

# Dr. Tyler Derr

<b>CONTACT INFORMATION</b>	Office: A4030 Sony Building 1400 18th Ave S Nashville, TN 36240	Personal Homepage: <a href="http://www.TylerDerr.com">http://www.TylerDerr.com</a> NDS Lab Homepage: <a href="http://my.vanderbilt.edu/NDS">http://my.vanderbilt.edu/NDS</a> LinkedIn: <a href="http://www.linkedin.com/in/TylersNetwork">http://www.linkedin.com/in/TylersNetwork</a> Twitter: <a href="http://www.twitter.com/TylersNetwork">http://www.twitter.com/TylersNetwork</a> Google Scholar: <a href="https://scholar.google.com/citations?user=et6lhFcAAAAJ">https://scholar.google.com/citations?user=et6lhFcAAAAJ</a>
	E-mail: <a href="mailto:Tyler.Derr@vanderbilt.edu">Tyler.Derr@vanderbilt.edu</a>	
<b>POSITIONS</b>	<b>Assistant Professor</b> , Vanderbilt University Computer Science in the Department of CS (Previously EECS and separated into ECE and CS in July 2021)	Aug 2020 – Present
	<b>Teaching &amp; Affiliate Faculty Member</b> , Vanderbilt University Data Science Institute (DSI)	Aug 2020 – Present
	<b>Faculty Fellow</b> , Vanderbilt University Frist Center for Autism and Innovation	Aug 2020 – Present
<b>EDUCATION</b>	<b>Michigan State University</b>	
	<b>Doctor of Philosophy (Ph.D.)</b> in Computer Science • Dissertation: Network Analysis with Negative Links • Advisor: Dr. Jiliang Tang • Research areas: Signed Network Analysis, Deep Learning on Graphs, Data Science for Social Good • Cumulative GPA: 4.00 / 4.00	Aug 2020
	<b>The Pennsylvania State University</b>	
	<b>Master of Science (M.S.)</b> in Computer Science • Thesis: A Clustering Approach to the Bounded Diameter Minimum Spanning Tree Problem Using Ants • Advisor: Dr. Thang N. Bui • Research areas: Ant Systems, Evolutionary Computation, Graph Algorithms • Cumulative GPA: 3.97 / 4.0	May 2015
<b>RESEARCH EXPERIENCE</b>	<b>Dual Bachelor of Science (B.S.)</b> in Computer Science and Mathematical Sciences • Cumulative GPA: 3.35 / 4.00	May 2013
	<b>Network and Data Science Lab</b> , Vanderbilt University Director • Research Interests: data mining, network analysis, social computing, graph neural networks, graph mining, machine learning, network measures and models, data science for social good (e.g., education, health, political science, and autism research)	Aug 2020 – Present
	<b>Teachers in Social Media</b> , Michigan State University PhD Student, Computer Science and Engineering Department • Projects: Incorporating Online Social Media in Educational Research • Principal Investigator: Dr. Kaitlin Torphy	Feb 2019 – Aug 2020
	<b>Data Science and Engineering Lab</b> , Michigan State University PhD Student, Computer Science and Engineering Department • Projects: Signed Network Analysis, Deep Learning on Graphs, Data Science for Social Good • Advisor: Dr. Jiliang Tang	Jan 2017 – Aug 2020
	<b>Center for Computational Network Intelligence</b> , HRL Laboratories Research Scientist Intern/Contractor • Projects: (Related to my general research interests, but can not disclose.) • Principal Investigator: Dr. Jiejun Xu	May 2019 – Jul 2020
	<b>BEACON   An NSF Center for the Study of Evolution in Action</b> , Michigan State University PhD Student, Computer Science and Engineering Department • 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	Aug 2015 – Dec 2016

**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 &amp; 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

**PUBLICATIONS**

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

- \* denotes co-first authors
- † denotes *graduate student advised by Tyler Derr*
- ‡ denotes *graduate student 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):

Xinmeng Zhang<sup>\*</sup>, Yuying Zhao<sup>\* †</sup>, 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)

Yu Wang<sup>†</sup>, Yuying Zhao<sup>†</sup>, 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))

Yushun Dong, Song Wang, Yu Wang<sup>†</sup>, 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))

