

RESEARCH INTERESTS	Urban Planning Support Tool, Urban Simulation, Urban Digital Twin, Citizen Participation, Compact City Policy, Demographic Change
EDUCATION	Ph. D. 2020–2023 Department of Civil Engineering, Human Centered Urban Informatics The University of Tokyo, Tokyo, Japan <i>Thesis: Development of A Web-based Simulation Tool for Supporting Participatory Regional Planning</i> Supervisor: Yoshihide Sekimoto Master 2017–2020 Environmental Science and Landscape Architecture Chiba University, Chiba, Japan <i>Thesis: The Urban Image of Special Wards of Tokyo based on geo-tagged photo: Comparison between Japanese and Foreigner</i> Supervisor: Isami Kinoshita Bachelor 2013–2017 Landscape Architecture Zhejiang University, Hangzhou, China
ACADEMIC APPOINTMENTS	The University of Tokyo, Japan Center for Spatial Information Science <i>Project Assistant Professor</i> April. 2025–Present <i>Project Researcher</i> Oct. 2023–March 2025 • Develop smart mobility digital twin platform • Develop system for realization of urban digital twin • Research on generative AI methodologies used in urban planning Massachusetts Institute of Technology, USA Jan. 2023–June 2023 Media Lab, City Science Group <i>Visiting Student</i> • Multi-stakeholder urban community performance analysis • Develop digital tool for multi-stakeholder participation in decision-making on urban development projects Tongji University, China Oct. 2021–Oct. 2023 Tongji-MIT City Science Lab @Shanghai <i>Research Affiliate</i> • Research on the application of TUIs in urban decision support systems • Develop planning support system for an urban renewal project • Research on incentive mechanism and token system in decentralized autonomous organizations The University of Tokyo, Japan Oct. 2021–Mar. 2023

SPRING GX project student

- Develop a prototype citizen-oriented simulation tool for regional plan.

The University of Tokyo, Japan

Apr. 2020–Sept. 2021

Research Assistant, Department of Civil Engineering

Tsinghua University, China

July 2019–Oct. 2019

Beijing City Lab

Research Intern, Department of Architecture

JOURNAL PUBLICATIONS

* indicates the corresponding author

- Socioeconomic disparities in heat exposure in India: A mobility-based analysis
J. Ma, C. Sun*, SC. Gabilondo, CD. Torbjörnsson, Q. Guo, Y. Shibuya, Y. Sekimoto
Sustainable Cities and Society (2026) 145: 107437
- Should We Jump from the Perspective of Shrinking Cities to Urban Growth Divides? The Hints from the City Size Distribution in Japan Over the Past Half-Century
X. Xu, J. Ma*, F. Seta, K. Sho
Cities (2025) 158: 105638
- Are East Asian “shrinking cities” falling into a loop? Insights from the interplay between population decline and metropolitan concentration in Japan
X. Xu, J. Ma*, K. Sho, F. Seta
Cities (2024) 155: 105445
- A Cost-and-effect Simulation Model for Compact City Approaches: A Case Study in Japan
J. Ma*, Y. Shibuya, Y. Pang, H. Omata, Y. Sekimoto
Cities (2024) 152: 105212
- WindSR: Improving Spatial Resolution of Satellite Wind Speed Through Super-Resolution
Kumar, T. Islam, J. Ma, T. Kashiya, Y. Sekimoto, C. Mattmann
IEEE Access (2023) 11: 69486-69494
- Development of current estimated household data and agent-based simulation of the future population distribution of households in Japan, K. Kajiwar, J. Ma*, T. Seto, Y. Sekimoto, Y. Ogawa, H. Omata
Computers, Environment and Urban Systems (2022) 98: 101873
- Prototyping of A Citizen-oriented Regional Planning Tool to Automated Digital Design Process: A Case Study on the New Station Planning in Susono, Shizuoka Prefecture.
J. Ma*, T. Seto, H. Omata, Y. Sekimoto
Reports of The City Planning Institution of Japan (2021) 20: 277 – 283
- An Empirical Study on Role of Art to Raising City Image from the Context of Youth Perceptions: Semarang City, Indonesia
E. Sigit*, N. Elkalam, J. Ma, I. Kinoshita

