Koichi Ito

Singapore
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Research Interests

A PhD candidate at the National University of Singapore and consultant at the World Bank Group, interested in researching travel behavior, human perception, and equity with emerging spatial data sources, such as street-view imagery, and machine/deep learning techniques.

Education

The National University of Singapore **Aug 2022 – Present**
PhD in Urban Analytics *Singapore*
- Ongoing projects supervised by Dr. Filip Biljecki:
  1. EEG-based analysis of cyclists' visual perception.
  2. Image generation model for street view imagery.

The National University of Singapore **Aug 2019 – May 2021**
Master of Urban Planning *Singapore*
- 4.53/5.00 cumulative GPA (Highest Distinction)

Soka University of America **Aug 2015 – May 2019**
Bachelor of Arts, Liberal Arts with Concentration in Environmental Studies *Aliso Viejo, CA*
- 3.95 /4.00 cumulative GPA (summa cum laude)

Council on International Educational Exchange **Aug 2017 – Dec 2017**
Study Abroad Program *Dakar, Senegal*

Honors

- Singapore International Graduate Award (SINGA) Scholarship **Aug 2022 – Present**
- Japan Student Services Organization Scholarship (US$40,000) **Aug 2020 – May 2021**
- Soka University of America Makiguchi Scholarship (US$10,000) **May 2019**
- Soka University of America Dean's List (GPA is 3.7 or higher) **Dec 2015 – May 2019**
- Soka University of America Merit Scholarship (US$20,000) **Aug 2015 – May 2019**

Publications

- **Ito, K.**, et al. (2024). *ZenSVI: An Open-Source Software for Integrated Acquisition, Processing and Analysis of Street View Imagery.* Manuscript under review for publication in *Computers, Environment and Urban Systems.*
- **Ito, K.**, Bansal, P., & Biljecki, F. (2024). *Examining the causal impacts of the built environment on active transportation using time-series street view imagery.* Manuscript under review for publication in *Transportation Research Part A: Policy and Practice.*
- **Ito, K.**, Quintana, M., Han, X., Zimmermann, R., & Biljecki, F. (2024). *Sidewalk the Talk: Translating street view imagery to correct perspectives to enhance bikeability and walkability studies.* Manuscript under review for publication in *International Journal of Geographical Information Science.*
- **Ito, K.**, Kang, Y., Zhang, Y., Zhang F., & Biljecki, F. (2024). *Understanding Urban Perception with Visual Data: A Systematic Review. Cities*, 152, 105169. https://doi.org/10.1016/j.cities.2024.105169
- Hou, Y., et al. (**Ito, K.**) (2024). *Global Streetscapes – A comprehensive dataset of millions of street-level images over 700 cities for urban science and analytics. ISPRS Journal of Photogrammetry and Remote Sensing*, .
- Wang, S., et al. (**Ito, K.**) (2024). *Mapping the landscape and roadmap of geospatial artificial intelligence (GeoAI) in quantitative human geography: An extensive systematic review. International Journal of Applied Earth Observations and Geoinformation*, 128, 103734. https://doi.org/10.1016/j.jag.2024.103734
- Wang, Z., **Ito, K.**, & Biljecki, F. (2023). *Assessing the equity and evolution of urban visual perceptual quality with time series street view imagery. Cities*, 145, 104704. https://doi.org/10.1016/j.cities.2023.104704
- **Ito, K.**, & Biljecki, F. (2021). *Assessing bikeability with street view imagery and computer vision. Transportation Research Part C: Emerging Technologies*, 132, 103371. https://doi.org/10.1016/j.trc.2021.103371
- Biljecki, F., & **Ito, K.** (2021). *Street view imagery in urban analytics and GIS: A review. Landscape and Urban Planning*, 215, 104217. https://doi.org/10.1016/j.landurbplan.2021.104217

Academic Journal Peer Review

- Scientific Data — *Reviewed 1 time* **2024**
- Philosophical Transactions A — *Reviewed 1 time* **2024**
- Urban Informatics — *Reviewed 2 times* **2023, 2024**
- Landscape and Urban Planning — *Reviewed 2 times* **2022, 2023**
- International Journal of Geographical Information Science — *Reviewed 1 time* **2023**
- Computational Urban Science — *Reviewed 1 time* **2023**
- Journal of Geographical Systems — *Reviewed 1 time* **2022**
- International Journal of Applied Earth Observation and Geoinformation — *Reviewed 1 time* **2022**
- Environment and Planning B: Urban Analytics and City Science — *Reviewed 2 times* **2021, 2022**

