Serina Chang

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Most Recent CV Here

ACADEMIC POSITIONS	**University of California, Berkeley**, Berkeley, CA	Starting July 2025

Assistant Professor, Department of Electrical Engineering and Computer Science (50%), UCSF UC Berkeley Joint Program in Computational Precision Health (50%)

Microsoft Research, New York, NY — 2024-2025
Postdoctoral Researcher, Computational Social Science group

EDUCATION

Stanford University, Stanford, CA — 2019-2024
Ph.D., Computer Science
Advisors: Jure Leskovec, Johan Ugander
Thesis committee: Dan Jurafsky, Eric Horvitz, Ran Abramitzky

Columbia University, New York, NY — 2015-2019
B.A., Computer Science (major), Sociology (concentration), *magna cum laude*
Advisor: Kathleen McKeown

HONORS

Rising Stars in Data Science, University of Chicago and University of California San Diego	2023
EECS Rising Stars, Georgia Institute of Technology	2023
Future Faculty Symposium Scholar, Cornell University	2023
PhD Fellowship, Computational Social Science, Meta	2022
Best Paper Award, KDD 2021 (Applied Data Science Track)	2021
Graduate Research Fellowship, National Science Foundation	2019
The Finch Family Fellowship, Stanford University, School of Engineering	2019
Outstanding Undergraduate Researcher Award, Computing Research Association	2019
Phi Beta Kappa, Columbia University	2019
Theodore R. Bashkow Award, Columbia University, Computer Science	2019
Academic Excellence Award, Columbia University, Computer Science	2019
King's Crown Leadership Award, Innovation and Enhancement, Columbia University	2018
Dean's List (all semesters), Columbia University	2015-2019

PAPERS

*indicates co-first authorship. †indicates a student I mentored.

[16] Artificial Intelligence for Infectious Disease Epidemiology
Moritz U.G. Kraemer*, Joseph L.-H. Tsui*, **Serina Chang***, Spyros Lytras, Samantha Vanderslott, Sumali Bajaj, Elizaveta Semenova, Mengyan Zhang, H. Juliette T. Unwin, Mark P. Khurana, Jacob Liam Curran-Sebastian, Neil Scheidwasser, Oliver J. Watson, Cathal Mills, Abhishek Dasgupta, Luca Ferretti, Samuel V. Scarpino, Etien Koua, Oliver Morgan, Houriiyah Tegally, Ulrich Paquet, Serge Belongie, Christophe Fraser, Neil M. Ferguson, Edward C. Holmes, Eric J. Topol, David A. Duchêne, Tanja Stadler, Patricia Kingori, Michael J. Parker, Francesca Dominici, Nigel Shadbolt, Marc A. Suchard, Oliver Ratmann, Seth Flaxman, Manuel G. Rodriguez, Bernhard Schölkopf, Christl A. Donnelly, Oliver G. Pybus, Simon Cauchemez, and Samir Bhatt
Under review

[15] Learning production functions for supply chains with graph neural networks
Serina Chang, Zhiyin Lin†, Benjamin Yan†, Swapnil Bembde, Qi Xiu, Chi Heem Wong, Yu Qin, Frank Kloster, Xi Luo, Raj Palleti, and Jure Leskovec
Under review
Also presented at Stanford Graph Learning Workshop 2023 (invited talk); Stanford Causal Science Conference 2023 (oral)

[14] Generating social networks with large language models
Alicja Chaszczewicz*†, **Serina Chang***, Emma Wang†, Maya Josifovska†, Emma Pierson, and Jure Leskovec
Presented at $IC^{2}S^{2}$ 2024 as **Plenary Talk** (2.8% of submissions)

[13] Measuring vaccination coverage and concerns of vaccine holdouts from web search logs
Serina Chang, Adam Fourney, and Eric Horvitz
Nature Communications 2024
Also presented at KDD 2023 Workshop on Epidemiology Meets Data Mining and Knowledge Discovery (oral); KDD 2023 Workshop on Data Science for Social Good (oral); IC^2S^2 2024 (oral)

