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Education

- Ph.D. City and Regional Planning, **Georgia Institute of Technology** 2019 – 2023
  Dissertation Committee: Clio Andris (Chair); Subhrajit Guhathakurta; Perry Yang; Christopher A. Le Dantec; Filip Biljecki
- Master of City and Regional Planning, **Georgia Institute of Technology** 2019 - 2023
- B.S. Computational Science, **Minerva University** 2015 - 2019
  Member of the Inaugural class of students with 2% acceptance rate
- B.A. Sociology, **University of California – Berkeley** 2013 - 2015

Research Interests

- Urban analytics
- Spatial and social networks
- Inclusive social and transportation infrastructure planning
- Application of digital civics, critical data, and participatory AI methods to support human inputs and community engagement for spatial planning process

Manuscript Publication

- **Liang, X.**, Hidalgo, C.A., Balland, P.A., Zheng, S., & Wang, J. (2024). Intercity connectivity and innovation. *Computers, Environment, and Urban Systems*, 109, 102092. *The Professional Geographer*. https://doi.org/10.1016/j.compenvurbsys.2024.102092
- Sarkar, D., Gogarten, J.F., Liang, X., Andris, C., **Liang, X.**, Opito, E.A., Valenta, K., Kalbitzer, U., Sengupta, R., & Chapman, Colin. (2023). Impacts of COVID-19 on Biodiversity Conservation and Community Networks at Kibale National Park, Uganda. *The Professional Geographer*. https://doi.org/10.1080/00330124.2023.2250416
- **Liang, X.**, Baker, J., DellaPosta, D., Andris, C. (2023). Is your neighbor your friend? Scan methods for spatial social network (SSN) hotspot detection. *Transactions in GIS, 27(3)*, 607-625. https://doi.org/10.1111/tgis.13050
- **Liang, X.**, Lee, S., Chen, H., de la Peña, B., Andris, C. (2022). Characteristics of Jetters and Little Boxes: An Extensibility Study Using the Neighborhood Connectivity Survey. *Social Inclusion 10(3)*, 221-232. https://doi.org/10.17645/si.v10i3.5366
- **Liang, X.,** Kang, Y. (2021). A Review of Spatial Network Insights and Methods in the Context of Planning: Applications, Challenges, and Opportunities. In C. Pettit, R. Goodspeed, A. Staffans (Eds.), *Urban Informatics and Future Cities* (pp. 71-91). Springer Nature. https://doi.org/10.1007/978-3-030-76059-5_5
- **Liang, X.,** Andris, C. (2021). Measuring McCities: Landscapes of chain and independent restaurants in the United States. *Environment and Planning B: Urban Analytics and City Science, 49(2),* 585-602. https://doi.org/10.1177/23998083211014896
- Taylor, R.C*., **Liang, X*.,** Kempes C., Dumas M., West G., Laubichler, M. (2021). Systematic shifts in scaling behavior based on organizational strategy in universities. *PLOS one, 16(10), e0254582*. (*equal contributions) https://doi.org/10.1371/journal.pone.0254582

Conference Proceedings

- Snehalkumar, G., Iyer, S., Lunga D., Yabe, T., **Liang, X.**, Ananthabhotla, B., Behari, N., Guggilam, S., Chi, G. (2022). Data-driven Humanitarian Mapping and Policymaking: Toward Planetary-Scale Resilience, Equity, and Sustainability. In *Proceedings of the 28th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD '22), August 14-18, 2022, Washington, DC, USA*, *4872-4873*. https://doi.org/10.1145/3534678.3542918

PhD Dissertation

- Liang, X. (2023). Connectivity for whom and at what cost: Contesting network infrastructure duality in urban planning. PhD Thesis at Georgia Institute of Technology. https://repository.gatech.edu/items/17423254-589d-4fc3-84a3-e66b05eab76e

