Hamid Karimi, Ph.D.

Data Science and Application (DSA) Lab School of Computing Utah State University, Logan, Utah 84322

hamid.karimi@usu.edu

sithub.com/hamidkarimi/

☞ Google Scholar

http://dsa.cs.usu.edu

github.com/DSAatUSU

(DSA's GitHub)

in linkedin.com/in/hamidkariminetwork/

Employment History

Aug 2021 – Present Assistant Professor, Department of Computer Science*, Utah State University

(* renamed to "School of Computing" since Jul'25)

Education

Aug 2015 – Jun 2021 Ph.D., Computer Science, Michigan State University

Advisor: Dr. Jiliang Tang

Dissertation title: Teachers in Social Media: A Data Science Perspective

Research areas: Educational Data Mining, Social Media Analytics, Machine Learning

Jan 2010 – Sep 2012

M.Sc., Information Technology, Urmia University (Iran)

Sep 2005 – Oct 2009 B.Sc., Computer Engineering, University of Isfahan (Iran)

Funded Projects

Oct 2023 - Sep 2026 Learning Analytics for Process-driven Computer Programming Assignments

Funding Agency: National Science Foundation (NSF)

Role: sole PI

Amount: \$349,847

Jul 2023 – Jun 2026 BPE Track 2: Disability DCL - Capturing Narratives that Characterize Neurodiver-

gent Strengths and Weaknesses

Funding Agency: National Science Foundation (NSF)

Role: Co-PI

Amount: \$373,508 (my share: 40%)

Nov 2021 – Oct 2024 A Smart Toolkit for Knowledge Brokers to Visualize Social Opportunity Spaces

Funding Agency: The Bill and Melinda Gates Foundation

Role: Technical Partner

Amount: **\$74,000** (Total: \$2M)

Prior Research Experience

Jun 2017 – Jul 2021 Data Science and Engineering Lab, Michigan State University

PhD Student, Graduate Research Assistant (RA)

Projects: Educational data mining, Compromised accounts and misinformation detec-

tion, and societal and political analytics

Supervisor: Dr. Jiliang Tang

Prior Research Experience (continued)

Apr 2019 – Jul 2021 Teachers in Social Media, Michigan State University

PhD Student, Graduate Research Assistant (RA)

Project: Understanding teachers' online footprints using social media analytics

Supervisors: Dr. Ken Frank and Dr. Kaitlin Torphy

May 2019 – Sep 2019 Dataminr Inc, New York City

Research Intern, Data Science Research Group Project: Event detection in social media during crise

Supervisor: Dr. Alex Jaimes

Feb 2010 – Sep 2012 Dr. Yousefi's Lab, Urmia University

Master's Student, Graduate Research Assistant (RA)

Project: File broadcast scheduling algorithms for vehicular networks

Supervisor: Dr. Saleh Yousefi

Honors & Awards

Nov 2022	International Faculty Recognition Award at Utah State University
Dec 2020	MSU Dissertation Completion Fellowships
Feb 2020	MSU COGS Conference Award for WSDM'20 (with Fellowship Funding)
Aug 2019 – May 2020	MSU Graduate Leadership Fellow
Aug 2018 – May 2019	MSU Engineering Graduate Leadership Fellow
Apr 2019	Best Poster Award at MSU Engineering Symposium Title: Learning Hierarchical Discourse-level Structure for Fake News Detection
Feb 2019	Outstanding Graduate Student Service Award at CSE@MSU
Aug 2018	Best Paper Award at IEEE/ACM ASONAM 2018
	Title: End-to-end compromised account detection
Feb 2018	Best Oral Presentation , The 10th Graduate Academic Conference (COGS)@MSU <i>Title: Veracity in Big Data</i> (<i>Video</i>)
Aug 2018	Travel Award for International Conference on Multimodal Interaction (ICMI 2018) from NSF
Aug 2012	Top-ranked master's student in Information Technology, Urmia University

