

Sabina Tomkins

PERSONAL DATA

CURRENT: **Postdoctoral Fellow** | Stanford University
RESEARCH LAB: Stanford Computational Policy Lab
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EDUCATION

AUGUST 2018 **PhD** Technology Management,
Defended Thesis: *Probabilistic Methods for Data-Driven Social Good*
UC Santa Cruz, Santa Cruz
JANUARY 2013 Bachelor of Arts in COMPUTER SCIENCE,
New York University, New York
magna cum laude
GPA: 3.8/4.0
JANUARY 2011 Associate of Science , Associate of Arts,
North Seattle Community College, Seattle
President's List
GPA: 3.8/4.0

JOURNAL PUBLICATIONS

In progress | *Exploiting Voting Block Boundaries: Estimating the Effects of Polling Place Assignment on Voting Behavior*
Sabina Tomkins, et al.

In Submission | *Intelligent Pooling: Practical Thompson Sampling for mHealth*
Sabina Tomkins, Peng Liao, Predrag Klasnja, Susan Murphy
Resubmitting to Machine Learning with minor revisions

JEDM 2019 | *Understanding Hybrid-MOOC Effectiveness with a Collective Socio-Behavioral Model*
Sabina Tomkins, and Lise Getoor
Journal of Educational Data Mining

CONFERENCE PUBLICATIONS

RLDM 2019 | *Intelligent Pooling in Thompson Sampling for Rapid Personalization in Mobile Health*
Sabina Tomkins, Peng Liao, Serena Yeung, Predrag Klasnja, Susan Murphy
Reinforcement Learning and Decision Making

ICDM 2018 | *The Impact of Environmental Stressors on Human Trafficking*
Sabina Tomkins, Golnoosh Farnadi, Brian Amanatullah, Lise Getoor, Steven Minton ORAL & POSTER PRESENTATION
International Conference on Data Mining (ICDM)
Acceptance Rate: 9%

RecSys 2018 | *Sustainability at Scale: Towards Bridging the Intention-Behavior Gap with Sustainable Recommendations* (Short Paper)
Sabina Tomkins, Steven Isley, Ben London, Lise Getoor
ORAL & POSTER PRESENTATION
Recommender Systems (RecSys)
Acceptance Rate: 25%

- ASONAM 2018 | *A Socio-Linguistic Approach for Cyberbullying Detection*
Sabina Tomkins, Lise Getoor, Yunfei Chen, Yi Zhang
 ORAL & POSTER PRESENTATION
International Conference on Advances in Social Networks Analysis and Mining (ASONAM)
Acceptance Rate: 15%
- IJCAI 2017 | *Disambiguating Energy Disaggregation: A Collective Probabilistic Approach*
Sabina Tomkins, Jay Pujara, Lise Getoor
 ORAL & POSTER PRESENTATION
International Joint Conference on Artificial Intelligence (IJCAI)
Acceptance Rate: 26%
- EDM 2016 | *Predicting Student Success: A High School MOOC Case Study*
Sabina Tomkins, Arti Ramesh, Lise Getoor
 ORAL PRESENTATION
International Conference of Educational Data Mining (EDM)
Acceptance Rate: 27%
- BuildSys 2015 | *Poster Abstract: Contextual Air Conditioning Disaggregation with Probabilistic Soft Logic*
Sabina Tomkins, Lise Getoor
 POSTER PRESENTATION
Energy-Efficient Built Environments

WORKSHOP PUBLICATIONS

- ML4MH 2020 | *Fast Physical Activity Suggestions: Efficient Hyperparameter Learning in Mobile Health*
 Marianne Menictas, **Sabina Tomkins**, Susan Murphy
Machine Learning For Mobile Health (NeurIPS workshop)
- ML4H 2018 | *Personalizing Intervention Probabilities by Pooling*
Sabina Tomkins, Predrag Klasnja, Susan Murphy
 DIGITAL SUBMISSION
Machine Learning For Health (NeurIPS workshop)
- BOD 2018 | *The Impact of Environmental Stressors on Human Trafficking (Best Paper)*
Sabina Tomkins, Golnoosh Farnadi, Brian Amanatullah, Lise Getoor, Steven Minton
 ORAL PRESENTATION
 Beyond Online Data (ICWSM Workshop)
- LLD 2017 | *Detecting Cyber-bullying from Sparse Data and Inconsistent Labels*
Sabina Tomkins, Lise Getoor, Yunfei Chen, Yi Zhang
 POSTER PRESENTATION
 Learning with Limited Labeled Data (NeurIPS workshop)
- WiNLP 2017 | *An Unsupervised Method for Dialog Act Detection*
Sabina Tomkins, Anbang Xu, Zhe Lui, Yufan Guo
 POSTER PRESENTATION
 Women in Natural Language Processing (ACL Workshop)
- UrbComp 2016 | *A Probabilistic Disaggregation Framework*
Sabina Tomkins, Lise Getoor
 ORAL PRESENTATION
 Urban Computing (KDD Workshop)

