

Tianyu Su

tsu@gsd.harvard.edu

[Personal Website](#) • [LinkedIn](#) • [Google Scholar](#)

Quantitative researcher with 5+ years' experience in applied research, UX research, and data science. Extensive experience applying computational, quantitative, and qualitative methods to study human behavior, explore scientific frontiers, and guide product and service design. Dissertation on the potentials and challenges of emerging data sources and AI models in mining health-promoting behavior. 10+ presentations and scientific papers at major companies, conferences, universities, and journals on quantitative methods and human behavior understanding.

EDUCATION

Doctoral Candidate, Urban and Spatial Data Science Concentration, **Harvard University** 2020 – 2023

- Affiliate, Institute for Quantitative Social Science & Health Places Design Lab, **Harvard University** 2020 – 2023
- Research Interests: Human Behavior, Computational Social Science, People + AI, Public Health, Technology for Social Good, Information Retrieval, Mixed Methods Research

Master in City Planning, Urban Informatics Concentration, **Massachusetts Institute of Technology** 2018 – 2020

Master & Bachelor of Architecture, **Tsinghua University** 2012 – 2018

SKILLS

Research: Data Analysis, Storytelling, Visualization, & Dashboards, Measurement, A/B Testing, Survey Design and Analysis, Interview (1:1, focus group), Contextual Inquiry, Behavior Observation, Scenario Planning, Literature Review

Statistical Modeling & Data Science: Hypothesis Testing, Econometrics, Causal Inference, Regressions, Machine Learning, Clustering Analysis, Sentiment Analysis, Social Network Analysis, Time Series Analysis, Spatial Analytics

Languages & Tools: R, SQL, Python, STATA, Git, ArcGIS, QGIS, JavaScript, Mapbox, Carto, Adobe Creative Suite

Interpersonal: Presentation, Academic Writing, Product Management, Team Management, Teaching, Mentoring

EXPERIENCE

Harvard University Cambridge, MA
Quantitative Researcher 08/2020 – Present

- Led a multi-year mixed methods project (computational, quantitative, and qualitative) to examine the potentials and limitations of social media data in measuring health-promoting human behavior and its relationship with technology and places, resulting in 3 reports and 4 presentations to companies (e.g., IBM Research) and conferences.
- Developed novel machine learning-based behavioral metrics using 1M+ social media posts (Python, machine learning, R) and examined biases and limitations of emerging data sources and AI models through data triangulation and ground truthing (systematic fieldwork), resulting in 2 scientific papers (working paper) and 2 talks.
- Secured \$25K+ in grants from Harvard and beyond by conducting large-scale studies, compiling proposals and reports, and communicating to director- and partner-level managers.
- Led training on advanced modeling and research methods in a team of 3 independent researchers and instructed 3 courses on data and quantitative reasoning.

MIT Media Lab Cambridge, MA
Quantitative Researcher at Human Dynamics Group & City Science Group 03/2020 – Present

- Built quantitative models linking fine-grained human mobility patterns with spatial factors, resulting in top-tier publications (1 published, 2 under review).
- Developed and implemented machine learning-based clustering algorithms based on 1M+ location data records (Python, machine learning) and presented at 3 conferences and 23 organizations to technical (e.g., data scientists, product managers) and non-technical (government officials, designers) audiences.
- Collaborated with researchers, engineers, data scientists, and designers to translate fundamental research to product design, resulting in an open-source urban decision-making platform used by urban scientists and governments worldwide.

MIT Office of Sustainability Cambridge, MA
Analytics and Visualization Fellow 05/2019 – 09/2019

- Identified mode-switching potentials of MIT commuters (faculty, employee, student) by aggregating, analyzing, modeling (statistical models and machine learning), and visualizing unstructured datasets (R) from HR Department, Department of Facilities, and Massachusetts Bay Transportation Authority (MBTA).
- Reduced the time cost into 1/3 for aggregating HR data into block group level and mapping travel time of various modes by deploying a customized algorithm based on national GeoID and Google Map API (R, JavaScript).

- Examined the discrepancy between self-reported and actual commuting behavior at the individual level by analyzing and mining different mobility data sets, e.g., transportation survey and urban sensing data (R, statistical models).
- Supported the institutional decision-making and service design around sustainable transportation by creating informative visualizations, maps, and presentations with a team of data scientists, for the communication with different stakeholders at MIT and beyond.

Place AI (Urban AI Startup)

Amsterdam, Netherlands & Cambridge, MA

Co-Founder and Product Research Lead

10/2018 – Present

- Led a 6-person research team identifying real-world opportunities of AI in urban management by conducting in-depth market research, 1:1 interviews, and focus groups, resulting in a clear product roadmap and prioritization.
- Designed, developed, and implemented an AI-based smart city product by selecting, evaluating, and improving state-of-the-art natural language processing models and working closely with engineers and data scientists.
- Interpreted and presented research findings and product insights to director-level partners (internal and external) via reports, presentations, and publications, leading to incubator and accelerator awards (e.g., MIT, Harvard, municipal governments), pilot projects, and seed grant (\$30K).

SELECTED PUBLICATIONS, PRESENTATIONS, AND TALKS

PUBLICATIONS

- **Su, T.**, Sun, M., Fan, Z., Noyman, A., Pentland, A., & Moro, E. (2022). Rhythm of the streets: A street classification framework based on street activity patterns. *EPJ Data Science*, 11(1), 1–21.
- **Su, T.**, Elena Renda, M., & Zhao, J. (2021). Examining the Discrepancies between Self-Reported and Actual Commuting Behavior at the Individual Level. *Transportation Research Record*, 03611981211037240.
- **Su, T.**, Li, S., Li, J., Chou, H., & Long, Y. (2020). Methodology and application of data augmented design: A case study of urban redevelopment design for the Panyu-Xinhua Area, Shanghai. *Handbook of Planning Support Science*.
- **Su, T.**, Sun, M. (Working Paper). SocioLens: Understanding park-based health-promoting behavior with large-scale social media data
- Fan, Z., **Su, T.**, Sun, M., Zhang, F., Noyman, A., Pentland, A., & Moro, E. (Under Review). Diversity beyond density: experienced social mixing of urban streets

CONFERENCE PRESENTATIONS AND INVITED TALKS

- **Understanding park-based health-promoting behavior with large-scale social media data: the case of Tianjin, China.** The 5th Politics and Computational Social Science (PaCSS) Conference ("Advances in CSS" Panel), 2022, Cambridge MA, US (upcoming, first and presenting author)
- **Rhythm of the Streets: A street classification framework based on pedestrian activity patterns.** Boston Area Research Initiative (BARI) Conference 2021, 2021, Boston MA, US (first and presenting author)
- **Street Scale Urban Dynamics: Towards a Deeper Understanding of Urban Activities using Wi-Fi Data.** Spatial Data Science Conference (SDSC) 2020, 2020, Online (first and presenting author)
- **Mitigating the biases, loopholes, and gaps: an urban technology perspective,** IBM Research, 2022
- **Urban technology in the making: One behavior at a time,** College of Architecture, Art, and Planning, Cornell University, 2022