CURRICULUM VITAE

Rongxiang Su, Ph.D.
Postdoctoral Fellow, Senseable City Lab
Massachusetts Institute of Technology, Cambridge, MA 02139 USA
TEL: +1 (805)-722-6334 ⋄ rxsu@mit.edu ⋄ Website ⋄ LinkedIn
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RESEARCH INTERESTS

GIScience, Geospatial Data Science, Human Mobility, Travel Behavior, Urban Analytics, Accessibility

EDUCATION

University of California Santa Barbara, 2023
Ph.D. in Geography
Dissertation: Sensing Human Activity and Interaction Patterns through Movement Observations
Co-chairs: Konstadinos Goulias, Somayeh Dodge

Wuhan University, China, 2019
M.S. in Cartography and Geographic Information System
Advisor: Zhixiang Fang

Hefei University of Technology, China, 2016
B.S. in Geographic Information System

PROFESSIONAL APPOINTMENTS

Senseable City Lab, Massachusetts Institute of Technology (PIs: Dr. Paolo Santi, Dr. Carlo Ratti)
Postdoctoral Fellow, 1/2024 - present

- Explainable AI to Understand the Locality Behavior in Individual Food Delivery Choices
- Deep Learning Models to Enhance Local Mobility during Big Events (collaboration with Federation Internationale de l'Automobile)

Didi Chuxing, Beijing, China (Mentors: Mr. Kaiqiang An, Mr. Guoping Liu)
Machine Learning Engineer Intern, 5/2019 - 8/2019

- Retrieved Didi vehicle trajectory data from the Spark platform and computed movement parameters. Developed a logistic regression model to detect drivers' detour behavior, achieving a 0.37 improvement in recall rate compared to a statistical-based benchmark.
- Developed a Siamese LSTM network using TensorFlow to identify street closures, achieving a recall rate of 0.97.

REFEREED JOURNAL PUBLICATIONS

1. **Su, R.**, Newsham, N., Dodge, S. (2024b). Spatiotemporal dynamics of ethnoracial diversity and segregation in Los Angeles County: Insights from mobile phone data. *Computers, Environment and Urban Systems*, 114, 102203. doi: 10.1016/j.compenvurbsys.2024.102203
2. **Su, R.**, Liu, Y., Dodge, S. (2024a). ORTEGA v1.0: An open-source Python package for context-aware interaction analysis using movement data. *Movement Ecology*, 12, 20. doi: 10.1186/s40462-024-00460-2
3. Shi, H., Xiao, J., **Su, R.**, Goulias, K. (2024). Measurement of happiness of daily activity-travel schedules. *Travel Behaviour and Society*, 36, 100807.
4. **Su, R.**, Goulias, K. (2023). Untangling the relationships among residential environment, destination choice, and daily walk accessibility. *Journal of Transport Geography*, 109, 103595. doi: 10.1016/j.jtrangeo.2023.103595