Talks and Poster Presentations

- **"Advancing urban modeling with emerging geospatial datasets and AI technologies"** **Feb 2024**
  Gave an invited talk at the Global Space and Technology Convention 2024 Conference hosted by Singapore Land Authority. *Singapore*
- **"Evaluating active mobility and urban perception with visual data"** **Oct 2023**
  Gave a guest lecture talk at a GIS course at the National University of Singapore. *Singapore*
- **"Sidewalk the Talk: Translating street view imagery to correct perspectives to enhance bikeability and walkability studies"** **Oct 2023**
  Presented a poster at the Urban Solutions and Sustainability R&D Congress. *Singapore*
- **"Street View Imagery: Have we answered all the questions with it? What's left to do?"** **Sep 2023**
  Organized a session at Spatial Data Science Symposium 2023. *Online*
- **"Application of GIS in research and international institution."** **Oct 2021**
  Presented my research at Soka University of America, Advanced GIS Course. *Online*

Work Experience

The World Bank Group — Poverty and Equity Global Practice — Apr 2021 – Present

Consultant — *Remote*

- Developed and maintained interactive data dashboards using Shiny and Golem frameworks to facilitate spatial data visualization and analysis.
- Implemented spatial lag models in R to analyze factors correlated with poverty and stunting.
- Led the collection, cleaning, and mapping of various data sets including nighttime light, natural disaster metrics, household data, and accessibility indicators to predict poverty rates in developing countries with Python.
- Conducted a capacity-building program for Tanzania's National Bureau of Statistics, imparting skills and knowledge on spatial analysis using R.

Johnson Controls — Nov 2020 – May 2021

Data Analytics Intern — *Singapore*

- Constructed a data pipeline of PM2.5 data, weather data, and traffic data in Singapore on Azure Synapse for a real-time Power BI dashboard.
- Built a time-series model to predict PM 2.5 levels anywhere in Singapore with Python.

The World Bank Group — Tokyo Development Learning Center — Apr 2020 – Jan 2021

Urban Development Research Intern — *Remote*

- Compiled comprehensive data set of over 4,000 Tokyo-based startups' information, such as addresses, investors, and accelerators, using Python.
- Visualized financial performance of light rail transport system in Toyama prefecture between 2002 and 2019.

ENDA LEAD Afrique Francophone — Aug 2017 – Dec 2017

Research Intern — *Dakar, Senegal*

- Authored a report on accessibility to potable water in 500 villages in the Saint-Louis region in Senegal.

Teaching Experience

AR5805 Advanced Architecture Studio **Aug 2023 – Dec 2023**

Teaching Assistant *The National University of Singapore, Department of Architecture*

- Assisted the lead professor with logistical and administrative tasks, including the preparation of course documents and aiding in the smooth operation of lectures.

DEP5111 Planning Technologies **Jan 2024 – May 2024**

Teaching Assistant *The National University of Singapore, Department of Architecture*

- Assisted Master of Urban Planning students in mastering R Data Science through hands-on coding support, troubleshooting, and grading, enhancing their data analysis and visualization skills.

Supervising

- Zeyu Wang: Master of Urban Planning, the National University of Singapore **Aug 2022 – May 2023**
- Heyang Hua: Master of Urban Planning, the National University of Singapore **Jan 2024 – May 2024**
- Shu Wang: Master of Applied GIS, the National University of Singapore **Apr 2024 – Jul 2024**

Technical Skills

Languages: Japanese (native), English (fluent), French (limited working proficiency)
Computer Skills: Python, R, SQL, Spark, ArcGIS, QGIS, Google Earth Engine, Azure, AWS, Power BI

References

- **Filip Biljecki**
  Presidential Young (Assistant) Professor
  College of Design and Engineering, The National University of Singapore
- **Prateek Bansal**
  Presidential Young (Assistant) Professor
  College of Design and Engineering, The National University of Singapore
- **Zhang Ye**
  Associate Professor
  School of Architecture, Tsinghua University
- **Takaaki Masaki**
  Senior Economist
  The World Bank, Poverty & Equity Global Practice