Serina Chang

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EDUCATION

Stanford University, Stanford, CA — 2019-present
Ph.D. candidate, Computer Science
Advised by Prof. Jure Leskovec and Prof. Johan Ugander

Columbia University, New York, NY — 2015-2019
B.A., Computer Science, concentration in Sociology, *magna cum laude*
Advised by Prof. Kathleen McKeown
GPA: 3.97/4.00, Dean's List (all semesters)

HONORS

PhD Fellowship, Computational Social Science, Meta — 2022
Best Paper Award, KDD 2021 (Applied Data Science Track) — 2021
Outstanding Undergraduate Researcher Award, Computing Research Association — 2019
Graduate Research Fellowship, National Science Foundation — 2019
The Finch Family Fellowship, Stanford University, School of Engineering — 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

PAPERS

*indicates co-first authorship.

[1] **Serina Chang**, Adam Fourney, and Eric Horvitz. Accurate measures of vaccination and concerns of vaccine holdouts from web search logs. Under review. Also accepted at IC^2S^2 2023 (oral).

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

[3] Dallas Card, **Serina Chang**, Chris Becker, Julia Mendelsohn, Rob Voigt, Leah Boustan, Ran Abramitzky, and Dan Jurafsky. Computational analysis of 140 years of US political speeches reveals more positive but increasingly polarized framing of immigration. *PNAS*, 2022.

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

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

[6] **Serina Chang**, Mandy L. Wilson, Bryan Lewis, Zakaria Mehrab, Komal K. Dudakiya, Emma Pierson, Pang Wei Koh, Jaline Gerardin, Beth Redbird, David Grusky, Madhav Marathe, and Jure Leskovec. Supporting COVID-19 policy response with large-scale mobility-based modeling. KDD 2021 (Applied Data Science Track, **Best Paper Award**). Oral presentation.

[7] **Serina Chang***, Emma Pierson*, Pang Wei Koh*, Jaline Gerardin, Beth Redbird, David Grusky, and Jure Leskovec. Mobility network models of COVID-19 explain inequities and inform reopening. *Nature*, 2021. Also presented at Networks 2021 (oral) and NeurIPS 2020 ML for Health Workshop. Coverage in 380+ news outlets, including The New York Times, The Washington Post, Bloomberg, CNN, Fox Business, Wired, NPR, The Telegraph, MIT Technology Review, and Nature News. Ranked at #7 most online impact among 88,000+ papers ever published by *Nature* (Altmetric).

[8] Kyle Kawagoe*, Mark Rychnovsky*, **Serina Chang**, Greg Huber, Lucy M. Li, Jonathan Miller, Reuven Pnini, Boris Veytsman, and David Yllanes. Epidemic dynamics in inhomogeneous populations and the role of superspreaders. *Physical Review Research*, 2021.

[9] Maya Josifovska, **Serina Chang** and Jure Leskovec. The socioeconomic mobility gap: disparities in the COVID-19 pandemic. Extended abstract, IC^2S^2 2021.

[10] **Serina Chang** and Kathleen McKeown. Automatically inferring gender associations from language. EMNLP 2019 (short paper). Oral presentation.

[11] **Serina Chang**, Ruiqi Zhong, Ethan Adams, Fei-Tzin Lee, Siddharth Varia, Desmond Patton, William Frey, Chris Kedzie, and Kathleen McKeown. Detecting gang-involved escalation on social media using context. EMNLP 2018 (long paper). Oral presentation.

[12] Jessica Ouyang, **Serina Chang**, and Kathleen McKeown. Crowd-sourced iterative annotation for narrative summarization corpora. EACL 2017 (short paper). Oral presentation.

WORK EXPERIENCE

Research Intern, Microsoft Research 2022-2023
- Advised by Eric Horvitz and Adam Fourney
- Developed methods using graph ML to detect user intents from search logs and derive insights for public health

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

TEACHING & MENTORSHIP

Head course assistant (CA), Stanford University, Machine Learning with Graphs (CS224W) 2021
- Managed CA team and class of over 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

Research mentor, Stanford University 2020-present
- Mentoring PhD and masters students on research projects
- Mentoring students in Stanford CS undergraduate research program (CURIS)

Mentor, Stanford Computer Science, Undergraduate Mentoring Program 2022

Mentor, Stanford Engineering, Summer Undergraduate Research Fellowship 2021

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

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

INVITED TALKS

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
Stanford, Fundamental Concepts in MS&E (MS&E 302), Guest Lecture 2021
Data Science Connect Conference 2021
March for Science Podcast 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
The Octavian Report Podcast 2020
Placekey Community Seminar 2020
Stanford, Stats ML Retreat 2020
Columbia, NLP Seminar 2019
Columbia, Emerging Scholars Program (COMS 1404), Guest Lecture 2018

SERVICE

Professional committees

Program Chair, Machine Learning for Health (ML4H)	2023
Organizer, KDD Full-Day Workshop, Data Science for Social Good	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

PLOS ONE	2023
Nature Human Behaviour	2022
American Journal of Sociology	2021
ACM Transactions on Spatial Algorithms and Systems	2021
npj Urban Sustainability	2021

Conference reviewer

EMLNP	2023
KDD, Epidemiology Meets Data Mining and Knowledge Discovery (epiDAMIK) Workshop	2023
ACL Rolling Review	2023
ICWSM	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

Queer in CS, Stanford University, Organizer 2023-present
- Organize social events to build community between LGBTQ researchers in CS

Womxn in CS (WiCS), Columbia University, Academic Chair 2016-2019
- Founded WiCS Lightning Talks, a series for underrepresented student researchers to share their research
- Organized panels with faculty and mentorship events with upperclassmen to help students navigate academics in CS

Lean In at Columbia, Columbia University, Co-President & Senior Advisor 2016-2019
- Grew active membership by 5x to reach over 100 committed members attending weekly meetings
- Founded a mentorship program that connected over 70 student-mentor pairs
- Organized the first Lean In at CU conference, sponsored by Microsoft, Facebook, IBM, and others

ACTIVITIES

Intercollegiate Chamber Music Festival (ICMF), NYC 2017-2019
- Co-founded with Cindy Liu and Dean Deng, in collaboration with the Chamber Music Society of Lincoln Center
- 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

Music Performance Program (MPP), Columbia University 2015-2019
- Took lessons in chamber music and piano
- Selected 3 times to perform in MPP's end-of-year concert at Carnegie Weill Hall

Precollege Program, Manhattan School of Music (MSM) 2003-2015
- Took lessons in piano, violin, chamber music, orchestra, music theory, and ear training
- Recipient of the Rosetta Goodkind Scholarship and the Ralph Zola Scholarship
- Multi-time winner of MSM's concerto and chamber music competitions
- Featured on NPR's *From The Top*; 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