[12] Inferring dynamic networks from marginals with iterative proportional fitting
Serina Chang[*], Frederic Koehler[*], Zhaonan Qu[*], Jure Leskovec, and Johan Ugander
ICML 2024
Also presented at *Learning on Graphs* 2023

[11] Estimating geographic spillover effects of COVID-19 policies from large-scale mobility networks
Serina Chang, Damir Vrabac[†], Jure Leskovec, and Johan Ugander
AAAI 2023
Also presented at KDD 2022 Workshop on Data-driven Humanitarian Mapping and Policymaking (oral); IC^2S^2 2022

[10] Computational analysis of 140 years of US political speeches reveals more positive but increasingly polarized framing of immigration
Dallas Card, **Serina Chang**, Chris Becker, Julia Mendelsohn, Rob Voigt, Leah Boustan, Ran Abramitzky, and Dan Jurafsky
PNAS 2022
Also presented at *Conference on New Directions in Analyzing Text as Data* (TADA) 2021 (oral)

[9] To recommend or not? A model-based comparison of item-matching processes
Serina Chang and Johan Ugander
ICWSM 2022 (oral)
Also presented at IC^2S^2 2021 (oral)

[8] Data-driven real-time strategic placement of mobile vaccine distribution sites
Zakaria Mehrab, Mandy Wilson, **Serina Chang**, Galen Harrison, Bryan L. Lewis, Alex Tellionis, Justin Crowe, Dennis Kim, Scott Spillman, Kate Peters, Jure Leskovec, and Madhav Marathe
IAAI 2022

[7] Supporting COVID-19 policy response with large-scale mobility-based modeling
Serina Chang, 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)
Best Paper Award, Applied Data Science Track (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); NeurIPS 2020 COVID-19 Symposium (invited talk); NeurIPS 2020 Machine Learning for Health Workshop
Coverage in 650+ news outlets, including *The New York Times* and *The Washington Post*; ranked as #3 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[†], **Serina Chang**, and Jure Leskovec
Presented at IC^2S^2 2021

[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)

INVITED TALKS	Public Health Insight Podcast	2024 (upcoming)
	Oxford, Networks Seminar	2024
	Stanford, Big Data Methods for Behavioral, Social, and Population Health Research (EPI 270)	2024
	CMU School of Computer Science, Machine Learning Department	2024
	Berkeley, EECS Department & Computational Precision Health	2024
	University of Illinois Urbana-Champaign, Department of Computer Science	2024
	AAAI'24 Workshop on Graphs and More Complex Structures for Learning and Reasoning	2024
	University of Washington, Paul G. Allen School of Computer Science & Engineering	2024
	Microsoft Research NYC, Computational Social Science	2024
	Columbia Business School, Decision, Risk, and Operations Division	2024
	Cornell, Departments of Computer Science & Information Science	2023
	Johns Hopkins, Department of Computer Science	2023
	MIT, Department of Political Science & Schwarzman College of Computing	2023
	NYU Stern School of Business, Department of Technology, Operations, and Statistics	2023
	Learning on Graphs Conference, Stanford Meetup	2023
	Northeastern, Network Science Institute Seminar	2023
	Cornell Tech, Applied Data Science: Decision-Making Beyond Prediction (ORIE 5355)	2023
	Stanford, Graph Learning Workshop	2023
	Columbia, Analysis of Networks and Crowds (COMS 6998)	2023
	Cornell Tech, Data Science for Social Change (CS 6382)	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)	2023
	Meta, Computational Social Science Seminar	2023
	Stanford, Introduction to Computational Social Science (MS&E 231)	2022
	Stanford, Fundamental Concepts in MS&E (MS&E 302)	2022
	Cornell Tech, Urban Data (INFO 5430)	2022
	Stanford, Big Data Methods for Behavioral, Social, and Population Health Research (EPI 270)	2022
	OECD-ODISSEI Webinar on Open Data Infrastructure	2021
	Data Science Connect Conference	2021
	March for Science Podcast	2021
	PathCheck Global Health Innovators Seminar	2021
	Stanford, Networks (MS&E 135)	2021
	Diaries of Social Data Research Podcast	2021
	NeurIPS, COVID-19 Symposium	2020
	AI Science Spotlight Series	2020
	Global Pervasive Computational Epidemiology Seminar	2020
	The Octavian Report Podcast	2020
	Placekey Community Seminar	2020
	Stanford, Stats ML Retreat	2020
	Columbia, NLP Seminar	2019
	Columbia, Emerging Scholars Program (COMS 1404)	2018

