

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 , <i>University of Michigan</i>	2021–2022
Outstanding Reviewer Award , <i>EMNLP</i>	Dec 2020
Best Student Paper Award , <i>IEEE ICDM</i>	Nov 2019
NSF Graduate Research Fellowship	2018–2021
Best paper nominee , <i>IEEE ICDM</i>	Nov 2017
Rackham Dean's and Named Fellowship , <i>University of Michigan</i>	2017–2018
Women Techmakers Scholarship , <i>Google</i>	April 2017
Outstanding Research Award , <i>University of Michigan CSE Department</i>	March 2017
Marian Sarah Parker Prize , <i>University of Michigan College of Engineering</i>	March 2017
Stamps Leadership Scholarship , <i>University of Michigan</i>	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

EMNLP 2021, 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

Teaching

EECS 280, Programming and Introductory Data Structures

Jan–April 2017

Undergraduate TA

EECS 490, Programming Languages

Sept–Dec 2016

Undergraduate TA, first offering of course

EECS 183, Elementary Programming Concepts

Jan–Dec 2015

Undergraduate TA