Benedek Rozemberczki, Charles Hoyt, Anna Gogoleva, Piotr Grabowski, Klas Karis, Andrej Lamov, Andriy Nikolov, Sebastian Nilsson, Michael Ughetto, Yu Wang<sup>†</sup>, 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 18.3% (applied data science track))

Yu Wang<sup>†</sup> 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%)

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%)

Wei Jin<sup>‡</sup>, 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%)

Aaron Brookhouse<sup>\* ††</sup>, Tyler Derr<sup>\*</sup>, Hamid Karimi<sup>\*</sup>, 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%)

Xuejiao Tang, Wenbin Zhang, Yi Yu, Kea Turner, Tyler Derr, Mengyu Wang, Eirini Ntoutsis. 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)

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%)

Ramit Sawhney<sup>\*</sup>, Shivam Agarwal<sup>\*††</sup>, 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%)

Wei Jin<sup>‡</sup>, 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%)

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%)

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)

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)

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%)

Hamid Karimi<sup>\*</sup>, Tyler Derr<sup>\*</sup>, 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%)

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%)

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%)

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%)

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%)

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%)

Tyler Derr, Cassidy Johnson<sup>††</sup>, 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%)

Hamid Karimi<sup>\*</sup>, Tyler Derr<sup>\*</sup>, Aaron Brookhouse<sup>††</sup>, 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%)

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%)

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%)

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%)

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%)

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:**

Tyler Derr, Zhiwei Wang, Jamell Dacon<sup>†</sup>, and Jiliang Tang. Link and Interaction Polarity Predictions in Signed Networks. Social Network Analysis and Mining (SNAM), 10(1), pp. 1-14. 2020.

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:**

Yu Wang<sup>†</sup>, Wei Jin<sup>†</sup>, 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:**

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 and Submissions**

Yu Wang<sup>†</sup>, Yuying Zhao<sup>†</sup>, and Tyler Derr. Fair-view Graph Neural Network for Node Representation Learning. (Submitted to ACM KDD'22)

Yu Wang<sup>†</sup>, Yuying Zhao<sup>†</sup>, Neil Shah, and Tyler Derr. Imbalanced Graph Classification via Graph-of-Graph Neural Networks. arXiv preprint arXiv:2112.00238 2021.

Yu Wang<sup>†</sup>, Charu Aggarwal, and Tyler Derr. Distance-wise Prototypical Graph Neural Network for Imbalanced Node Classification. arXiv preprint arXiv:2110.12035 2021.

Wei Jin<sup>‡</sup>, Tyler Derr, Haochen Liu<sup>‡</sup>, 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.

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

Haochen Liu<sup>‡</sup>, 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.

Hamid Karimi, Tyler Derr, and Jiliang Tang. Characterizing the Decision Boundary of Deep Neural Networks. arXiv preprint arXiv:1912.11460 2019.

<b>HONORS &amp; AWARDS</b>	• My student Yu Wang was awarded <b>Vanderbilt's C. F. Chen Best Paper Award</b> in Computer Science based on our CIKM'21 paper "Tree Decomposed Graph Neural Network"	May 2022
	• <b>Outstanding PC Member Award</b> at WSDM'22.	2022
	• <b>Best Reviewer Award</b> at ICWSM'21.	2021
	• SIAM Early Career Travel Award for SDM'21 supported by NSF	2021
	• Fall 2020 <b>Teaching Innovation Award from the School of Engineering</b> at Vanderbilt	2021
	• Student Registration Award for KDD'20 from NSF and ACM SIGKDD. (Including partial registration for KDD'21)	2020
	• 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
	• <b>Best Reviewer Award</b> at ICWSM'19.	Jun 2019
	• <b>Best Student Poster Award</b> at SDM'19. Title: Network Analysis with Negative Links	May 2019
	• Student Travel Award for SDM'19 from NSF.	2019
	• My advisor Dr. Jiliang Tang was awarded the NSF CAREER award based on my research.	2019
	• <b>"People's Choice" Award</b> 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 University of Michigan Postdoctoral Association	Oct 2018
	• Department Fellowship, Michigan State University The Department of Computer Science and Engineering	Spring: 2018,2019, Summer: 2017,2018
	• 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