Publications

Journal Articles

- Z. Chen, K. T. T. Knake, H. Karimi, and N. Donzella, "Building a nationally representative sample of teachers' online and offline: The public instructional network of school resources," *Journal of Research on Technology in Education*, vol. 57, no. 3, pp. 521–546, 2025. ODI: 10.1080/15391523.2023.2266060. eprint: https://doi.org/10.1080/15391523.2023.2266060.
- K. T. Knake, H. Karimi, S. Hu, K. A. Frank, and J. Tang, "Educational research in the twenty-first century: Leveraging big data to explore teachers' professional behavior and educational resources accessed within pinterest," *The Elementary School Journal*, vol. 122, no. 1, pp. 86–111, 2021. ODI: 10.1086/715482.
- H. Karimi, T. Derr, K. T. Torphy, K. A. Frank, and J. Tang, "A roadmap for incorporating online social media in educational research," *Teachers College Record*, vol. 121, no. 14, pp. 1–24, 2019. ODI: 10.1177/016146811912101412.

Conference Proceedings

- L. A. Brown, C. M. Spence, A. Cuellar, K. Thakkar, H. Karimi, and M. A. Tsugawa, "Wip: Developing an interview protocol to unveil the stories of neurodivergent engineering students," in 2025 ASEE Annual Conference & Exposition, Montreal, Quebec, Canada: ASEE Conferences, Jun. 2025. ODI: 10.18260/1-2--57393.
- X. Cheng, C. Yang, Y. Zhao, Y. Wang, H. Karimi, and T. Derr, "Bts: A comprehensive benchmark for tie strength prediction," in *Proceedings of the 31st ACM SIGKDD Conference on Knowledge Discovery and Data Mining V.2*, ser. KDD '25, Toronto ON, Canada: Association for Computing Machinery, 2025, pp. 5345–5354, ISBN: 9798400714542. ODI: 10.1145/3711896.3737441.
- S. Farokhi, A. A. Foumani, X. Qi, T. Derr, and H. Karimi, "Edge-up: Enhanced dynamic gnn ensemble for unfollow prediction in online social networks," in *Social Networks Analysis and Mining*, Cham: Springer Nature Switzerland, 2025, pp. 20–39, ISBN: 978-3-031-78541-2. ODI: https://doi.org/10.1007/978-3-031-78541-2_2.
- M. F. A. Khan, L. Feri Eka, H. Nguyen, and H. Karimi, "Student-perceived cognitive load of llm-generated programming exercises," in 2025 IEEE 12th International Conference on Data Science and Advanced Analytics (DSAA), IEEE, 2025. ODI: coming-soon....
- S. Farokhi, H. Chen, K. Moon, and H. Karimi, "Advancing tabular data classification with graph neural networks: A random forest proximity method," in 2024 IEEE International Conference on Big Data (BigData), 2024, pp. 7011–7020. ODDI: 10.1109/BigData62323.2024.10825972.
- M. F. A. Khan, M. Ramsdell, E. Falor, and H. Karimi, "Assessing the promise and pitfalls of chatgpt for automated cs1-driven code generation," in *Proceedings of the 17th International Conference on Educational Data Mining*, Atlanta, Georgia, USA: International Educational Data Mining Society, Jul. 2024, pp. 83–95, ISBN: 978-1-7336736-5-5. ODI: 10.5281/zenodo.12729778.
- M. F. A. Khan, M. Ramsdell, H. Nguyen, and H. Karimi, "Human evaluation of gpt for scalable python programming exercise generation," in 2024 IEEE 11th International Conference on Data Science and Advanced Analytics (DSAA), 2024, pp. 1–10. ODI: 10.1109/DSAA61799.2024.10722841.
- 8 K. Kheiri and H. Karimi, "Sentimentgpt: Leveraging gpt for advancing sentiment analysis," in 2024 IEEE International Conference on Big Data (BigData), 2024, pp. 7051−7060. ODOI: 10.1109/BigData62323.2024.10825350.
- A. Yaramala, S. Farokhi, and H. Karimi, "Navigating the data-rich landscape of online learning: Insights and predictions from assistments," in *Proceedings of the 17th International Conference on Educational Data Mining*, Atlanta, Georgia, USA: International Educational Data Mining Society, Jul. 2024, pp. 321–331, ISBN: 978-1-7336736-5-5. ODI: 10.5281/zenodo.12729826.
- S. Farokhi, A. Yaramal, J. Huang, M. F. A. Khan, X. Qi, and H. Karimi, "Enhancing the performance of automated grade prediction in mooc using graph representation learning," in 2023 IEEE 10th International Conference on Data Science and Advanced Analytics (DSAA), 2023, pp. 1–10. © DOI: 10.1109/DSAA60987.2023.10302642.
- H. Karimi, K. T. Knake, and K. A. Frank, "An analysis of diffusion of teacher-curated resources on pinterest," in *Proceedings of the 16th International Conference on Educational Data Mining*, M. Feng, T. Käser, and P. Talukdar, Eds., Bengaluru, India: International Educational Data Mining Society, Jul. 2023, pp. 55–66, ISBN: 978-1-7336736-4-8. ODI: 10.5281/zenodo.8115713.
- M. F. A. Khan, J. Edwards, P. Bodily, and H. Karimi, "Deciphering student coding behavior: Interpretable keystroke features and ensemble strategies for grade prediction," in 2023 IEEE International Conference on Big Data (BigData), IEEE, 2023, pp. 5799–5808. ODI: 10.1109/BigData59044.2023.10386085.