5. Shi, H., **Su, R.**, Goulias, K. (2023). Exploring the impact of COVID-19 pandemic on Americans time use related subjective well-being. *Wellbeing, Space and Society*, 100148. doi:10.1016/j.wss.2023.100148
6. **Su, R.**, Dodge, S., Goulias, K. (2022b). A classification framework and computational methods for human interaction analysis using movement data. *Transactions in GIS*, 26(4), 1665-1682. doi: 10.1111/tgis.12960
7. **Su, R.**, Dodge, S., Goulias, K. (2022a). Understanding the impact of temporal scale on human movement analytics. *Journal of Geographical Systems*, 24(3), 353-388. doi:10.1007/s10109-021-00370-6 (JGS Editors' choice article)
8. Shi, H., **Su, R.**, Xiao, J., Goulias, K. (2022). Spatiotemporal analysis of activity-travel fragmentation based on spatial clustering and sequence analysis. *Journal of Transport Geography*, 102, 103382. doi: 10.1016/j.jtrangeo.2022.103382
9. **Su, R.**, Xiao, J., McBride, E., Goulias, K. (2021b). Understanding seniors daily mobility patterns in California using human mobility motifs. *Journal of Transport Geography*, 94, 103117. doi:10.1016/j.jtrangeo.2021.103117
10. **Su, R.**, McBride, E., Goulias, K. (2021a). Unveiling daily activity pattern differences between telecommuters and commuters using human mobility motifs and sequence analysis. *Transportation Research Part A: Policy and Practice*, 147, 106-132. doi:10.1016/j.tra.2021.03.002
11. **Su, R.**, Goulias, K. (2021). Evolution of the Chinese Spring Festival Travel network during the COVID-19 early outbreak. *Transportation letters*, 13(5-6), 492-500. doi:10.1080/19427867.2021.1896065
12. Dodge, S., **Su, R.**, Johnson, J., Simcharoen, A., Goulias, K., Smith, J., Ahearn, S. (2021). ORTEGA: an object-oriented time-geographic analytical approach to trace space-time contact patterns in movement data. *Computers, Environment and Urban Systems*, 88, 101630. doi: 10.1016/j. compenvurbsys.2021.101630
13. **Su, R.**, McBride, E., Goulias, K. (2020). Pattern recognition of daily activity patterns using human mobility motifs and sequence analysis. *Transportation Research Part C: Emerging Technologies*, 120, 102796. doi:10.1016/j.trc.2020.102796
14. Fang, Z., Huang, S., **Su, R.**, Xiao, H. (2020). Detecting hierarchical congestion intervals based on the fusion of multi-source highway data. *Geomatics and Information Science of Wuhan University*, 45(5), 682-690. (in Chinese)
15. **Su, R.**, Fang, Z. (2019). A review of studies in taxi mobility and e-hailing taxi service. *Journal of Smart Cities*, 4(1), 1-6.
16. Fang, Z., **Su, R.**, Huang, L. (2018). Understanding the effect of an E-hailing app subsidy war on taxicab operation zones. *Journal of Advanced Transportation*, 2018. doi:10.1155/2018/7687852
17. **Su, R.**, Fang, Z., Xu, H., Huang, L. (2018b). Uncovering Spatial Inequality in Taxi Services in the Context of a Subsidy War among E-Hailing Apps. *ISPRS International Journal of Geo-Information*, 7(6), 230. doi:10.3390/ijgi7060230
18. **Su, R.**, Fang, Z., Luo, N., Zhu, J. (2018a). Understanding the dynamics of the pick-up and drop-off locations of taxicabs in the context of a subsidy war among e-hailing apps. *Sustainability*, 10(4), 1256. doi:10.3390/su10041256

OTHER PUBLICATIONS

1. **Su, R.**, Dodge, S., Goulias, K. (2021). A time-geographic approach to quantify the duration of interaction in movement data. *In Proceedings of the 1st ACM SIGSPATIAL International Workshop on Animal Movement Ecology and Human Mobility* (pp. 18-26).**(Best Paper Award)**
2. Xiao, J., **Su, R.**, McBride, E., Goulias, K. (2020). Exploring the correlations between spatiotemporal daily activity-travel patterns and stated interest and perception of risk with self-driving cars. *AGILE: GIScience Series*, 1, 1-15. doi:10.5194/agile-giss-1-22-2020
3. Goulias, K., **Su, R.**, McBride, E. (2020). Revisiting the Impact of Teleworking on Activity-Travel Behavior Using Recent Data and Sequence-Based Analytical Techniques. *Research report to Pacific Southwest Region University Transportation Center*.
4. Goulias, K., McBride, E., **Su, R.** (2020). Life cycle stages, daily contacts, and activity-travel time allocation for the benefit of self and others. In: *Scheiner, J. and Rau, H. (eds) Mobility Across the Life Course*, Publisher: Edward Elgar. (Book chapter)

PUBLICATIONS IN REVIEW/WORK IN PROGRESS

1. **Su, R.**, Xiao, J., Shi, H., Goulias, K. (2024c). Nonlinear relationship between VMT and the built environment: A quantile regression approach. *Transportation Research Part A: Policy and Practice.* (in revision)
2. **Su, R.***, Eshtiyagh, J.*, Santi, P., Hu, S., Duarte, F., Mazzarello, M., Ratti, C. (2024d). Determinants of the localized behavior of individual online food delivery choices. (in review)
3. **Su, R.**, Zheng, Yu., Hu, S., Santi, P., Ratti, C. Enhance shared mobility in large events. (work in progress)