**MENTORING  
IN NDS LAB  
(AS ADVISOR)**

**Network and Data Science Lab, Vanderbilt University**

**Ph.D. Students**

- Yi Zhang, Ph.D. Computer Science Officially Starting in Fall 2022  
 -Research topics: Deep learning on graphs, deep generative models, network models  
 -Awarded Vanderbilt Dean's Graduate Fellowship Award  
 - Currently exploring project ideas in graph generation (with applications in drug discovery)
- Yuying Zhao, Ph.D. Computer Science Fall 2021 – Present  
 -Research topics: Graph mining, influence maximization, and fairness in representation learning  
 -Awarded Vanderbilt IBM Fellowship Award  
 -Assisting on two interdisciplinary projects with Dr. Maizie (Xin) Zhou and Dr. You Chen (and one of their students for each respective project)  
 -Two co-author GNN papers under review at KDD'22  
 -Current project on GNNs and reinforcement learning for influence maximization
- Yu Wang, Ph.D. Computer Science Spring 2021 – Present  
 -Research topics: class imbalance, fairness, heterophily, and other data issues in graph neural networks  
 -Awarded Vanderbilt Russell G. Hamilton Graduate Scholars Award  
 -Awarded Vanderbilt's C. F. Chen Best Paper Award in Computer Science in 2022  
 -Published one first-author GNN papers in CIKM'21 and KDD'22  
 -Two first-author GNN papers under review at CIKM'22  
 -Current project on GNNs for recommender systems

**M.S. Students**

- Benjamin Van Sleen, B.S. Computer Engineering, B.S. Economics, Dec 2020 – Present  
 and accelerated M.S. Computer Science  
 -2021 Data Science Institute Summer Research Program (DSI-SRP) Fellow  
 -Current project on Understanding Neurodiversity on Social Media  
 -Independent study on relations between Bitcoin network and energy sector (Spring'22)

**B.S. Students**

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

**Research Interns**

- Shivam Agarwal, B.S. Electrical and Computer Engineering Jul 2020 – Present  
 -Remote from IIIT-Delhi (and now Cisco)  
 -Co-authored "Stock Selection via Spatiotemporal Hypergraph Attention Network: A Learning to Rank Approach" AAAI'21  
 -Co-authored "Dynamic Time Evolving Hypergraph Attention on the Riemannian Manifold" (in submission to KDD)  
 -Wrote him letters of recommendation for PhD programs starting Fall 2022

**Former M.S. Students**

- 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 chatbot for job interviews

**Former B.S. Students**

- 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

- 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

- 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

#### MENTORING (NOT AS ADVISING)

##### Data Science and Engineering Lab, Michigan State University

- Wei Jin, Ph.D. Computer Science & Engineering Nov 2019 – May 2022
  - Co-authored “Node Similarity Preserving Graph Convolutional Networks” WSDM’21
  - Co-authored “Graph Feature Gating Network” CIKM’21
  - Co-authored “Self-supervised Learning on Graphs: Deep Insights and New Directions” (Preprint)
- Jamell Dacon, Ph.D. Computer Science & Engineering Aug 2018 – May 2021
  - MSU Enrichment Fellowship (UEF)
  - Project on Black Lives Matter in Social Media
  - Co-authored “Link and Interaction Polarity Predictions in Signed Networks” SNAM
- Hua Liu, Ph.D. Mathematics at Shandong University Nov 2019 – Nov 2020
  - Project on signed network analysis
- Namratha Shah, M.S. Computer Science & Engineering May 2020 – Aug 2020
  - Project on social media and mental health
- Andrew McDonald, B.S. in Computer Science, Mathematics, and Statistics Mar 2019 – Aug 2020
  - MSU Alumni Distinguished Scholar
  - Mentored through the Graduate Women in Science Mentor Program
  - Work accepted at AAAI 2020 Undergraduate Consortium

