

# Serina Chang

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EDUCATION	<b>Stanford University</b> , Stanford, CA	2019-2024 (expected)
	Ph.D. candidate, Computer Science Advised by Prof. Jure Leskovec and Prof. Johan Ugander	
	<b>Columbia University</b> , New York, NY	2015-2019
	B.A., Computer Science, concentration in Sociology, <i>magna cum laude</i> Advised by Prof. Kathleen McKeown GPA: 3.97/4.00, Dean's List (all semesters)	
HONORS	<b>Rising Stars in Data Science</b> , University of Chicago	2023
	<b>EECS Rising Stars</b> , Georgia Tech	2023
	<b>Future Faculty Symposium Scholar</b> , Cornell University	2023
	<b>PhD Fellowship, Computational Social Science</b> , Meta	2022
	<b>Best Paper Award</b> , KDD 2021 (Applied Data Science Track)	2021
	<b>Graduate Research Fellowship</b> , National Science Foundation	2019
	<b>The Finch Family Fellowship</b> , Stanford University, School of Engineering	2019
	<b>Outstanding Undergraduate Researcher Award</b> , Computing Research Association	2019
	<b>Phi Beta Kappa</b> , Columbia University	2019
	<b>Theodore R. Bashkow Award</b> , Columbia University, Computer Science	2019
	<b>Academic Excellence Award</b> , Columbia University, Computer Science	2019
PAPERS	<b>King's Crown Leadership Award, Innovation and Enhancement</b> , Columbia University	2018
	*indicates co-first authorship. †indicates a student I mentored.	
	[13] <a href="#">Inferring networks from marginals using iterative proportional fitting</a> <b>Serina Chang*</b> , Zhaonan Qu*, Jure Leskovec, and Johan Ugander Under review.	
	[12] <a href="#">Accurate measures of vaccination and concerns of vaccine holdouts from web search logs</a> <b>Serina Chang</b> , Adam Fourney, and Eric Horvitz R&R, <i>Nature Communications</i> . Also presented at KDD'23 Workshops on Epidemiology Meets Data Mining and Knowledge Discovery (oral) and Data Science for Social Good (oral).	
	[11] <a href="#">Estimating geographic spillover effects of COVID-19 policies from large-scale mobility networks</a> <b>Serina Chang</b> , Damir Vrabac†, Jure Leskovec, and Johan Ugander AAAI 2023. Also presented at KDD'22 Workshop on Data-driven Humanitarian Mapping and Policymaking (oral) and IC <sup>2</sup> S <sup>2</sup> 2022.	
	[10] <a href="#">Computational analysis of 140 years of US political speeches reveals more positive but increasingly polarized framing of immigration</a> Dallas Card, <b>Serina Chang</b> , Chris Becker, Julia Mendelsohn, Rob Voigt, Leah Boustan, Ran Abramitzky, and Dan Jurafsky <i>PNAS</i> 2022.	
	[9] <a href="#">To recommend or not? A model-based comparison of item-matching processes</a> <b>Serina Chang</b> and Johan Ugander ICWSM 2022 (oral). Also presented at IC <sup>2</sup> S <sup>2</sup> 2021 (oral).	
	[8] <a href="#">Data-driven real-time strategic placement of mobile vaccine distribution sites</a> Zakaria Mehrab, Mandy Wilson, <b>Serina Chang</b> , Galen Harrison, Bryan L. Lewis, Alex Tellionis, Justin Crowe, Dennis Kim, Scott Spillman, Kate Peters, Jure Leskovec, and Madhav Marathe IAAI 2022.	
	[7] <a href="#">Supporting COVID-19 policy response with large-scale mobility-based modeling</a> <b>Serina Chang</b> , Mandy Wilson, Bryan Lewis, Zakaria Mehrab, Komal K. Dudakiya, Emma Pierson, Pang Wei Koh, Jaline Gerardin, Beth Redbird, David Grusky, Madhav Marathe, and Jure Leskovec KDD 2021 (oral). <b>Best Paper Award, Applied Data Science Track</b> (1 out of 705 submissions).	