* indicates equal contribution

FELLOWSHIPS, SCHOLARSHIPS & AWARDS

AAG-GISS Specialty Group Student Paper Competition Honorable Mention Award	2023
Jack and Laura Dangermond Fellowship, UCSB ($5,000)	2022
Geography Department Excellence in Research Award, UCSB	2022
Chinese Government Award for outstanding self-financed students abroad ($6,000)	2022
Chinese-American Engineers and Scientists Association of Southern California Scholarship ($1,000)	2022
Outstanding Graduate Student Award, Wuhan University (Top 10%)	2019
Chen-Yongling Scholarship, Wuhan University	2018
First-Class Scholarship, Wuhan University (Top 10%)	2018
Distinguished College Graduate, Hefei University of Technology (Top 10%)	2016
First-Class Scholarship, Hefei University of Technology (Top 4%)	2014, 2015

CONFERENCE PRESENTATIONS

1. Determinants of the localized behavior of individual online food delivery choices. *2025 American Association of Geographers Annual Meeting.* Detroit, Michigan. March 24-28, 2025. (Oral presentation)
2. Determinants of the localized behavior of individual online food delivery choices. *2025 Transportation Research Board Annual Meeting.* Washington D.C. January 6, 2025. (Full paper submission; Poster presentation)
3. Traveling Tastes. *2024 MIT Senseable Forum on Future Cities: Being Physical.* Cambridge, MA. November 21, 2024. (Oral presentation)
4. Spatiotemporal Dynamics of Ethnoracial Diversity and Segregation: Insights from Mobile Phone Data. *ESRI Higher Education Webinar: Discover the Power of Spatial Data Science for Advancing Knowledge* (online). December 7, 2023. (Panelist)
5. Spatiotemporal Dynamics of Racial-ethnic Diversity and Segregation: Insights from Mobile Phone Data. *Spatial Hour at the Center for Spatial Studies and Data Science, UCSB.* Santa Barbara, CA. November 29, 2023.
6. ORTEGA: An open-source Python package for context-aware interaction analysis based on movement data. *2023 GISS Specialty Group Student Paper Competition, American Association of Geographers Annual Meeting.* Denver, CO. March 24, 2023. (Full paper submission; Oral presentation; **Honorable Mention Award**)
7. Toward a taxonomy and computational methods for human interaction analysis using movement data. *2022 ESRI User Conference.* San Diego, CA, July 12, 2022. (Oral presentation)
8. Heterogeneity in the relationship of vehicle miles traveled with the built environment: A quantile regression approach. *2022 UCGIS Symposium.* Syracuse, NY. June 7-9, 2022. (Extended abstract submission; Lightning talk, acceptance rate: 9/40)
9. Understanding the impact of temporal scale on human movement analytics. *2022 American Association of Geographers Annual Meeting* (online). February 26, 2022. (Oral presentation)
10. A time-geographic approach to quantify the duration of interaction in movement data. *1st ACM SIGSPATIAL International Workshop on Animal Movement Ecology and Human Mobility.* Beijing, China (online). November 2, 2021. (Full paper submission; Oral presentation; **Best Paper Award**)
11. Unveiling the taxonomy of daily travel and time use patterns using human mobility motifs and sequence analysis. *2021 American Association of Geographers Annual Meeting* (online). April 8, 2021. (Oral presentation)
12. An exploration of human mobility motifs in the California component of the 2017 National Household Travel survey. *hEART 2020: 9th Symposium of the European Association for Research in Transportation* (online). February 3-4, 2021. (Extended abstract submission; Recorded oral presentation)