PREVIOUS WORK EXPERIENCE

- 2018-2019 | Postdoctoral Researcher
HARVARD UNIVERSITY, Cambridge
Sequential Decision Making in Mobile Health
I developed algorithms in the mobile health domain. One question I investigated was how to make high quality predictions of behavior over various forecast horizons. For example, the number of sedentary periods in a day. Additionally, I developed algorithms which can achieve personalization in high variance settings by transferring information across participants and pooling parameter updates.
- 2019 | Teaching Assistant
HARVARD UNIVERSITY, Cambridge
Assisted in course design for **Sequential Decision Making in Mobile Health** offered through statistics department.
- 2014-2018 | Graduate Student Researcher
UC SANTA CRUZ, Santa Cruz
Probabilistic Methods for Data-Driven Social Good
I researched a variety of topics in the social good domains of: sustainability, education and malicious behavior.
- Research Scientist Intern
AMAZON, Seattle *Machine Learning and Music Science*
Conducted empirical analysis and evaluated numerous methods for sequencing music.
- SUMMER 2016 | Watson Research Scientist Intern
IBM RESEARCH, Almaden
Natural Language Processing and User Interfaces
Proposed and implemented an unsupervised framework for detecting dialog acts in novel domains.
- SUMMER 2014 | Fellow DATA SCIENCE FOR SOCIAL GOOD
UNIVERSITY OF CHICAGO, Chicago
Energy Analytics
I co-created an energy analytics website to provide users actionable insight about their energy consumption. I also co-created the open Python package Energy Disaggregation, with tools for preprocessing smart meter data, and performing disaggregation tasks with machine learning techniques. Under the supervision of [Professor Varun Chandola](#)
- JULY 2013 - AUGUST 2015 | Instructor and Course Developer
EDHESIVE, New York and Remote
Advanced Placement Java Course
Students worldwide can learn Java with our open online AP computer science course. I answered student questions on an online forum and developed course material such as coding activities.
- SEPTEMBER 2012 - AUGUST 2013 | Research Assistant COMPUTATION AND COGNITION LAB,
NEW YORK UNIVERSITY, New York
Cognitive Science
Assisted with research on cognitive science topics, such as humans' ability to learn actively and to generalize. Under the supervision of [Professor Todd Gureckis](#) and John McDonell.
- SUMMER 2012 | Student Researcher DEPT. OF COMPUTER SCIENCE,
UNIVERSITY OF MONTANA, Bozeman
Particle Swarm Optimization
Implemented several novel algorithms for constrained particle swarm optimization. Under the supervision of [Professor Hashem Nehrir](#).

FELLOWSHIPS AND GRANTS

JULY 2017	IJCAI Student Travel Grant
SEPTEMBER 2016	BUILDSys Student Travel Grant
JANUARY 2016	Dept. of Technology & Information Management Fellowship
SEPTEMBER 2015	Dept. of Technology & Information Management Fellowship
JULY 2015	Dept. of Technology & Information Management Fellowship
SEPTEMBER 2013	NSF Mathematics Research Grant
FEBRUARY 2013	NSF Mathematics Research Grant
SEPTEMBER 2012	NSF Mathematics Research Grant

SERVICE

Reviewing

PANELIST	2020	National Science Foundation III Small Proposals Panel
REVIEWER	2018 - 2020	Neural Information Processing Systems
REVIEWER	2019 - 2020	International Conference on Machine Learning
RED JUDGE	2018 - 2019	IBM Watson AI XPrize for Social Good
REVIEWER	2018	International Workshop on Non-Intrusive Load Monitoring
EXTERNAL REVIEWER	2017	International Conference on Educational Data Mining
EXTERNAL REVIEWER	2016	Conference on Knowledge Discovery and Data Mining

Academic Volunteering

VOLUNTEER	2019	Data Science Weekend at Stanford University
VOLUNTEER	2016 - 2020	Women in Machine Learning Workshop
VOLUNTEER	2015	Grace Hopper Celebration
VOLUNTEER	2014	Conference on Knowledge Discovery and Data Mining

Events

<i>June 2019</i>	Co-Organized WOMEN IN MACHINE LEARNING, ICML <i>Dinner</i> Organized a dinner with more than 100 participants. The dinner featured two speakers (Kamalika Chaudhuri & Barbara Engelhardt) who shared their experiences in the machine learning community.
<i>October 2015 - 2017</i>	Organized AN EVENING WITH THE INTERNS, UC Santa Cruz <i>Data Science Event</i> Organized and hosted this event for three years, with between 30-70 attendees each year. The center-piece of the evening is a panel of graduate students who discuss their summer internship experiences. Each year I find the panelists, write the discussion topics, and moderate the panel.
<i>October 2015</i>	Organized COMPUTATIONAL CREATIVITY, UC Santa Cruz <i>Data Science Event</i> Organized and hosted this event, with approximately 50 attendees. The purpose of the event was to investigate recent advances in machine learning (such as convolutional or <i>deep</i> networks) as applied to creativity. The event had several lectures from machine learning scientists, followed by a debate between professors of different backgrounds. I moderated the debate, which centered on the question of whether computers can be creative. Video from the event Invited Speakers: Ahmed Elgammal, Prof., Rutgers University; Chris Smith, Adatao Panelists: Arnav Jhala (Computational Media), Samantha Matherne (Philosophy), David Cope (Music), Albert Narath (History of Art and Visual Culture)

SELECTED CODING PROJECTS

Appliance Disambiguation Software Pack for Energy Disaggregation

This package employs a collective probabilistic approach to disambiguate appliances in an aggregate energy signal.

[Appliance Disambiguation Code](#)

AmmiTips First Place in PAKATHON, A HACKATHON FOR PAKISTAN

The goal of AmmiTips is to distribute WHO certified health information freely to new and expecting mothers in Pakistan in English and Urdu, and via text and voice messages