- [6] [Mobility network models of COVID-19 explain inequities and inform reopening](#)  
**Serina Chang\***, Emma Pierson\*, Pang Wei Koh\*, Jaline Gerardin, Beth Redbird, David Grusky, and Jure Leskovec  
*Nature* 2021. Also presented at Networks 2021 (oral) and NeurIPS'20 ML for Health Workshop.  
 Coverage in 650+ news outlets, including *The New York Times* and *The Washington Post*. Ranked as #2 most online impact among 901 similar-age papers published by *Nature* ([metrics](#)).
- [5] [Epidemic dynamics in inhomogeneous populations and the role of superspreaders](#)  
 Kyle Kawagoe\*, Mark Rychnovsky\*, **Serina Chang**, Greg Huber, Lucy M. Li, Jonathan Miller, Reuven Pnini, Boris Veytsman, and David Yllanes  
*Physical Review Research* 2021.
- [4] The socioeconomic mobility gap: disparities in the COVID-19 pandemic  
 Maya Josifovska<sup>†</sup>, **Serina Chang**, and Jure Leskovec  
 Presented at IC<sup>2</sup>S<sup>2</sup> 2021 (extended abstract).
- [3] [Automatically inferring gender associations from language](#)  
**Serina Chang** and Kathleen McKeown  
 EMNLP 2019 (oral, short paper).
- [2] [Detecting gang-involved escalation on social media using context](#)  
**Serina Chang**, Ruiqi Zhong, Ethan Adams, Fei-Tzin Lee, Siddharth Varia, Desmond Patton, William Frey, Chris Kedzie, and Kathleen McKeown  
 EMNLP 2018 (oral, long paper).
- [1] [Crowd-sourced iterative annotation for narrative summarization corpora](#)  
 Jessica Ouyang, **Serina Chang**, and Kathleen McKeown  
 EACL 2017 (oral, short paper).

## WORK EXPERIENCE

<b>Research Intern</b> , Microsoft Research	2022-2024
<ul style="list-style-type: none"> <li>Advised by Dr. Eric Horvitz and Dr. Adam Fourney</li> <li>Developed methods in graph ML to detect user intents from search logs and derive insights for public health</li> </ul>	
<b>Software Engineering Intern</b> , Google, Geo Assistant	2018
<ul style="list-style-type: none"> <li>Built a new, user-facing feature for Google Search and Assistant</li> <li>Implemented backend to parse queries in Search, worked with UX designer and PM to create frontend</li> </ul>	
<b>Engineering Practicum Intern</b> , Google, Search Site Reliability Engineering (SRE)	2017
<ul style="list-style-type: none"> <li>Improved internal tools for monitoring and tracking requests to Google Now</li> </ul>	

## TEACHING

<b>Head course assistant (CA)</b> , Stanford University, Machine Learning with Graphs ( <a href="#">CS224W</a> )	2021
<ul style="list-style-type: none"> <li>Managed CA team and class of over 300 students; oversaw lecture slides, assignments, exams, and final projects</li> <li>Course material covers the foundations and state-of-the-art of machine learning with graphs, including representation learning, graph neural networks, reasoning over knowledge graphs, and algorithms for large-scale networks</li> </ul>	
<b>Instructor</b> , Girls Who Code, Summer Immersion Program	2019
<ul style="list-style-type: none"> <li>Served as the primary teacher for a classroom of 20 high school girls</li> <li>Taught a 7-week curriculum including Python, HTML, CSS, JavaScript, and Arduino</li> </ul>	
<b>Instructional assistant</b> , Columbia University, Data Structures in Java (COMS 3134)	2017
<ul style="list-style-type: none"> <li>Led discussion sections, held weekly office hours, and graded assignments and exams</li> </ul>	
<b>Peer tutor</b> , Columbia University, Computer Science Theory (COMS 3261)	2017

## ADVISING

<b>Mentor</b> , Stanford Computer Science, CURIS (undergraduate summer research)	2023
<b>Mentor</b> , Stanford Computer Science, Undergraduate Mentoring Program	2022
<b>Mentor</b> , Stanford Engineering, Summer Undergraduate Research Fellowship	2021
<b>Research mentees:</b> Maya Josifovska, Zhiyin Lin, Daisuke Masuda, Emma Wang, Benjamin Yan (undergraduates); Damir Vrabac (master's); Jordan Troutman (PhD)	

## GRANTS

NSF Incorporating Human Behavior in Epidemiological Models (IHBEM)	2023
<i>Data-driven multimodal methods for behavior-based epidemiological modeling</i>	
<b>Total funded amount:</b> \$850,000. As a PhD student, I initiated the grant proposal, shaped the research vision, secured a letter of collaboration from Microsoft Research (from Dr. Eric Horvitz), and helped to write the proposal.	