13. Unveiling daily activity pattern differences between telecommuters and commuters using human mobility motifs and sequence analysis. *2021 Transportation Research Board Annual Meeting* (online). January 27, 2021. (Poster presentation)
14. Pattern recognition of daily activity patterns using human mobility motifs and sequence analysis. *2021 Transportation Research Board Annual Meeting* (online). January 26, 2021. (Poster presentation)
15. Unveiling daily activity pattern differences between telecommuters and commuters using human mobility motifs and sequence analysis. *Activity and Time-Use Patterns Subcommittee Meeting of 2021 Transportation Research Board Annual Meeting* (online). January 5, 2021. (Invited talk)
16. Accurate road anomaly detection by trajectory mining. *1st ACM SIGSPATIAL International Workshop on Ride-hailing Algorithms, Applications, and Systems.* Chicago, IL. November 5, 2019. (Full paper submission; Poster presentation)
17. Uncovering the changes of urban taxi travel demand in the context of a subsidy war among e-hailing apps. *China Geographic Information Science Theory and Methodology Annual Conference.* Taiyuan, China. November 2-4, 2018. (Full paper submission; Oral presentation; **Best Paper Award**)
18. Uncovering the changes of the pick-up and drop-off locations of taxicabs in the context of a subsidy war among e-hailing apps. *The 9th International Forum of Spatially Integrated Humanities and Social Sciences.* Shanghai, China. June 23-25, 2018. (Oral presentation)

TEACHING EXPERIENCE

Guest Lecturer, Department of Geography, UCSB

1. Transportation Modeling and Simulation (Winter 2020)
   - Guest lectured a class on reviewing transportation data and methodologies, focusing on technical skills for exploring and visualizing data to understand travel behavior.

Teaching Assistant, Department of Geography, UCSB

1. Transportation Planning and Modeling (Fall 2019, Fall 2020)
   - Instructed a diverse group of graduate and undergraduate students in applying R programming for processing, analyzing, and visualizing transportation data (e.g., travel survey).
2. Transportation Modeling and Simulation (Winter 2020, Winter 2021)
   - Developed and curated a comprehensive set of laboratory materials and assignments, guiding undergraduate students through essential statistical techniques for transportation modeling and simulation. Topics cover cluster analysis, linear regression, negative binomial regression, Poisson regression, multinomial logit models, and discrete choice modeling.
3. Smart Green Cities (Spring 2020)
   - Led engaging discussions on the theories and real-world applications of smart and sustainable urban development during class sessions. Additionally, mentored and evaluated group presentations by undergraduate students, fostering a collaborative learning environment.

GRANTS

1. Evolution of the Chinese Spring Festival travel network during the COVID-19 early outbreak (Summer 2021)
   - Funder: Multidisciplinary Research on the Coronavirus and its Impacts Grant, UCSB
   - Collaborator: Dr. Konstadinos Goulias
   - Amount: $2,000
   - Role: PI

2. A time-geographic approach to quantify the duration of interaction in human movement based on low-frequency tracking data (Summer 2021)
   - Funder: Summer Research Award, Department of Geography, UCSB
   - Collaborators: Dr. Somayeh Dodge, Dr. Konstadinos Goulias
   - Amount: $4,850
   - Role: PI

3. Spatial Microanalysis and Equity Assessment of Joint Relationships among Destination Choice, Activity Duration, and Mode Choice (2021-2023)

- Funder: USDOT Pacific Southwest Region University Transportation Center
- Collaborators: Dr. Konstadinos Goulias, Hui Shi, Jingyi Xiao
- Amount: $118,000
- Role: Lead researcher

4. Revisiting the Impact of Teleworking on Activity-Travel Behavior using Recent Data and Sequence-based Analytical Techniques (2020-2021)

- Funder: USDOT Pacific Southwest Region University Transportation Center
- Collaborators: Dr. Konstadinos Goulias, Elizabeth McBride
- Amount: $109,520
- Role: Lead researcher

5. Advancing Methods to Trace and Contextualize Space-Time Interaction Patterns in Movement Data (2022-2023)

- Funder: NSF (#2217460)
- Collaborators: Dr. Somayeh Dodge, Dr. Niall Newsham
- Amount: $229,996
- Role: Lead researcher