Presentations

- "Beyond Nodes and Edges: Integrating Spatial Contexts into Urban Network Science". *University of Michigan Center for the Study of Complex Systems Seminar*. Ann Arbor. March 26th, 2024.
- "Towards an Inclusive Aerotropolis: How Connectivity Infrastructure Support or Hinder Mobility Flows for Airport-adjacent Residents". *Annual Conference of Association of Collegiate Schools of Planning (ACSP)*. Chicago. November 3rd, 2023.
- "Spatial Social Networks Metrics and Visualization in R". *SNOMAN Spatial Social Network Workshop*. Atlanta. May 19th, 2023.
- "Panel: How Does Geography Look According to Foundation Models?". *Geography According to ChatGPT*. Virtual. May 4th, 2023.
- "Detecting Vacant, Abandoned, and Disinvested (VAD) Properties in Savannah, Georgia using Human-in-the-loop Machine Learning". *Annual Conference of American Geographers (AAG)*. Denver. March 26th, 2023.
- "Capturing the Social Impact of Demolishing a Historic Street for a New Subway Station: Evidence from a Participatory GIS Survey in Guangzhou, China". *Annual Conference of Association of Collegiate Schools of Planning (ACSP)*. Toronto. November 3rd, 2022.
- "Detecting Vacant, Abandoned, and Disinvested (VAD) Properties in Savannah, Georgia using Human-in-the-loop Machine Learning". *Invited talk at Dr. Andrew L. Tan Data Science Institute, De La Salle University (Philippines)*. October 12th, 2022.
- "Spatial Social Network (SSN) Hot Spot Detection: Scan Methods for Non-Planar Networks". *The Annual Conference of American Association of Geographers (AAG)*. February 26, 2022.
- "Detecting Vacant, Abandoned, and Disinvested (VAD) Properties in Savannah, Georgia using Human-in-the-loop Machine Learning". *Annual Conference of Association of Collegiate Schools of Planning (ACSP)*. October 23rd, 2021.
- "A Review of Spatial Network Insights and Methods in the Context of Planning: Applications, Challenges, and Opportunities". *The 17th International Conference on CUPUM – Computational Urban Planning and Urban Management*. June 10th, 2021.
- "Patterns of Chain and Independent Restaurants in U.S. Cities". GaTech College of Design Virtual Research Symposium on Point of Interest. Virtual. April 30th, 2021.
- "Demographic and Behavioral Characteristics of Individuals with Global, Local, or Glocal Connectivity Patterns". *North American Regional Science Conference (NARSC)*. Nov. 10th, 2020.
- "A R Online Tutorial for Visualizing Spatial Social Networks". MoVis: Information Visualization of Geospatial Networks, Flows, and Movements Workshop at *IEEE VIS*. October 26th, 2020.
- "Explaining Urban Scaling, Variances, and Economic Structure with Multiplex Networks in China". *Invited Talk at MIT Sustainable Urbanization Lab Internal Seminar*. October 7th, 2020.
- "Measuring McCities: Quantifying 'Chainness' of Foodscape in the United States". *The Annual Conference of American Association of Geographers*. April 12th, 2020.

Teaching & Guest Lecture

- Instructor, URP535 / SI 536 / URP 402 Introduction to Urban Informatics.
  @University of Michigan - Winter 2024
- Graduate Teaching Assistant, CP6025 Advanced Planning Methods (Statistics & R).
  @Georgia Institute of Technology - Fall 2022
- Instructor, Computational Thinking through MIT App Inventor.
  @Shenzhen Longgang Technical School – Spring 2018
- Instructor, Introduction to Python.
  @United World College (UWC) Hong Kong – Spring 2018
- Guest Lecturer, Spatial Networks Application in PPGIS. GEOG-609 GIS and Spatial Decision Support for Planning and Resource Management.
  @University of Waterloo - Spring 2023.
- Guest Lecturer, Spatial Networks Application in Transportation Planning. CGN6905 Applied Data Science in Civil and Environmental Engineering.
  @University of Florida - Fall 2022.
- Guest Lecturer, Agent-based Modeling and Data Preparation. CP8873 Smart City Workshop – Future Airport City Systems Design.
  @Georgia Institute of Technology - Fall 2022
- Guest Lecturer, Geographically Weighted Regression. CP6521 Advanced GIS.
  @Georgia Institute of Technology - Spring 2021

Mentoring

- Qifan Wu, Master of Landscape Architecture and Master of Information, University of Michigan
- Neel Marathe, Bachelor of Urban Technology, University of Michigan
- Allison Yu, Master of Urban and Regional Planning, University of Michigan
- Aritra Gupta, Master of Urban and Regional Planning, University of Michigan
- Lu Chen, Master of City and Regional Planning, Georgia Institute of Technology
- Brandon Noll, Undergraduate in Computer Science, Georgia Institute of Technology

Awards & Honors

- Professional Excellence Award, School of City and Regional Planning, Georgia Tech, 2023
- ACSP Diversity & Inclusion Fellowship ($800), 2023
- The ACRP (Airport Cooperative Research Program) Graduate Research Award ($12,000), 2022
- Georgia Tech Data Science Research Scholarship, The Institute of Data Engineering and Science, 2020
- 1st place in Georgia Tech Transportation and GIS Hackathon, 2019

Media Coverage

- Washington Post (2022). The most common restaurant cuisine in every state, and a chain-restaurant mystery (Link).
- CNN (2022). Why do areas with more chain restaurants favor Trump? (Link)
- FiveThirtyEight (2022). Data is Plural 2022.10.05 edition (Link).
- Georgia Public Broadcasting (2022). Which states have the most chain restaurants? Georgia Tech Researchers map it out (Link).
- Bloomberg (2021). MapLab: The Cities Where Chain Restaurants Dominate (Link).

Experience

Research

- **Georgia Tech – Friendly Cities Lab** 08.2019 - now
  Graduate Research Assistant Atlanta, GA

Worked with Dr. Clio Andris on an NSF-funded project to develop methods, tools, and tutorials to measure and understand spatial and social network dynamics.