- K. Kheiri, M. F. A. Khan, T. Derr, and H. Karimi, "An analysis of the dynamics of ties on twitter," in 2023 IEEE International Conference on Big Data (BigData), 2023, pp. 5809–5817. ODOI: 10.1109/BigData59044.2023.10386839.
- S. Solanki, K. Kheiri, M. A. Tsugawa, and H. Karimi, "Leveraging social media analytics in engineering education research," in 2023 ASEE Annual Conference Exposition, https://peer.asee.org/43472, Baltimore, Maryland: ASEE Conferences, Jun. 2023. eprint: https://peer.asee.org/leveraging-social-media-analytics-in-engineering-education-research.pdf.
- H. Karimi and T. Derr, "Decision boundaries of deep neural networks," in 2022 21st IEEE International Conference on Machine Learning and Applications (ICMLA), 2022, pp. 1085–1092. DOI: 10.1109/ICMLA55696.2022.00179.
- H. Karimi, M. F. A. Khan, H. Liu, T. Derr, and H. Liu, "Enhancing individual fairness through propensity score matching," in 2022 IEEE 9th International Conference on Data Science and Advanced Analytics (DSAA), 2022, pp. 1–10. ODI: 10.1109/DSAA54385.2022.10032333.
- H. Karimi, K. T. Knake, and K. A. Frank, "Teachers in social media: A gender-aware behavior analysis," in 2022 IEEE International Conference on Big Data (Big Data), 2022, pp. 1842–1849. ODI: 10.1109/BigData55660.2022.10020354.
- M. F. A. Khan and H. Karimi, "A new framework to assess the individual fairness of probabilistic classifiers," in 2022 21st IEEE International Conference on Machine Learning and Applications (ICMLA), 2022, pp. 876–881. ODI: 10.1109/ICMLA55696.2022.00145.
- D. Moore, J. Edwards, H. Karimi, R. Khadka, and P. Bodily, "Temporal abstract syntax trees for understanding student coding thought process," in 2022 Intermountain Engineering, Technology and Computing (IETC), 2022, pp. 1–6. ODI: 10.1109/IETC54973.2022.9796943.
- A. Brookhouse, T. Derr, H. Karimi, H. R. Bernard, and J. Tang, "Road to the white house: Analyzing the relations between mainstream and social media during the u.s. presidential primaries," in *Proceedings of the 32nd ACM Conference on Hypertext and Social Media*, ser. HT '21, Virtual Event, USA: Association for Computing Machinery, 2021, pp. 57–66, ISBN: 9781450385510. ODI: 10.1145/3465336.3475115.
- T. Derr, H. Karimi, X. Liu, J. Xu, and J. Tang, "Deep adversarial network alignment," in *Proceedings of the 30th ACM International Conference on Information & Knowledge Management*, ser. CIKM '21, Virtual Event, Queensland, Australia: Association for Computing Machinery, 2021, pp. 352–361, ISBN: 9781450384469. ODI: 10.1145/3459637.3482418.
- H. Karimi, J. Tang, X. Weiss, and J. Huang, "Automatic identification of teachers in social media using positive unlabeled learning," in 2021 IEEE International Conference on Big Data (Big Data), 2021, pp. 643–652. ODI: 10.1109/BigData52589.2021.9671476.
- H. Liu, W. Jin, H. Karimi, Z. Liu, and J. Tang, "The authors matter: Understanding and mitigating implicit bias in deep text classification," in *Findings of the Association for Computational Linguistics: ACL-IJCNLP 2021*, C. Zong, F. Xia, W. Li, and R. Navigli, Eds., Online: Association for Computational Linguistics, Aug. 2021, pp. 74–85. ODI: 10.18653/v1/2021.findings-acl.7.
- H. Karimi, T. Derr, J. Huang, and J. Tang, "Online academic course performance prediction using relational graph convolutional neural network.," ERIC, 2020, pp. 444–450. eprint: https://educationaldatamining.org/files/conferences/EDM2020/papers/paper_45.pdf.
- H. Karimi, T. Derr, K. T. Torphy, K. A. Frank, and J. Tang, "Towards improving sample representativeness of teachers on online social media: A case study on pinterest," in *Artificial Intelligence in Education*, Cham: Springer International Publishing, 2020, pp. 130–134, ISBN: 978-3-030-52240-7. DOI: https://doi.org/10.1007/978-3-030-52240-7_24.
- H. Karimi, J. Huang, and T. Derr, "A deep model for predicting online course performance," Association for the Advancement of Artificial Intelligence, 2020, pp. 1–6. eprint: https://tylersnetwork.github.io/papers/aaai-ai4edu2020-predicting_online_course_performance.pdf.

