

# 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

Knowledge representations, relational learning and reasoning, graph-based machine learning

## Awards and honors

**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 PhD fellowship** 2017–2018

Full first-year PhD fellowship from the University of Michigan

**Google Women Techmakers Scholarship** April 2017

Formerly known as the Google Anita Borg scholarship, awarded to 20 women nationwide

**University of Michigan Outstanding Research Award** March 2017

Awarded to a computer science undergraduate for research with a faculty member

**University of Michigan Marian Sarah Parker Prize** March 2017

Awarded to an outstanding woman undergraduate in the College of Engineering

**Stamps Leadership Scholarship** 2013–2017

National scholarship administered by the Stamps Family Charitable Foundation: Four-year funding & stipend awarded to 18 incoming University of Michigan undergraduates

## Publications

### Articles in peer-reviewed (nonarchival) workshops

- [1] *Generating Negative Commonsense Knowledge*

T. Safavi, D. Koutra

**NeurIPS KR2ML20** – NeurIPS Knowledge Representation + Machine Learning Workshop, 2020

### Articles in peer-reviewed conference proceedings

- [9] *CoDEX: A Comprehensive Knowledge Graph Completion Benchmark*

T. Safavi, D. Koutra

**EMNLP** – The 2020 Conference on Empirical Methods in Natural Language Processing, 2020

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, 2020

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**, *Bloomberg, London, UK*

*Sep–Dec 2019*

— Mentor: Edgar Meij

— One paper at EMNLP 2020

**Research Intern**, *Microsoft Research, Redmond, WA*

*May–Aug 2019*

— Mentors: Adam Fourney, Robert Sim, Marcin Juraszek

— One paper at WSDM 2020 + one patent pending

**Engineering Intern**, *Google, Sunnyvale, CA*

*May–Aug 2017*

— Mentor: Xiang Wang

— One patent pending

## Invited talks

***Toward activity discovery in the personal web***

— Microsoft MSAI, London, UK, Oct 2019

***Mining and learning over richly attributed, heterogeneous graphs***

— Bloomberg, London, UK, Sept 2019

***Improving network-based tasks with interpretable and latent representations***

— Microsoft Research, Redmond, WA, Dec 2018

***Scalable inference of networks from time series data***

— Google, Sunnyvale, CA, June 2017

— University of Michigan Discrete Math (EECS 203), April 2017

## Invited workshops

**Microsoft Research AI Breakthroughs**, *Redmond, WA*

*September 2020*

**CRA-W Grad Cohort**, *San Francisco, CA*

*April 2018*

## Academic service

**Reviewing**

NAACL 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**, *Ann Arbor, MI*

*Sept 2018—*

Mentored students in applying for the NSF GRFP and other fellowships

**Girls Encoded**, *Ann Arbor, MI*

*April 2018–2019*

Developed and taught a middle-school computing program

**Explore Graduate Studies Symposium**, *Ann Arbor, MI*

*Sept 2017, 2018*

Student panel and one-on-one writing feedback for prospective CSE graduate students

**Ensemble of CSE Ladies (ECSEL)**, *Ann Arbor, MI*

*Jan–July 2018*

Board member of the ECSEL group for graduate CSE women

**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*  
Undergraduate TA

*Jan–April 2017*

**EECS 490**, *Programming Languages*  
Undergraduate TA, first offering of course

*Sept–Dec 2016*

**EECS 183**, *Elementary Programming Concepts*  
Undergraduate TA

*Jan–Dec 2015*