- **National University of Singapore – Urban Analytics Lab** 05.2022 – 07.2022
  Visiting Scholar Singapore
  Worked with prof. Filip Biljecki on mining spatial and social infrastructure data from OpenStreetMap data and develop a Postgresql database and workflow to process the data.
- **Smart Communities Corps Program** 05.2021 - 08.2021
  Graduate Research Assistant Savannah, GA
  Worked with the City of Savannah to develop machine learning models to identify vacant, abandoned, and disinvested properties with community engagement.
- **Chinese Academy of Science** 07.2019 - 08.2019
  Research Assistant Beijing, China
  Analyzed and visualized capital investment networks in China.
- **Santa Fe Institute** 06.2017 - 12.2018
  Research Experience for Undergraduates Santa Fe, NM
  Researched scaling properties of Universities in U.S. through power law statistics. Paper published at *PlosOne*.
- **Minerva University** 09.2016 – 05.2017
  Research Assistant San Francisco, CA
  Worked with the Dean of Computational Science Dr. Eric Bonabeau to research whether diverse teams are better at solving complex tasks using agent-based models in NetLogo.
- **Icosystem** 05.2016 - 07.2016
  Research Intern Berkeley, CA
  Built agent-based models in NetLogo to run simulations and drove understanding of gender inequality in business organizations. Findings featured in Forbes.

Leadership

- **Miaoqianzhi 'jie' Research Group** 10.2020 – Now
  Founder Guangzhou, China
  Founded an activist research and volunteer group to promotes public discourse and conducts quantitative and qualitative research around Miaoqianzhi 'jie' (a historic street that is planned to be demolished to build a new metro station).

Industry

- **Youth Global Network – Project C** 01.2018 – 05.2018
  Full-time Software Development Intern Hong Kong, China
  Supported the development of a ReactJS new frontend of MIT App Inventor and taught introductory programming classes to underserved youth in Hong Kong and Shenzhen.
- **Department of Education – Argentina** 02.2017 – 07.2017
  Student Consulting Team Lead Buenos Aires, Argentina
  Conducted policy evaluation for an education program rolled out by the Department using genetic matching and casual inference methods. Presented at the Department.
- **1kg Box** 05.2014 – 08.2014
  Product Design Assistant Guangzhou, China
  Designed course materials for rural teachers through human centered design process, organized workshops in Macau, and conducted rapid prototyping at IDEO – Shanghai.

Volunteering

- **Kiron** 01.2018 – 05.2018
  Student volunteer Berlin, Germany
  Worked with Kiron, an education non-profit to survey the conditions of refugee students and help develop a tutorial to onboard them with online learning.
- **Center of Applied Rationality** 05.2016 - 07.2016
  Research volunteer Berkeley, CA
  Conducted literature review across fields such as cognition, collective intelligence, and behavioral economics to explain cognitive biases in group decision-making.

Academic Activities and Services

Reviews

- Journal of Regional Science 2024
- Journal of Transport Geography 2024
- EPJ Data Science 2023
- Environmental Planning B: Urban Analytics and City Science 2021; 2022
- GIScience & Remote Sensing 2021
- Computational Urban Science 2021; 2022
- Sage Open 2021

Service

- MetroLab Network GenAI for Local Government TaskForce. 2024
- Session organizer at 2023 Annual Conference of American Geographers (AAG): 2023 AAG Symposium on Human Dynamics Research – Participatory AI. 2023
- Organizer at Atlanta Environment Data + Mapping Hackathon. 2023
- Student Volunteer for the inaugural ACSP International Students Workshop at the 2022 ACSP Conference. 2023
- Workshop organizer at 3rd ACM KDD: Data-driven Humanitarian Mapping Workshop: Harnessing Human-Machine Intelligence for High-Stake Public Policy and Resilience Planning. 2022
- Session organizer at 2022 Annual Conference of American Geographers (AAG): Advancing Spatial and Social Network in GIS. 2022
- Session organizer at 2022 Annual Conference of American Geographers (AAG): Perspectives and Tensions in Urban Redevelopment. 2022
- Organizer of CPGIS (Chinese Professional in Geographic Information Science) sponsored AAG 2022 Chinese GISer socialization event. 2022
- Student Ambassador for newly admitted students at the Georgia Tech School of City and Regional Planning. 2023; 2022; 2021
- Student Representative at the Georgia Tech School of City and Regional Planning Chair Search Committee. 2021
- Student Volunteer at the 1st ACM KDD workshop: Data-driven Humanitarian Mapping Workshop: Harnessing Data and Human-Machine Intelligence for Actionable Policy Decisions. 2020

Skills

- *Coding* R, Python, Javascript, ReactJS, HTML, CSS, SQL
- *Database* PostgresSQL, PostGIS, SQLite
- *Distributed Computing* Amazon AWS, Spark, DataBricks
- *(Web) Map* ArcGIS, QGIS, Leaflet, Mapbox JS, Tableau, D3

- *Modeling* NetLogo, GAMA
- *Design* Adobe Creative Suite, Gephi

Language

- English, Mandarin, Cantonese