

Tara Safavi

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Education

PhD in Computer Science, *University of Michigan Ann Arbor* 2017–2022

— Research adviser: Danai Koutra

BS in Computer Science, *University of Michigan Ann Arbor* 2013–2017

— Graduated with Highest Distinction and High Honors

Research interests

Relational learning and reasoning, knowledge representations, graph-based machine learning

Awards and honors

Rackham Predoctoral Fellowship, *University of Michigan* 2021–2022

Outstanding Reviewer Award, *EMNLP* Dec 2020

Best Student Paper Award, *IEEE ICDM* Nov 2019

NSF Graduate Research Fellowship 2018–2021

Best paper nominee, *IEEE ICDM* Nov 2017

Rackham Dean's and Named Fellowship, *University of Michigan* 2017–2018

Women Techmakers Scholarship, *Google* April 2017

Outstanding Research Award, *University of Michigan CSE Department* March 2017

Marian Sarah Parker Prize, *University of Michigan College of Engineering* March 2017

Stamps Leadership Scholarship, *University of Michigan* 2013–2017

Publications

Articles in peer-reviewed conference proceedings

- [11] *Relational World Knowledge Representation in Contextual Language Models: A Review*
T. Safavi, D. Koutra
EMNLP – The 2021 Conference on Empirical Methods in Natural Language Processing
- [10] *NegatER: Unsupervised Discovery of Negatives in Commonsense Knowledge Bases*
T. Safavi, J. Zhu, D. Koutra
EMNLP – The 2021 Conference on Empirical Methods in Natural Language Processing
- [9] *CoDEX: A Comprehensive Knowledge Graph Completion Benchmark*
T. Safavi, D. Koutra
EMNLP – The 2020 Conference on Empirical Methods in Natural Language Processing
Full paper, acceptance rate 24.6%
- [8] *Evaluating the Calibration of Knowledge Graph Embeddings for Trustworthy Link Prediction*
T. Safavi, D. Koutra, E. Meij
EMNLP – The 2020 Conference on Empirical Methods in Natural Language Processing
Full paper, acceptance rate 24.6%

- [7] *Toward Activity Discovery in the Personal Web*
T. Safavi, A. Fourney, R. Sim, M. Juraszek, S. Williams, N. Friend, D. Koutra, P. N. Bennett
WSDM – ACM International Conference on Web Search and Data Mining, 2020
Full paper + oral presentation, acceptance rate 15%
- [6] *Distribution of Node Embeddings as Multiresolution Features for Graphs*
M. Heimann, T. Safavi, D. Koutra
ICDM – IEEE International Conference on Data Mining, 2019
Full paper + oral presentation, acceptance rate 9%
Best student paper award
- [5] *Personalized Knowledge Graph Summarization: From the Cloud to Your Pocket*
T. Safavi, C. Belth, L. Faber, D. Mottin, E. Müller, D. Koutra
ICDM – IEEE International Conference on Data Mining, 2019
Full paper + oral presentation, acceptance rate 9%
- [4] *Smart Roles: Inferring Professional Roles in Email Networks*
D. Jin*, M. Heimann*, T. Safavi, M. Wang, W. Lee, L. Snider, D. Koutra
KDD – ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 2019
Full paper + poster presentation, acceptance rate 20%
- [3] *REGAL: Representation Learning-based Graph Alignment*
M. Heimann, H. Shen, T. Safavi, D. Koutra
CIKM – ACM International Conference on Information and Knowledge Management, 2018
Full paper + oral presentation, acceptance rate 17%
- [2] *Career Transitions and Trajectories: A Case Study in Computing*
T. Safavi, M. Davoodi, D. Koutra
KDD – ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 2018
Full paper + poster presentation, acceptance rate 22%
- [1] *Scalable Hashing-Based Network Discovery*
T. Safavi, C. Sripada, D. Koutra
ICDM – IEEE International Conference on Data Mining, 2017
Full paper + oral presentation, acceptance rate 9%
Best paper nominee

