

# Samsara Counts

## Curriculum Vitae

May 2022

📍 Seattle, WA  
🏠 [samsaranc.github.io](https://samsaranc.github.io)  
✉ [samsaranc@gmail.com](mailto:samsaranc@gmail.com)  
🌐 [samsaranc](https://samsaranc)

### Education

2015-2019 B.S. George Washington University *Computer Science and Math*, Creative Writing minor GPA 3.5/4.0

### Professional Experience

#### Amazon Web Services | *Machine Learning Software Engineer* | September 2020–Present

- Productionize state-of-the-art Machine Learning bias and explainability methods for Amazon Sagemaker Clarify
- Implement responsible AI best practices in the SageMaker ecosystem
- Collaborate with Clarify scientists to improve Clarify service offerings
- Participate in on-call rotations, triaging trouble tickets, resolving availability issues, and improving operational excellence
- Developed and maintained an Alexa-wide service to detect private data in the Alexa AI Secure AI Foundations org.
- Collaborated with science teams to deploy state-of-the-art machine learning models detecting private data
- Implemented support for the Arabic language in service's ML model and production pipelines

### Research Experience

#### Max Planck Institute for Software Systems | *Research Intern* | October 2019–August 2020

- Investigated mechanisms of incorporating fairness and diversity in Machine Learning algorithms
- Compiled an extensive literature review on ethical interventions in computer science research
- *Advised by Krishna Gummadi and funded by the CBYX for Young Professionals Fellowship*

#### George Washington University | *Research Assistant* | September 2017–May 2019

- Used deep learning to recognize pro-Eating Disorder (pro-ED) images in online communities
- Wrote Python scripts to gather 100K training images from Tumblr and Twitter using pro-ED keywords
- Built dynamic webapp for ED clinicians to assess the content of an input website with classifier
- Built Google Chrome Extension using classifier to detect and filter pro-ED media during browser sessions
- *Advised by Robert Pless*

#### Microsoft Research | *Research Intern* | Summer 2018

- Used group theory to speed up matrix multiplication by finding finite groups amenable to fast embeddings
- Implemented the Triple and Quadruple Product Properties in GAP to identify optimal groups
- Designed and deployed parallel abstract-algebraic algorithms searching for groups on multi-core server
- *Advised by Henry Cohn at Microsoft Research New England*

#### University of Maryland College Park | *Research Intern* | Summer 2017

- Designed a multi-armed bandit algorithm to ensure diversity and fairness in an automated admissions process
- Analyzed past admissions data to investigate the possibility of bias in previous decisions
- Designed a system using deep Reinforcement Learning to choose matching policies for dynamic kidney exchange
- *Advised by John P. Dickerson at the Combinatorics and Algorithms for Real Problems R.E.U. (10% acceptance rate)*

#### GW Learning Technologies Research Group | *Research Assistant* | May 2016–May 2017

- Used Natural Language Processing to generate reading comprehension questions from input passages
- Added features to Play framework webapp designed to help adult learners improve their English literacy
- Created high-quality datasets for training NLP algorithms from children's texts, cleaning datasets with Python
- *Advised by Rahul Simha, funded by the GW SEAS Summer Undergraduate Program in Engineering Research*

## Fellowships and academic awards

2019	Congress-Bundestag Youth Exchange for Young Professionals Fellow	US Congress and German Bundestag
2019	Invitation to the Heidelberg Laureate Forum (declined)	Heidelberg Laureate Forum Scientific Committee
2019	NCWIT Collegiate Award, Honorable Mention	Natl. Center for Women in Information Tech
2019	Marvin Green Prize	GW Department of Mathematics
2019	Fulbright Open Research Award to Germany Semifinalist	The Fulbright Commission
2018	Best Student Paper Presentation	IEEE Appl. Imagery & Pattern Recognition Workshop
2018	TOMODACHI Kakehashi Inouye Scholar	TOMODACHI Initiative, US-Japan Council
2018	NCWIT Collegiate Award, Honorable Mention	Natl. Center for Women in Information Tech
2017	Operating Systems Hall of Fame	GW Fall 2017 Operating Systems course