- Aaron Brookhouse, B.S. Electrical Engineering Aug 2018 – Jun 2020
  - MSU Professorial Assistantship Program
  - Co-authored “Multi-Factor Congressional Vote Prediction” ASONAM’19
  - Poster presentation of our work at MID-SURE 2019
  - Wrote him letters of recommendation for 2020 REU applications
  - He accepted WSU’s Smart Environments REU Program (and invited to others)
- Haochen Liu, Ph.D. Computer Science & Engineering Jan 2019 – Dec 2019
  - Two papers under review
  - Co-authored “Chat as Expected: Learning to Manipulate Black-box Neural Dialogue Models” (Preprint)
  - Co-authored “Say What I Want: Towards the Dark Side of Neural Dialogue Models” (Preprint)
- Daniel K. Ofori-Dankwa, M.S. Computer Science & Engineering May 2018 – May 2019
  - Project on “Bitcoin Price Predictions”
  - Next position: Microsoft
- Linghao Ji, B.S. Computer Science & Engineering Aug 2018 – Aug 2019
  - Project on “Analyzing Swing Voters in Congress”
  - Wrote him letters of recommendation for M.S. applications
  - Next position: Applied Data Analytics M.S. student at BU
- Cassidy Johnson, B.S. Computer Science & B.S. Mathematics May 2018 – Aug 2018
  - 2018 Summer Research Opportunities Program
  - Co-authored “Balance in Signed Bipartite Networks” CIKM’19
  - 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

Wei Jin<sup>‡</sup>, Tyler Derr, Haochen Liu, Yiqi Wang, Suhan 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.

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

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

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

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



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

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

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

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**

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

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

Tyler Derr, Chenxing Wang<sup>‡</sup>, 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.

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

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.

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 .

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 .

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 .

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

<b>TUTORIALS</b>	Graph Neural Networks: Models and Applications • Yao Ma, Wei Jin, Yiqi Wang, Tyler Derr, and Jiliang Tang. • 35th AAAI Conference on Artificial Intelligence (AAAI)	2021
	Deep Graph Learning: Foundations, Advances and Applications • 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 <b>more than 800 attendees</b>	2020
<b>INVITED TALKS/GUEST LECTURES</b>	AI in Intellectual and Developmental Disabilities Research: A Network Perspective AI in IDD Research Dinner Conversation Vanderbilt Kennedy Center	Mar 2022
	Introduction to Social Network Analysis CS4959: Computer Science Seminar Vanderbilt University	Nov 2021

Interpretable Autism Identification via Deep Learning CS8395-05: Introduction to Neurodiversity Inspired Science & Engineering Vanderbilt University	Apr 2021
Navigating the Faculty Job Search College of Engineering Graduate Lunch & Learn Michigan State University (virtual due to COVID-19)	Oct 2020
Demystifying the Black Box: AI/Machine Learning in the Modern Era Change++ (virtual due to COVID-19)	Sep 2020
Graph Neural Networks: Social Networks and Beyond Biomedical Engineering Vanderbilt University (virtual due to COVID-19)	Sep 2020
Analyzing Signed Social Networks Seminar in Computer Science University of Texas Rio Grande Valley (virtual due to COVID-19)	Sep 2020
Self-supervised Learning on Graphs: Deep Insights and New Directions 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 (virtual due to COVID-19)	Aug 2020
Data Science for Social Good Data Science Institute Vanderbilt University (virtual due to COVID-19)	Spring 2020
Network Analysis with Negative Links Computer Science Department Binghamton University (virtual due to COVID-19)	Spring 2020
Network Analysis with Negative Links Computer Science Department Drexel University (virtual due to COVID-19)	Spring 2020
Network Analysis with Negative Links Computer Science Department Illinois Institute of Technology	Spring 2020
Network Analysis with Negative Links Ying Wu College of Computing New Jersey Institute of Technology	Spring 2020
Network Analysis with Negative Links School of Electrical Engineering and Computer Science Oregon State University (virtual due to COVID-19)	Spring 2020
Network Analysis with Negative Links Department of Computer Science University of Alabama at Birmingham (canceled due to COVID-19)	Spring 2020
Network Analysis with Negative Links Department of Computer Science University of Kentucky	Spring 2020
Network Analysis with Negative Links Department of Computer Science & Engineering University of Nebraska	Spring 2020

Network Analysis with Negative Links School of Computing and Information University of Pittsburgh	Spring 2020
Network Analysis with Negative Links Department of Electrical Engineering and Computer Science Vanderbilt University (virtual due to COVID-19)	Spring 2020
Network Analysis with Negative Links Center for Computational Network Intelligence HRL Laboratories	May 2019
Signed Network Analysis: Community Detection & Link Prediction Applying Social Network Methods and Theories Counseling, Educational Psychology, and Special Education Department, MSU	Mar 2017