Articles in peer-reviewed journals and book chapters

- [4] *"Network Summarization"*
D. Koutra, T. Safavi, Y. Liu, A. Dighe
Social Media Analytics: Advances and Applications – CRC Press (in press), 2019
- [3] *Fast Network Discovery on Sequence Data via Time-Aware Hashing*
T. Safavi, C. Sripada, D. Koutra
KAIS – Knowledge and Information Systems, 2018
Invited from ICDM 2017
- [2] *Graph Summarization Methods and Applications: A Survey*
Y. Liu*, T. Safavi*, A. Dighe, D. Koutra – (*equal contribution)
CSUR – ACM Computing Surveys, 2018
- [1] *Reducing Large Graphs to Small Supergraphs: A Unified Approach*
Y. Liu, T. Safavi, N. Shah, D. Koutra
SNAM – Social Network Analysis and Mining, 2018

Industry experience

Research Intern , <i>Allen Institute for Artificial Intelligence, Seattle, WA (remote)</i> — Mentors: Tom Hope, Doug Downey	<i>Aug–Nov 2021</i>
Research Intern , <i>Microsoft Research, Redmond, WA (remote)</i> — Mentors: Tobias Schnabel, Jennifer Neville	<i>May–Aug 2021</i>
Research Intern , <i>Bloomberg, London, UK</i> — Mentor: Edgar Meij — One paper at EMNLP 2020	<i>Sep–Dec 2019</i>
Research Intern , <i>Microsoft Research, Redmond, WA</i> — Mentors: Adam Fourney, Robert Sim, Marcin Juraszek — One paper at WSDM 2020 + one patent pending	<i>May–Aug 2019</i>
Engineering Intern , <i>Google, Sunnyvale, CA</i> — Mentor: Xiang Wang — One patent pending	<i>May–Aug 2017</i>

Invited talks

<i>Toward activity discovery in the personal web</i> — PHKG Workshop, The Knowledge Graph Conference, May 2021 (remote talk)
<i>CoDEX: A comprehensive knowledge graph completion benchmark</i> — Connected Data London, London, UK, April 2021 (remote talk)
<i>Toward activity discovery in the personal web</i> — Microsoft MSAI, London, UK, Oct 2019
<i>Mining and learning over richly attributed, heterogeneous graphs</i> — Bloomberg, London, UK, Sept 2019
<i>Improving network-based tasks with interpretable and latent representations</i> — Microsoft Research, Redmond, WA, Dec 2018
<i>Scalable inference of networks from time series data</i> — Google, Sunnyvale, CA, June 2017 — University of Michigan Discrete Math (EECS 203), April 2017

Invited workshops

Microsoft Research AI Breakthroughs , <i>Redmond, WA (remote)</i>	<i>September 2020</i>
CRA-W Grad Cohort , <i>San Francisco, CA</i>	<i>April 2018</i>

Academic service

Reviewing

ACL 2021, EMNLP 2020, ACL 2020, ICANN 2019, ICDM demos 2018, TKDD

Workshop organizer

— KG-BIAS 2020: 1st Workshop on Bias in Automatic Knowledge Graph Construction at AKBC 2020

Outreach

Peer mentoring , <i>Ann Arbor, MI</i> Mentored students in applying for the NSF GRFP and other fellowships	<i>Sept 2018—</i>
Girls Encoded , <i>Ann Arbor, MI</i> Developed and taught a middle-school computing program	<i>April 2018–2019</i>
Explore Graduate Studies Symposium , <i>Ann Arbor, MI</i> Student panel and one-on-one writing feedback for prospective CSE graduate students	<i>Sept 2017, 2018</i>
Ensemble of CSE Ladies (ECSEL) , <i>Ann Arbor, MI</i> Board member of the ECSEL group for graduate CSE women	<i>Jan–July 2018</i>

Seven Mile Coding, Detroit, MI

April 2017–Jan 2018

Board member of the Seven Mile Coding initiative in Brightmoor, Detroit

Girls Who Code, Ann Arbor, MI

Jan 2016–April 2017

Co-founder of the U-M Women in Science and Engineering (WISE) Girls Who Code club