REFEREED
CONFERENCE
PAPERS &
PRESENTATIONS

- Linking Urban Morphology and Human Activity Patterns: An Empirical Study Based on Mobility Survey Data from the Paris Region
Jianyu Fu; Zhihua Zhong; Xukang Wang; Jue Ma; Yoshihide Sekimoto
IEEE Bigdata 2025
- Urban Real Accessibility Evaluation Based on GPS Data: Integration of Multiple Accessibility Indicators and Deep Learning
Fu Jianyu; Jue Ma; Yoshihide Sekimoto
NetMob Data Challenge 2025
- Improving Activity Classification Using Highly Detailed Demographic Profiles
Santiago Garcia-Gabilondo; Ketian Chen; Ziyue Chen; Jue Ma; Yoshihide Sekimoto
NetMob Data Challenge 2025
- Temporal Convolutional Network Forecasting of Tourism Demand Indicators Based on GPS Data: A Case Study in Japan
Ketian Chen; Jue Ma; Chenbo Zhao; Yoshihide Sekimoto
NetMob 2025
- Predicting Building Height from Footprint and Urban Planning Information for Digital Twin Generation
J. Ma, C. Zhao, Y. Ogawa, Y. Sekimoto
Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLVIII-4/W15-2025, 107–112, <https://doi.org/10.5194/isprs-archives-XLVIII-4-W15-2025-107-2025>, 2025
20th 3D GeoInfo Conference 2025
- Development of Mobility Digital Twin for Public Transportation Planning: Addressing the Challenges of Depopulation and Aging
J. Ma, Y. Pang, Y. Sekimoto
Computational Urban Planning and Urban Management Conference 2025
- Identifying and analyzing consumer behaviors in shopping center from GPS data based on machine learning
Luyao LIU; Jue MA; Yoshihide SEKIMOTO; Yuya SHIBUYA
Computational Urban Planning and Urban Management Conference 2025
- Socioeconomic Disparities in Heat Exposure and Mitigation Based on Human Mobility in India
J. Ma, S. Garcia, C. Torbjörnsson, C. Sun, Z. Wu, Y. Shibuya, Y. Sekimoto
Netmob Data Challenge 2024
- Dynamic Air Pollution Exposure Assessment Based on Human Mobility: Case Studies from India, Indonesia, and Mexico
Y. Shibuya, S. Garcia, C. Torbjörnsson, Z. Wu, C. Sun, J. Ma, Y. Sekimoto

Netmob Data Challenge 2024

- Navigating Work-Life Symmetry: A Multi-Stakeholder Indicator System.
J. Ma, L. A. Alonso, M. F. ElKatsha, W. Mo, Y. Sekimoto, K. Larson
2024 ACSP 64th Annual Conference
- Revealing the Spatiotemporal Evolutionary Characteristics, Influencing Factors and Mitigation Measures of Carbon Emission in Tokyo.
L. Liu, S. Garcia, J. Ma, E. Zeng, W. Li, Y. Shibuya, Y. Sekimoto
The 36th AESOP Annual Congress (2024)
- Unmasking Socioeconomic Disparities: A Study of Urban Segregation through the Lens of Mobile App Usage Patterns.
Y. Shibuya, S. Garcia, C. Sun, P. Yu, J. Ma, S. Yoshihide
Netmob Data Challenge 2023
- Automatic cost and effect estimation for regional planning scenarios.
J. Ma, H. Omata, Y. Shibuya, Y. Sekimoto
The 31st Annual Conference of the Association for GIS (2022)
- Development of A GIS Database to Support Regional Plan through Digital Design.
J. Ma, H. Omata, Y. Sekimoto
The 30th Annual Conference of the Association for GIS (2021)
- The Online Destination Image of Main Sightseeing Spots in Tokyo -- Based on the Photo from Flickr Shared by Foreign Tourists
J. Ma, I. Kinoshita
International Conference 2019 on Spatial Planning and Sustainable Development (2019)
- The Urban Image of Special Wards of Tokyo based on geo-tagged photo
J. Ma, I. Kinoshita
The Conference of Japan Institute of Landscape Architecture (2019)

INVITED TALKS

- Cost-effect Simulation Model and Digital Tool for Compact City Planning
KRIHS GAMC 2024 Geospatial Data Insight Seminar (Sept. 2024)
- Citizen Participatory Planning Support Systems and Digital Tools
The University of Tokyo (May. 2024)
- Building Interactive Cities: Planning Support Systems and Digital Tools for Public Engagement
CMU-UT Symposium on Urban Engineering and Informatics (Apr. 2024)

DEVELOPED TOOL

- Citizen Participative Regional Planning Digital Platform (2023)
Multi-stakeholder Indicator Metrics System Platform (2023)

TEACHING

Teaching Assistant:

University of Tokyo

Spring 2026/2025/2024/2023: Geographic Information Systems Exercise

Summer 2025/2024: Digital Space and Society Research Organization
Summer School

Spring 2024: Academic Frontier Lectures (Frontiers of Research and
Social Implementation in Digital Space Society)

Spring 2024: Exercises in Spatial Information Systems

Research Advisor:

Advised 7 graduate and 8 undergraduate students' research projects