<b>INVITED TALKS</b>	Northeastern, Network Science Institute Seminar (upcoming)	2023
	Stanford, Graph Learning Workshop (upcoming)	2023
	Columbia, Analysis of Networks and Crowds (COMS 6998), Guest Lecture	2023
	Cornell Tech, Data Science for Social Change (CS 6382), Guest Lecture	2023
	NSF Predictive Intelligence for Pandemic Prevention (PIPP), PandEval Research Team	2023
	NIH National COVID Cohort Collaborative (N3C), Machine Learning Seminar	2023
	Stanford, Algorithmic Fairness Seminar	2023
	Stanford, Networks (MS&E 135), Guest Lecture	2023
	Meta, Computational Social Science Seminar	2023
	Stanford, Introduction to Computational Social Science (MS&E 231), Guest Lecture	2022
	Stanford, Fundamental Concepts in MS&E (MS&E 302), Guest Lecture	2022
	Cornell Tech, Urban Data (INFO 5430), Guest Lecture	2022
	Stanford, Big Data Methods for Behavioral, Social, and Pop. Health (EPI 270), Guest Lecture	2022
	OECD-ODISSEI Webinar on Open Data Infrastructure	2021
	Data Science Connect Conference	2021
	PathCheck Global Health Innovators Seminar	2021
	Stanford, Networks (MS&E 135), Guest Lecture	2021
	Cornell Tech, Urban Data (INFO 5430), Guest Lecture	2021
	Stanford, Big Data Methods for Behavioral, Social, and Pop. Health (EPI 270), Guest Lecture	2021
	Diaries of Social Data Research Podcast	2021
	NeurIPS, COVID-19 Symposium	2020
	AI Science Spotlight Series	2020
	Global Pervasive Computational Epidemiology Seminar	2020
	Placekey Community Seminar	2020
	Stanford, Stats ML Retreat	2020
	Columbia, NLP Seminar	2019
	Columbia, Emerging Scholars Program (COMS 1404), Guest Lecture	2018
<b>SERVICE</b>	<b>Organization</b>	
	Program Chair, Machine Learning for Health (ML4H)	2023
	Co-Chair, KDD Full-Day Workshop, Data Science for Social Good	2023
	Panel Moderator, KDD Equity, Diversity & Inclusion (EDI) Day	2023
	Faculty Search Committee, Stanford Data Science and School of Engineering	2023
	Organizer, NYC Digital Humanities Week, Using Computation to Analyze Gender in Film	2019
	<b>Journal reviewer</b>	
	Science Advances	2023
	Nature Human Behaviour	2022
	American Journal of Sociology	2021
	ACM Transactions on Spatial Algorithms and Systems	2021
	npj Urban Sustainability	2021
	<b>Conference reviewer</b>	
	AAAI	2023
	Machine Learning for Health	2023
	EMLNP	2023
	ACL Rolling Review	2023
	ICWSM	2023
	KDD, Epidemiology Meets Data Mining and Knowledge Discovery (epiDAMIK) Workshop	2023
	KDD, Data Science for Social Good Workshop	2023
	ACL Rolling Review	2022
	Machine Learning for Health	2022
	ACL, NLP for Positive Impact Workshop	2022
	KDD, Epidemiology Meets Data Mining and Knowledge Discovery (epiDAMIK) Workshop	2022
	ACL-IJCNLP	2021
	Machine Learning for Health	2021
	ACL, NLP for Positive Impact Workshop	2021
	ICLR, AI for Public Health Workshop	2021

OUTREACH	<b>Queer in CS</b> , Stanford University, Organizer	2023-present
	<ul style="list-style-type: none"> <li>Organize social events to build community between LGBTQ+ researchers in CS</li> </ul>	
	<b>Womxn in CS (WiCS)</b> , Columbia University, Academic Chair <ul style="list-style-type: none"> <li>Founded WiCS Lightning Talks, a series for underrepresented student researchers to share their research</li> <li>Organized panels with faculty and mentorship events with upperclassmen to help students navigate academics in CS</li> </ul>	2016-2019
ACTIVITIES	<b>Lean In at Columbia</b> , Columbia University, Co-President & Senior Advisor	2016-2019
	<ul style="list-style-type: none"> <li>Grew active membership by 5x to reach over 100 committed members attending weekly meetings</li> <li>Founded a mentorship program that connected over 70 student-mentor pairs</li> <li>Organized the first Lean In at CU conference, sponsored by Microsoft, Facebook, IBM, and others</li> </ul>	
	<b>Intercollegiate Chamber Music Festival (ICMF)</b> , NYC	2017-2019
	<ul style="list-style-type: none"> <li>Co-founded with Cindy Liu and Dean Deng, in collaboration with the Chamber Music Society of Lincoln Center</li> <li>ICMF is an annual, weekend-long music festival for collegiate chamber musicians; events include a performers' showcase at Lincoln Center, masterclasses with world-renowned artists, and talks with industry leaders</li> </ul>	
	<b>Music Performance Program (MPP)</b> , Columbia University	2015-2019
	<ul style="list-style-type: none"> <li>Took lessons in chamber music and piano</li> <li>Selected 3 times to perform in MPP's end-of-year concert at Carnegie Weill Hall</li> </ul>	
	<b>Precollege Program</b> , Manhattan School of Music (MSM)	2003-2015
	<ul style="list-style-type: none"> <li>Took lessons in piano, violin, chamber music, orchestra, music theory, and ear training</li> <li>Recipient of the Rosetta Goodkind Scholarship and the Ralph Zola Scholarship</li> <li>Multi-time winner of MSM's concerto and chamber music competitions</li> <li>Featured on NPR's <i>From The Top</i>; recipient of the National YoungArts Merit Award; winner of international piano competitions including American Protégé, American Fine Arts Festival, and New York International Artists Association</li> </ul>	