Search	2022
ACM International Conference on Web Search and Data Mining	
• Proceedings Co-chair, KDD	2021
ACM Conference on Knowledge Discovery and Data Mining	

Workshop Organizer Chairships

• Workshop Co-Founder and Co-Chair, Machine Learning on Graphs (MLoG):	
@ ACM International Conference on Web Search and Data Mining (WSDM)	2024
@ IEEE International Conference on Data Mining (ICDM)	2023
@ ACM International Conference on Web Search and Data Mining (WSDM)	2023
@ IEEE International Conference on Data Mining (ICDM)	2022
@ ACM International Conference on Web Search and Data Mining (WSDM)	2022
• Workshop Co-Chair, Graph Techniques for Adversarial Activity Analytics (GTA3):	2022 - 2023
@ IEEE International Conference on Big Data (IEEE BigData)	
• Workshop Co-Chair, Privacy Algorithms in Systems:	2022
@ ACM International Conference on Information and Knowledge Management (CIKM)	
• Workshop Co-organizer and Publicity Chair, Deep Graph Learning:	2019
Methodologies and Applications (DGLMA'19) @ IEEE BigData	

Area Chair Member

• Joint International Conference on Computational Linguistics, Language	2024
Resources and Evaluation (LREC-COLING)	

Senior Program Committee Member

• Association for the Advancement of Artificial Intelligence (AAAI)	2023 – 2024
• The International AAAI Conference on Web and Social Media (ICWSM)	2022 – 2024
• SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)	2022
• ACM International Conference on Web Search and Data Mining (WSDM)	2022

Program Committee Member

• The Web Conference (WWW)	2021, 2022, 2024
• International Conference on Learning Representations (ICLR)	2021, 2024
• SIAM International Conference on Data Mining (SDM)	2022 – 2024
• ACM International Conference on Web Search and Data Mining (WSDM)	2022 – 2024
Outstanding PC Member Award (2022)	
• SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)	2021 – 2023
• International Conference on Machine Learning (ICML)	2021 – 2023
• International Joint Conferences on Artificial Intelligence (IJCAI)	2020, 2021, 2023
• Neural Information Processing Systems (NeurIPS)	2020 – 2022
• International ACM Conference on Web Science (WebSci)	2020 – 2022

- Advances in Social Networks Analysis and Mining (ASONAM)   2021
- Graph Neural Networks and Systems Workshop (GNNSys) @ MLSys   2021
- Conference on Empirical Methods in Natural Language Processing (EMNLP)   2021
- Association for Computational Linguistics Annual Meeting (ACL)   2021
- Educational Advances in Artificial Intelligence Symposium @ AAAI   2021
- Deep Learning on Graphs: Methods and Applications Workshop @ KDD   2020 – 2021
- Association for the Advancement of Artificial Intelligence (AAAI)   2020 – 2021
- International Conference on Information Reuse and Integration for Data Science (IRI)   2020 – 2021
- International Conference on Information and Knowledge Management (CIKM)   2019 – 2021
- The International AAAI Conference on Web and Social Media (ICWSM)   2019 – 2021
     Best Reviewer Award (2019 & 2021)
- IEEE International Conference on Big Data (BigData)   2018 – 2021
- Graph Techniques for Adversarial Activity Analytics Workshop @ IEEE BigData   2019 – 2021
- Artificial Intelligence for Education (AI4EDU) @ AAAI   2020
- Deep Learning on Graphs: Methodologies and Applications (DLGMA) @ AAAI   2020
- Network Modeling, Learning and Analysis (NMLA) Workshop @ WorldCIST   2020
- Applied Data Science for Healthcare Workshop @ KDD   2019 – 2020
- International Conference on Artificial Neural Networks (ICANN)   2019
- Deep Graph Learning: Methodologies and Applications (DGLMA'19) @ IEEE BigData   2019

Conference Sub-Reviewer
- SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)   2019
- International Joint Conference on Artificial Intelligence (IJCAI)   2019
- North American Chapter of the Association for Computation Linguistics (NAACL-HLT)   2019
- Conference on Empirical Methods in Natural Language Processing (EMNLP)   2019
- The Web Conference (WWW)   2018 – 2019
- ACM International Conference on Web Search and Data Mining (WSDM)   2017 – 2019
- Association for the Advancement of Artificial Intelligence (AAAI)   2017 – 2019
- International Conference on Web and Social Media (ICWSM)   2017 – 2018
- Conference on Information and Knowledge Management (CIKM)   2017 – 2019
- Advances in Social Networks Analysis and Mining (ASONAM)   2017 – 2018
- ACM Conference on Research and Development in Information Retrieval (SIGIR)   2018 – 2019
- ACM Recommender Systems (RecSys)   2017, 2019

Journal Reviewer
- IEEE Transactions on Cybernetics   2023 – Present
- ACM TRANSACTIONS ON SENSOR NETWORKS   2023 – Present
- Proceedings of the National Academy of Sciences of the USA (PNAS)   2021 – Present
- IEEE Transactions on Intelligent Transportation Systems   2021 – Present
- Frontiers in Big Data - Data Mining and Management   2021 – Present
- IEEE Transactions on Computational Social Systems   2021 – Present
- Nature Communications Physics   2020 – Present
- IEEE Transactions on Knowledge and Data Engineering (TKDE)   2020 – Present
- Data Mining and Knowledge Discovery (DAMI)   2020 – Present
- Applied Network Science (ANS)   2019 – Present
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)   2019 – Present
- Neurocomputing   2019 – Present
- Wireless Communications and Mobile Computing   2019 – Present
- ACM Transactions on Knowledge Discovery from Data (TKDD)   2018 – Present