## Leadership awards

### Baer Award for Individual Excellence in the GW Community, GW Center for Student Engagement, 2019

- Awarded to exceptional GW student(s) who have enhanced student life and the GW community

### Susan Shin Memorial Award, GW School of Engineering and Applied Science, 2018

- Awarded to a GW SEAS junior that exemplifies the dedication to service of the late Susan Shin

## Scholarships

2018	Google Lime Scholarship	Google
2018	Quip Diversity in Tech Scholarship, Runner Up	Quip
2017	AnitaB.org Grace Hopper Conference Scholar	AnitaB.org

## Poetry awards

2018	Lannan Foundation Poetry Fellow	Folger Shakespeare Library, GW English Department
2018	Academy of American Poets Contest, Honorable Mention	GW English Department
2016	1 <sup>st</sup> Place, Citizen Day Poetry Contest	GW English Department

## Grants

2018	GW Undergraduate Research Award. "Multimodal Detection of Deviant Content Online". <i>Funding from the GW Office of the Vice President of Research.</i>	\$5000
2018	GW Data MASTER Fellowship. "Recognizing Images of Eating Disorders with Deep Learning". <i>Funding from the National Science Foundation.</i>	\$3000
2017	HackHarassment Grant. "A Research-based Hackathon to Combat Online Harassment". <i>Funding from Intel and the Born This Way Foundation.</i>	\$2000
2016	GW Summer Undergraduate Program in Engineering Research Fellowship. <i>GW School of Engineering and Applied Science.</i>	\$2000

## Publications

### Papers in refereed conference proceedings

1. Schumann, C., S. N. Counts, J. Foster, and J. P. Dickerson (2019). The Diverse Cohort Selection Problem. In: *International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS)*. Montréal, Québec. <http://www.ifaamas.org/Proceedings/aamas2019/pdfs/p601.pdf>.

### Workshop papers

1. Pless, R., R. Begtrup, L. Alkulaib, S. N. Counts, J. Harnett, J.-L. Manning, H. Xuan, and D. A. Broniatowski (2017). Recognizing Images of Eating Disorders in Social Media (Abstract). In: *Social Media Mining for Health Applications Workshop at Conference of the American Medical Informatics Association (AMIA)*. Washington, DC.
2. Counts, S. N., J.-L. Manning, and R. Pless (2018). Characterizing the Visual Social Media Environment of Eating Disorders. In: *Applied Imagery Pattern Recognition Workshop (AIPR)*. Washington, DC.

## Selected talks and panels

- TOMODACHI KAKEHASHI Inouye Scholars Virtual Dialogue and Mixer - Alumni Panel, Japan International Cooperation Center (JICE), Virtual, March 2022.
- **Practical Challenges to Achieving Algorithmic Fairness in Industry (And What to do About Them)**, Joint Statistical Meetings (JSM 2021), Virtual, August 2021.
- *Never Too Early: Youth with Disabilities Abroad Webinar*, Mobility International USA (MIUSA), Virtual, March 2021.
- *It's Nothing Personal: Investigating Bias in the ImageNet Person Synset*, GW Bias in Artificial Intelligence course, Washington, May 2019.
- *Characterizing the Visual Social Media Environment of Eating Disorders*, Applied Imagery and Pattern Recognition Workshop, Washington, October 2018. **Best Student Paper Presentation**
- *2018 Panel of Computing Students with Disabilities* (with R.E. Ladner, R. Ayanzadah, K. Krishnaswami and K. Wolfe), SIGCSE Conference, Baltimore, February 2018.
- *The Diverse Cohort Selection Problem*, GW Chapter of the Association for Computing Machinery, Washington, February 2018.
- *Recognizing Images of Eating Disorders with Deep Learning*, GW Dean's Council of Women in Technology, Washington, January 2018.
- *Creating Technological Solutions to Combat Online Harassment*, Hackital, Washington, November 2017.