6. Modeling Movement and Behavior Responses to Environmental Disruptions (2021-2023)

- Funder: NSF CAREER (#2043202)
- Collaborators: Dr. Somayeh Dodge, Yifei Liu
- Amount: $465,464
- Role: Lead researcher

STUDENT MENTORING AND SERVICES

Undergraduate mentoring:

- Enerelt Delgerdalai - Computer Science & Engineering Major, MIT (9/2024 - present): Supervised the improvement of computational methods for measuring local behavior in individual online food delivery choices.
- Tiffany Wang - Computer Science & Engineering Major, MIT (9/2024 - present): Guided the implementation of an NLP approach to analyze customer satisfaction with food delivery services using Google reviews.
- Tongli Zhang - Department of Statistics and Applied Probability, UCSB (2023): Supervised the enhancement of our ORTEGA Python package for movement interaction analysis, with a focus on improving its features and computational efficiency.
- Qianyu He - Department of Geography, UCSB (2023): Guided the documentation and implementation of our ORTEGA Python package leveraging tiger movement data collected in Thailand.

Peer reviewer for academic journals/conferences (61 peer review records as of 11/2024):

- **Geography and GIS**: International Journal of Geographical Information Science, Transactions in GIS, Journal of Transport Geography, GIScience&Remote Sensing, Journal of Spatial Information Science
- **Transportation**: Transportation Research Part A: Policy and Practice, Transportation Research Part C: Emerging Technologies, IEEE Transactions on Intelligent Transportation Systems, Travel Behaviour and Society, Transportation, European Journal of Transport and Infrastructure Research, Public Transport, Transportation Letters, Transportation Research Record, Data Science for Transportation, npj Sustainable Mobility and Transport, Transportation Planning and Technology
- **Other**: Nature Human Behaviour, Scientific Reports, Scientific Data, IEEE Access, Plos One, International Journal of Data Science and Analytics, Applied Energy, Computational Urban Science, Applied Network Science, Journal of Happiness Studies, Humanities and Social Sciences Communications
- **Conference**: Transportation Research Board Annual Meeting, World Transport Convention

Conference Organizing Committee: Traffic Behaviour Modeling and Transport Policy Analysis Subcommittee in 2024 World Transport Convention

UCSB departmental/university service: Geography Sport Committee (2019-2020), Geography Events Committee (2020-2021), volunteer for the Graduate Application Materials Assistance Program (2023), volunteer for the Geography Peer Mentor Program (2022-2023), volunteer for the department's open house for prospective graduate students (2023), volunteer in the graduate student panel for the department's "How-to-Apply" orientation for prospective graduate students (2021)

TRAVEL AWARDS

AAG Spatial Analytics and Modeling Speciality Group Student Travel Award	2023
AAG Transportation Geography Specialty Group Travel Award	2023
Jack and Laura Dangermond Travel Award for 2023 AAG Annual meeting	2023
UCSB Graduate Student Association Conference Travel Grant	2023
UCSB Doctoral Student Travel Grant	2022
UCGIS Symposium Travel Award	2022
UCSB Graduate Student Association Conference Travel Grant	2022
Jack and Laura Dangermond Travel Award for 2022 ESRI User Conference	2022
Jack and Laura Dangermond Travel Award for 2022 AAG Annual meeting	2022
Jack and Laura Dangermond Travel Award for 2021 ACM SIGSPATIAL Conference	2021
Jack and Laura Dangermond Travel Award for 2021 AAG Annual meeting	2020
Jack and Laura Dangermond Travel Award for 2021 TRB Annual meeting	2020
Jack and Laura Dangermond Travel Award for 2019 ACM SIGSPATIAL Conference	2019

REFERENCES

Konstadinos Goulias
Professor, Department of Geography, University of California, Santa Barbara
Email: kgoulias@ucsb.edu
Phone: +1 (805) 284-1597

Somayeh Dodge
Associate Professor, Department of Geography, University of California, Santa Barbara
Email: sdodge@ucsb.edu
Phone: +1 (805) 350-6862

Paolo Santi
Principal Research Scientist, Senseable City Lab, MIT
Email: psanti@mit.edu
Phone: +1 (617) 324-4474