- H. Karimi and J. Tang, "Decision boundary of deep neural networks: Challenges and opportunities," in *Proceedings of the 13th International Conference on Web Search and Data Mining*, ser. WSDM '20, Houston, TX, USA: Association for Computing Machinery, 2020, pp. 919–920, ISBN: 9781450368223.

 PDOI: 10.1145/3336191.3372186.
- H. Karimi, K. T. Torphy, T. Derr, K. A. Frank, and J. Tang, "Characterizing teacher connections in online social media: A case study on pinterest," in *Proceedings of the Seventh ACM Conference on Learning at Scale*, ser. L@S '20, Virtual Event, USA: Association for Computing Machinery, 2020, pp. 249–252, ISBN: 9781450379519. ODI: 10.1145/3386527.3405941.
- H. Karimi, K. T. Torphy, T. Derr, K. A. Frank, and J. Tang, "Understanding and promoting teacher connections in online social media: A case study on pinterest," in 2020 IEEE International Conference on Teaching, Assessment, and Learning for Engineering (TALE), 2020, pp. 536–541. ODI: 10.1109/TALE48869.2020.9368377.
- H. Karimi, T. Derr, A. Brookhouse, and J. Tang, "Multi-factor congressional vote prediction," in *Proceedings of the 2019 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining*, ser. ASONAM '19, Vancouver, British Columbia, Canada: Association for Computing Machinery, 2019, pp. 266–273, ISBN: 9781450368681. ODI: 10.1145/3341161.3342884.
- H. Karimi and J. Tang, "Learning hierarchical discourse-level structure for fake news detection," in Proceedings of the 2019 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies, Volume 1 (Long and Short Papers), Minneapolis, Minnesota: Association for Computational Linguistics, Jun. 2019, pp. 3432–3442. ODOI: 10.18653/v1/N19-1347.
- H. Karimi, "Interpretable multimodal deception detection in videos," in *Proceedings of the 20th ACM International Conference on Multimodal Interaction*, ser. ICMI '18, Boulder, CO, USA: Association for Computing Machinery, 2018, pp. 511–515, ISBN: 9781450356923. ODI: 10.1145/3242969.3264967.
- H. Karimi, J. Tang, and Y. Li, "Toward end-to-end deception detection in videos," in 2018 IEEE International Conference on Big Data (Big Data), 2018, pp. 1278–1283. ODI: 10.1109/BigData.2018.8621909.
- H. Karimi, C. VanDam, L. Ye, and J. Tang, "End-to-end compromised account detection," in *Proceedings of the 2018 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining*, ser. ASONAM '18, Barcelona, Spain: IEEE Press, 2018, pp. 314–321, ISBN: 9781538660515. ODI: 10.1109/ASONAM.2018.8508296.
- C. VanDam, P.-N. Tan, J. Tang, and H. Karimi, "Cadet: A multi-view learning framework for compromised account detection on twitter," in *Proceedings of the 2018 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining*, ser. ASONAM '18, Barcelona, Spain: IEEE Press, 2018, pp. 471–478, ISBN: 9781538660515. ODI: 10.1109/ASONAM.2018.8508654.