## Poster presentations

- *Deep Learning Tools for Eating Disorder Recovery*
  - GW Research Days, Washington, April 2019
- *Recognizing Images of Eating Disorders in Social Media*
  - GW Research Days, Washington, April 2018. **2<sup>nd</sup> Place for Best Engineering Poster**
  - GW SEAS R&D Showcase, Washington, February 2018. **Finalist for Best Undergraduate Poster (Theoretical)**
- *The Diverse Cohort Selection Problem*
  - GW SEAS R&D Showcase, Washington, February 2018. **Finalist for Best Undergraduate Poster (Theoretical)**
  - Aligned AI Workshop at NeurIPS-17, Long Beach, December 2017.
  - Women in Machine Learning (WiML) Workshop at NeurIPS-17, Long Beach, December 2017.

## Teaching

Fall 2018	Introduction to Software Development	<i>Teaching Assistant</i>	George Washington University
Spring 2018	Discrete Structures II	<i>Learning Assistant</i>	George Washington University
Fall 2017	Introduction to Computer Science	<i>Learning Assistant</i>	George Washington University
Spring 2017	Algorithms and Data Structures	<i>Learning Assistant</i>	George Washington University
Fall 2016	Introduction to Computer Science	<i>Learning Assistant</i>	George Washington University
Summer 2015	8th Grade Chemistry	<i>Teaching Fellow</i>	Breakthrough Collaborative
Fall 2014	7th Grade Literature	<i>Teaching Fellow</i>	Breakthrough Collaborative
Summer 2014	8th Grade Chemistry	<i>Teaching Assistant</i>	Breakthrough Collaborative

## Languages and technology

**Programming Languages:** Python, Java, C, MATLAB, LaTeX, Bash, HTML, CSS, SQL, GAP

**Software:** Git, PyTorch, Spark, Mathematica, Django

**Spoken Languages:** German (B1), Spanish (B1), English (native)

## Leadership

### Leadership Positions

2019-2020	<b>US Junior Ambassador in Germany</b>	United States Department of State
2017-2019	Academic Affairs Chair	GW Association for Computing Machinery
2016-2019	Mentor	GW SEAS Student Peer Advisory Network
2017-2018	Founder and Chair	GW Dean's Council of Women in Technology
2018	<b>TOMODACHI Kakehashi Inouye Scholar</b>	U.S.-Japan Council
2017	Co-organizer	Hackital Hackathon
2016-2017	<b>President</b>	GW Association for Computing Machinery
2015-2016	Freshman Representative	GW Association of Queer Women and Allies

### Large-scale community events organized

2019	kc claffy: 10 Things You Need to Know About the Internet	Internet Distinguished Speaker Series, GW CS Dept.
2019	Vint Cerf: The Unfinished Internet	Internet Distinguished Speaker Series, GW CS Dept.
2018	Christine Darden: One of NASA's Hidden Figures	GW Dean's Council of Women in Tech
2017	Hackital	GW Association for Computing Machinery

## Involvement and service

2020-present	Alumni Mentor	GW Center for Women in Engineering
2016-2019	Mentor	GW SEAS Student Peer Advisory Network
2016-2019	Mentor	GW Women in Computer Science
2016	Camp Counselor	GW Cybersecurity Camp for Middle School Girls

## Peer reviewing

2022	Reviewer	Amazon Machine Learning Conference
2021, 2022	Reviewer	Amazon Computer Vision Conference

## Technical workshops presented

2017, 2018, 2019	Git, Command Line, and Linux Workshop	GW Association for Computing Machinery
2018	Have a Productive Programming Summer	GW Association for Computing Machinery

## Research training schools attended

2020	HUMAIN Winter School on Fairness, Accountability, and Transparency in AI	European Commission Joint Research Centre
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