WORK EXPERIENCE	**AI Advisor**, United Nations Development Programme (UNDP)	2024-present

- Served as AI Advisor on "Project Vision: AI Unveils Tomorrow", which seeks to use AI to analyze how countries are responding to impending risks (e.g., climate change, pandemics, democratic backsliding) and adapting their development strategies

Research Intern, Microsoft Research   2022-2024

- Developed graph machine learning methods to detect user intents from search logs and derive insights for public health. See Chang, Fourney, and Horvitz, "Measuring vaccination coverage and concerns of vaccine holdouts from web search logs", *Nature Communications* (2024).

Software Engineering Intern, Google, Geo Assistant — 2018
- Built a new, user-facing feature for Google Search and Assistant
- Implemented backend to parse queries in Search, worked with UX designer and PM to create frontend

Engineering Practicum Intern, Google, Search Site Reliability Engineering (SRE) — 2017
- Improved internal tools for monitoring and tracking requests to Google Now

GRANTS

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

TEACHING

Head course assistant (CA), Stanford University, Machine Learning with Graphs (CS224W) — 2021
- Managed team of 9 CAs and class of around 300 students; oversaw lecture slides, assignments, exams, and final projects
- 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

Instructor, Girls Who Code, Summer Immersion Program — 2019
- Served as the primary teacher for a classroom of 20 high school girls
- Taught a 7-week curriculum including Python, HTML, CSS, JavaScript, and Arduino

Instructional assistant, Columbia University, Data Structures in Java (COMS 3134) — 2017
- Led discussion sections, held weekly office hours, and graded assignments and exams

Peer tutor, Columbia University, Computer Science Theory (COMS 3261) — 2017

MENTORSHIP

Mentor, International Conference for Computational Social Science (IC^2S^2) — 2024

Mentor, Stanford Computer Science, CURIS (undergraduate summer research) — 2023

Mentor, Machine Learning for Health (ML4H), Career Mentorship Program — 2023

Mentor, Stanford Computer Science, Undergraduate Mentoring Program — 2022

Mentor, Stanford Engineering, Summer Undergraduate Research Fellowship — 2021

Research mentees: Maya Josifovska, Zhiyin Lin, Daisuke Masuda, Emma Wang, Benjamin Yan (undergraduates); Damir Vrabac (master's); Alicja Chaszczewicz, Jordan Troutman (PhD)

SERVICE

Organization

Co-Organizer, NeurIPS Workshop on Behavioral Machine Learning	2024
Co-Organizer, KDD Workshop on Epidemiology meets Data Mining and Knowledge discovery	2024
Program Chair, Machine Learning for Health (ML4H)	2023
Co-Organizer, KDD Workshop on 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

Journal reviewer

The New England Journal of Medicine AI (NEJM AI)	2024
Proceedings of the National Academy of Sciences	2024
Science Advances	2023
Nature Human Behaviour	2022
American Journal of Sociology	2021
ACM Transactions on Spatial Algorithms and Systems	2021
npj Urban Sustainability	2021

Conference reviewer

AAAI	2025
International Conference on Computational Social Science (IC^{2}S^2)	2024
KDD, epiDAMIK Workshop	2024
AAAI	2024
EMLNP	2024
Machine Learning for Health	2023
ACL Rolling Review	2023
ICWSM	2023
KDD, 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, 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