Teaching (as Instructor)

Aug 2021 - Present

CS5840/CS6840: Social Network Analysis¹

Description: This course introduces the background, techniques, and concepts in social network analysis with an emphasis on graph theory, online social networks, and network analysis techniques.

Topics: Introduction, Graph Essentials, Network Measures, Network Models, Community Analysis, Information Diffusion, Influence and Homophily, (Depending on time) Advanced Topics such as Evolving Social Network.

CS5850/CS6850: Introduction to Data Analysis

Description: This course is intended for senior undergraduate and graduate students interested in gaining hands-on experience applying computational techniques to solve big data analysis problems. The course topics are *intentionally broad* and include various data analysis skills. This way, students will become familiar with the necessary tools and understand how to perform all steps of a data analysis project.

Topics: Introduction, Data Representation, Data Collection, Data Storage, Data Quality, Data Preprocessing, Association Rule Mining, Supervised Learning, and Clustering.

Sep 2023 – Present

CS5050: Advanced Algorithms

Description: This course builds on core knowledge of algorithms and data structures to explore advanced techniques in algorithm design and analysis. This course is ideal for students seeking to strengthen algorithmic thinking, prepare for technical interviews, or pursue research and careers in optimization, AI, or systems development.

Topics: Algorithm Analysis, Divide-and-conquer, Prune-and-search, Data Structure Design, Dynamic Programming, Graph Algorithms, and Computational Complexity.

Teaching (as Student)

Sep 2019 - Dec 2020

Co-Instructor, Department of Computer Science and Engineering, Michigan State University

Courses: Big Data Analysis (Fall 2019 & Fall 2020)

Aug 2015 - Aug 2018

Teaching Assistant, Department of Computer Science and Engineering, Michigan State University

Courses:

Computer Networks (Fall 2015, Spring 2016 & Fall 2016) Intro to Programming II (C++) (Summer 2016 & Spring 2017) Operating Systems (Summer 2017 & Fall 2017)

¹For administrative reasons, this course was renamed to Graph Mining in Spring 2025.

Teaching (as Student) (continued)

Aug 2011 – Aug 2012

Temporary Instructor, Urmia University, Department of Computer Engineering

Courses:

Internet Technologies (Undergraduate, Fall 2011)

Introduction to C++ Programming (Undergraduate, Spring 2012)
Introduction to C++ Programming [lab] (Undergraduate, Spring 2012)

Mentoring (as advisor, Utah State University)

Aug 2021 – Present Muhammad Fawad Akbar Khan, Ph.D student of Computer Science

Focus: AI in Education, Educational Data Mining

Publications: Five first author, three co-author, and one under review **Awards:** Best Graduate Teaching Assistant 2023-2024 for teaching assistant of

Social Network Analysis and Introduction to Data Analysis

Aug 2022 - Present Soheila Farokhi, Ph.D student of Computer Science

Focus: Machine Learning with Graphs

Publications: Four first author and one under review

Awards: SoBigData Award (2023), IEEE Computational Intelligence Society (CIS) travel grant (2023), CoS Charles Sorenson GR Scholarship (2024), College of Science Graduate Seely-Hinckley Scholarship (2024), and USUSA Graduate

Enhancement Award (GEA)-Utah State University (2025).