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<b>TEACHING EXPERIENCE</b>	<b>Vanderbilt University</b>	
	Instructor, Department of Computer Science	Jul 2021 – Present
	<ul style="list-style-type: none"> <li>CS4352/5352: Social Network Analysis (Officially added in VU Course Catalog) (Undergraduate/Graduate Level, Fall 22)</li> <li>CS3891/5891-03: Social Network Analysis (Listed as Special Topics course) (Undergraduate/Graduate Level, Fall 21)</li> </ul>	
	Instructor, Data Science Institute	Jan 2021 – Present
	<ul style="list-style-type: none"> <li>DS5720: Social Network Analysis (Graduate Level, Spring 21 &amp; Spring 22)</li> </ul>	
	Instructor, Department of Electrical Engineering and Computer Science	Aug 2020 – Jul 2021
	<ul style="list-style-type: none"> <li>CS3891/5891-06: Social Network Analysis (Undergraduate/Graduate Level, Fall 20)</li> <li>Received the <b>Fall 2020 Teaching Innovation Award</b> from the School of Engineering</li> <li>Note: Our EECS department separated into ECE and CS in July 2021.</li> </ul>	
	<b>Michigan State University</b>	
	Co-Instructor, Computer Science and Engineering Department	Aug 2018 – Dec 2019
	<ul style="list-style-type: none"> <li>Big Data Analysis (Undergraduate Level, Fall 18, Fall 19)</li> <li>Data Mining (Graduate Level, Spring 18)</li> </ul>	
	Teaching Assistant, Computer Science and Engineering Department	Aug 2015 – May 2017
	<ul style="list-style-type: none"> <li>Operating Systems (Fall 15 &amp; Summer 16)</li> <li>Intro to Programming I (Fall 16)</li> <li>Database Systems (Spring 16 &amp; Spring 17)</li> </ul>	
	<b>The Pennsylvania State University</b>	
	Grader, Computer Science and Mathematical Sciences Department	Aug 2014 – Dec 2015
	<ul style="list-style-type: none"> <li>Course: Theory of Computation (Graduate level)</li> </ul>	
	Graduate Assistant, Computer Science and Mathematical Sciences Department	Aug 2013 – May 2014
	Teaching assistant for:	
	<ul style="list-style-type: none"> <li>Artificial Intelligence (Spring 14)</li> <li>Formal Languages (Spring 14)</li> <li>Discrete Mathematics (Fall 13)</li> <li>Intermediate Programming in C++ (Fall 13)</li> </ul>	
	Math & Computer Science Tutor, Russell E. Horn Sr. Learning Center	Aug 2012 – May 2013
	<ul style="list-style-type: none"> <li>Tutor and provide mentorship to students in mathematics and programming courses</li> <li>Received training on learning techniques, cross-cultural communication, and critical thinking</li> </ul>	

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<b>OTHER WORK EXPERIENCE</b>	HRL Laboratories, Malibu, CA, USA	
	Research Scientist Intern/Contractor	May 2019 – Jul 2020
	<ul style="list-style-type: none"> <li>Projects: (Related to my general research interests in the Center for Computational Network Intelligence but can not disclose.)</li> <li>Principal Investigator: Dr. Jiejun Xu</li> </ul>	