Journal Sub-Reviewer
- ACM Transactions on Information Systems (TOIS)   2019
- Data Mining and Knowledge Discovery (DAMI)   2017 – 2018
- IEEE Transactions on Network Science and Engineering (TNSE)   2017 – 2018
- Field Methods   2017
- Journal of Complex Networks   2017
- IEEE MultiMedia   2017
- International Journal of Data Science and Analytics (JDSA)   2017

Book Sub-Reviewer
- Springer   2019

INTERNAL SERVICES

Department of Computer Science (CS)
- CS Immersion Vanderbilt Showcase Judge   Spring 2022 & Fall 2022
- Ad hoc Committee for AI/ML Pathway formation of CS 3241   Fall 2021–Present
- Ad hoc Committee for Online Presence   Summer 2021–Present
- CS Undergraduate Advising   2021–Present
  - Computer Science cohort of ∼34 advisees from the Class of 2025

School of Engineering (VUSE)
- Undergraduate Summer Book Club   2021 - 2022
  - Volunteer Faculty Cohort Leader

- PhD Preliminary Exam Committee

• Naima Samreen Ali	(Computer Science)	2023
• Ali Abbasi	(Computer Science)	2023
• Kieran Nehil-Puleo	(Interdisciplinary Material Science)	2022
• Xinchun Ran	(Chemistry)	2022
• Yubo Feng	(Computer Science)	2022
• Yayan (Ava) Zhao	(Computer Science)	2020/2021
• Qi Yang	(Computer Science)	2020
• Caleb Vatral	(Computer Science)	2020

- PhD Qualifying Exam Committee

• Joel Michelson	(Computer Science)	2023
• Chandreyee Bhowmick	(Computer Science)	2023
• Yixuan Huang	(Mathematics)	2023
• Xinchun Ran	(Chemistry)	2023
• Robert Canady	(Computer Science)	2022
• Roza Bayrak	(Computer Science)	2022
• Yongtai Liu	(Computer Science)	2022
• Yunchao Liu	(Computer Science)	2021
• Anabil Munshi	(Computer Science)	2021
• Tianshu Bao	(Computer Science)	2021
• James Ainooson	(Computer Science)	2021

Data Science Institute
- Admissions Committee   Spring 2022 & 2023
  - Volunteer member taking the role of reviewing and scoring DS MS applicants

Frist Center for Autism and Innovation
- Summer Autism Internship Program
  - Volunteer faculty co-mentor of 2 summer interns   Summer 2023
  - Volunteer faculty mentor of 2 summer interns   Summer 2021

VOLUNTEERING

Conference Volunteering
- Invited/Volunteer Faculty Mentor for KDD 2022 Undergraduate Consortium   2022
- Session chair at KDD 2022   2022
  - "Graph Learning" ADS Track
  - "Interdisciplinary Applications: Medicine, Humanities and Social Good" Research Track
- Session chair at KDD 2021   2021
  - "Web mining"
  - "Humanities and Social Science"
- Invited/Volunteer judge for SDM 2021 Doctoral Forum
- Volunteer at KDD 2020   2020
- Volunteer at ICML 2020   2020
- Session chair at CIKM 2019   2019
  - "Network Embedding I"

- Session chair at at ASONAM 2019   2019
  "Network Emebdding"
  "Network Algorithms"
- Session chair for "PhD Forum" at ICDM 2018   2018
- Session chair at ASONAM 2018   2018
  "Ranking & Centrality" and "Modeling II"
- Volunteer at KDD 2017   2017

General Volunteering
- Volunteer mentor for LatinX in AI Mentoring Program   2021 – Present
- Volunteer scientist for Skype a Scientist   2020 – Present
- Volunteer for Principles of Flight 1 @ Griffiss Institute (elementary/middle school students)   2023
- Invited Judge for VandyHacks (VU's premier student hackathon)   2021-2023
- Intro to CS and AI @ Tohoku International School (adding to their technology course)   2021
- Intro to Machine Learning @ Ardsley High School's Science Research class   2020
- Intro to Machine Learning @ Change++ (undergraduate students)   2020
- "Grad Chat" Nominated Panelist @ Michigan State University (undergraduate students)   2020
- Graduate Women in Science (Mid-MI) Mentor Program (undergraduate students)   2019 – 2020
- Activity leader for Girls Math & Science Data at MSU (middle school students)   2019 – 2020
- MSU Science Festival (K-5 students)   2019
- Intro to Artificial Intelligence @ Our Savior Lutheran Church Middle School   2019
- Intro to Computer Science @ Our Savior Lutheran Church Elementary School   2019
- Mid-Michigan Symposium for Undergraduate Research Experiences (Mid-SURE)   2017 – 2019
- Hosting and discussing with potential visiting MSU CSE Graduate Students   2017 – 2019
- "Life as a Grad Student" @ Michigan State University (undergraduate students)   2016 – 2019
- Michigan State University Undergraduate Research and Arts Forum (UURAF)   2016 – 2019
- Global Lions Mentor Program (incoming international students)   2013 – 2015
- MATHCOUNTS (middle school students)   2012 – 2014
- South Central PA Robotics Competition (high school students)   2012 – 2013

PROFESSIONAL AFFILIATIONS/ MEMBERSHIPS	Pi Mu Epsilon, Honorary National Mathematics Society	
	• Inducted Member	2012 – Present
	Institute of Electrical and Electronic Engineers (IEEE)	
	• Member	2011 – Present
	Association of Computing Machinery (ACM)	
	• Member	2010 – Present