Aug 2024 – Present Ramtin Davoudi, Ph.D student of Computer Science

Focus: LLMs in Social Media Analytics **Publications:** One under review

Awards: Presidential Doctoral Research Fellowship (PDRF)

Jun 2024 – Present Ludia Eka Feri, Ph.D student of Computer Science

Focus: Educational Data Mining

Publications: One co-first author and one under review

Aug 2022 – May 2024 Aswani Yaramala, MS student of Computer Science

Focus: Computational Methods in MOOCs **Publications:** One first author and one co-author

Current position: Data Analyst at Utah Valley University

Aug 2023 – Aug 2025 Kartik Thakkar, MS student of Computer Science

Focus: Social Media Analytics of Online Neurodivergent Community

Publications: One under review

Feb 2024 – Present Nathan Fritzler, Undergraduate student of Computer Science

Focus: AI-Driven Programming Technology

Publications: One under review

Jun 2023 – Jun 2024 Max Ramsdell, Undergraduate student of Computer Science

Focus: LLMs for Programming Education

Publications: One co-first author and one co-author

Mentoring (as Ph.D, Michigan State University)

Aug 2020 – May 2021 Xochitl Veronica Sanchez Weiss, B.S. Computer Science & Engineering @ MSU

Focus: Online teacher-curated educational content characterization

Publications: One co-author

Aug 2018 – May 2021 Aaron Brookhouse, B.S. Electrical Engineering @ MSU

Focus: Online teacher-curated educational content characterization

Publications: One first author and one co-author

Awards: MSU Professorial Assistantship Program (top 1% of students nation-

ally), and WSU's Smart Environments REU Program

Aug 2017 – May 2018 Liyang Ye, B.S. Computer Science and Engineering @ MSU

Focus: Compromised account detection on online social media platforms

Publications: One co-author

Award: Co-authored "End-to-End Compromised Account Detection", receipt

of the **Best Paper Award** of ASONAM'18

Invited Talks

Feb 2023	Interview with AggieTVNews, a local TV station at Utah State University about ChatGPT
Oct 2023	Utah STEM Action Center, Department of Cultural and Community Engagement
Nov 2022	Guest Lecture on "Machine Learning with Graphs" Deep Learning Theory and Applications class (STAT/CS 6685)
Sep 2021	Guest Lecture on "Big Data and Machine Learning" Department of Plants, Soils & Climate, Utah State University
Mar 2020	A roadmap for incorporating online social media in educational research Teachers College at Columbia University, New York City (Video)
May 2019	Teachers in Social Media: Social Science Research in the Fifth Estate University of Chicago, Chicago (Video)
Jun 2019	How do Teachers Utilize Social Media? Sci-Files Radio Show (Podcast)

Services

Editor

- The Guest Editor of Mathematics Journal, Special Issue: "Data Analysis for Social Networks and Information Systems" (2025)
- The Guest Editor of open access journal Water on Special Issue "Novel Approaches and Metrics to Characterize and Predict Hydrometeorological Extremes: Machine Learning and Numerical Models" (2023)

Senior Program Committee Chair

International Conference on Pattern Recognition (ICPR 2024)

Program Committee

Since 2020, depending my availability, I regularly review papers from these conferences: Association for the Advancement of Artificial Intelligence (AAAI), International Conference on Information and Knowledge Management (CIKM), IEEE International Conference on Data Mining (ICDM), Advances in Social Networks Analysis & Mining (ASONAM), International Conference on Information and Knowledge Management (CIKM), ACM International Conference on Web Search and Data Mining (WSDM), SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), IEEE International Conference on Machine Learning and Applications (ICMLA), International Conference on Pattern Recognition (ICLR), Conference on Empirical Methods in Natural Language Processing (EMNLP), Annual Meeting of the Association for Computational Linguistics (ACL), The Web Conference (WWW), International Conference on Web and Social Media (ICWSM), AI in Education (AIED), International Conference on Learning Analytics & Knowledge (LAK), and Educational Data Mining (EDM).

Journal Reviewer

I have reviewed research articles from the following journals: Data Mining and Knowledge Discovery, Information Processing and Management, IEEE Transactions on Knowledge and Data Engineering (TKDE), ACM Transactions on Knowledge Discovery from Data (TKDD), Computer & Education, IEEE Transactions on Neural Networks and Learning Systems, Teachers College Record, and Field Methods.

Sep 2021 - Present

Graduation Admission Committee at the Department of Computer Science at USU

Legal Status

American Permanent Resident (a.k.a Green Card Holder)

References

Available on Request