United BioSource Corp., Harrisburg, PA, USA

Software Developer Intern

- Redesigned and then programmed a software configuration management system

May 2012 – Aug 2012

Computer Aid, Inc., Harrisburg, PA, USA

Technical Developer Intern

- Received training in ASP.NET, SQL, and C# for Web Application Development

May 2011 – Dec 2011

## EXTERNAL SERVICES

### Grant Proposal Panelist

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

### Journal Editor

- Topic Editor, Machine Learning on Complex Graphs  
Frontiers in Big Data 2022

### Conference and Workshop Chairships

- Workshop Co-Chair, Privacy Algorithms in Systems: 2022  
@ ACM International Conference on Information and Knowledge Management (CIKM)
- Workshop Co-Chair, Graph Techniques for Adversarial Activity Analytics (GTA3): 2022  
@ IEEE International Conference on Big Data (IEEE BigData)
- Workshop Co-Chair, Machine Learning on Graphs (MLOG): 2022  
@ IEEE International Conference on Data Mining (ICDM)
- Workshop Lead-organizer, Machine Learning on Graphs (MLOG): 2022  
@ ACM International Conference on Web Search and Data Mining (WSDM)
- Social Media and Publicity Co-Chair, ACM Conference on Knowledge Discovery and Data Mining (KDD) 2022
- Doctoral Consortium Co-Chair, ACM International Conference on Web Search and Data Mining (WSDM) 2022
- Proceedings Co-chair, ACM Conference on Knowledge Discovery and Data Mining (KDD) 2021
- Workshop Co-organizer and Publicity Chair, Deep Graph Learning: Methodologies and Applications (DGLMA'19) @ IEEE BigData 2019

### Senior Program Committee Member

- The International AAAI Conference on Web and Social Media (ICWSM) 2022
- 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
- International Conference on Machine Learning (ICML) 2021-2022
- ACM International Conference on Web Search and Data Mining (WSDM) 2022

### Outstanding PC Member Award (2022)

- Advances in Social Networks Analysis and Mining (ASONAM) 2021
- International Conference on Learning Representations (ICLR) 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
- SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2021
- Educational Advances in Artificial Intelligence Symposium @ AAAI 2021
- Neural Information Processing Systems (NeurIPS) 2020 – 2021
- Deep Learning on Graphs: Methods and Applications Workshop @ KDD 2020 – 2021
- Association for the Advancement of Artificial Intelligence (AAAI) 2020 – 2021
- International Joint Conferences on Artificial Intelligence (IJCAI) 2020 – 2021
- International ACM Conference on Web Science (WebSci) 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**

- 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 (JDASA) 2017

**Book Sub-Reviewer**

- Springer 2019

**INTERNAL  
SERVICES****Department of Computer Science (CS)**

- CS Immersion Vanderbilt Showcase Judge Spring 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

**PhD Preliminary Exam Committee**

- Caleb Vatrak (Computer Science) 2020
- Qi Yang (Computer Science) 2020
- Yayan (Ava) Zhao (Computer Science) 2020/2021

**PhD Qualifying Exam Committee**

- 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

**School of Engineering (VUSE)**

- Undergraduate Summer Book Club 2021-2022
- Volunteer Faculty Cohort Leader

**Data Science Institute**

- Admissions Committee Spring 2022
- Volunteer member taking the role of reviewing and scoring DS MS applicants

**Frist Center for Autism and Innovation**

- Summer Autism Internship Program Summer 2021
- Volunteer faculty mentor of 2 summer interns

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**VOLUNTEERING Conference Volunteering**

- Session chair at KDD 2021 2021
- “Web mining”
- “Humanities and Social Science”
- Invited 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 ASONAM 2019 2019
- “Network Embedding”
- “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
- Intro to CS and AI @ Tohoku International School (adding to their technology course) 2021
- Invited Judge for VandyHacks (VU’s premier student hackathon) 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

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**OLDER  
RESEARCH/  
PROJECTS  
(PHD,MS,BS)**

- Evolving Multi-Layer Markov Network Brains Using Adaptive Complexification Dec 2015 – Nov 2016
- Evolving binary logic gate networks that can adaptively adjust their network complexity to solve boolean logic problems (e.g., 3-bit full adder) and a Mario Bros. agent.
- 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.

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**PROFESSIONAL  
AFFILIATIONS/  
MEMBERSHIPS**

- Pi Mu Epsilon, Honorary National Mathematics Society 2012 – Present
- Inducted Member
- Institute of Electrical and Electronic Engineers 2011 – Present
- Member
- Association of Computing Machinery 2010 – Present
- Member
- Official ACM Student Chapter (Est. Fall 2012), Penn State Harrisburg
- Vice President Aug 2012 – May 2013
  - Graduate Coordinator Aug 2013 – May 2014
- Association for Computing Machinery (ACM) Club, Penn State Harrisburg
- Vice President Aug 2011 – May 2012
- Math Club, Penn State Harrisburg
- Vice President / Director of Activities Aug 2011 – May 2013
- Student Government Association (SGA), Penn State Harrisburg
- Senator Aug 2012 – May 2013
  - Chairperson of Student Activities Aug 2012 – Dec 2012
- College Reading & Learning Association, International Tutor Training Program,
- Level 1 Certified Tutor 2012
-