Guangyu (Tim) Wu

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Education

Columbia University — *New York, USA*

MS IN DATA SCIENCE — *Jan 2021 - May 2022*

- Coursework: Machine Learning for Data Science, Advanced Big Data and AI, Advanced Spatial Analysis, Causal Inference

New York University Shanghai — *Shanghai, China | New York, USA*

BS IN DATA SCIENCE AND FINANCE — *Sep 2016 - May 2020*

- Coursework: Machine Learning, Databases, Optimization and Math Programming, VR and AR Fundamentals

Research Interests

Digital Twins, Sustainable Cities, Spatial Inequality, Geospatial Data Science

Experiences

Jun 2022 - Now **Associate Research Scholar**, Center for Spatial Research, Columbia University

Utilize CV and NLP technology to extract information such as footprints, land use, addresses from scanned atlases.
Match historical cadastral boundaries and modern tax lots with GIS for longitudinal linkage of urban space.
Lead graduate research assistants to develop new methods of automatic map extraction and address geocoding.

Oct 2021 - May 2022 **Graduate Research Assistant**, Center for International Earth Science Information, Columbia University

Combined geospatial clustering and fuzzy matching to link health facility records from heterogeneous sources.
Trained a classifier on land cover, road network, and building data to detect false-positive settlements in Africa.
Implemented scripts to discover common facility types from facility names in a language-agnostic approach.

Jun 2021 – Sep 2021 **Data Science Intern**, China ESG Team, Rhodium Group

Developed indices to track real-time ESG trends of companies and prototyped visualization dashboards.
Created pipelines to collect, clean, filter, and report foreign investment data from public records.

Jun 2020 – May 2021 **Adjunct Research Associate**, Humanities Research Lab, New York University Shanghai

Led a multidisciplinary team of research assistants to do exploratory data analysis on immigrant census data.
Built interactive data analysis and wrangling tools to empower data-driven research and teaching.

Presentations

March 2022. *Discover and Connect Urban Data with Artificial Intelligence.* Workshop at NYC Open Data Week, hosted online with 30+ participants.

November 2022. *Mapping 19th Century Census Microdata in New York City, on and off the Grid.* Forthcoming presentation at Social Sciences History Association 2022 Annual Meeting, Chicago, USA.

Publications

Yuan Y., **Wu G.** "Problems and Potentials of Teaching Design Thinking as Online Courses in the Chinese Context." Springer Nature Social Sciences Vol. 1, 143 (2021).

Vyas D., Rogan E., **Wu G.**, Galal S. "Social and Emotional Development in a Telehealth-Based Ambulatory Care Skills Course." AJPE Vol. 86, 4 (2021).

Projects

Pandemic Resilience

Built Environment Factors and the Pandemic

Examine the impact of street network and density on the pandemic through regression analysis of a global dataset.

Accessibility and Equity of COVID-19 Tests

Analyze the evolving distribution of NYC test sites and their spatial accessibility with 3SFCA.

Explain the Uneven Recovery of Subway Ridership

Build high spatial-temporal resolution data to model ridership at different stations with XGBoost.

Optimize Subway Network Passenger Flows

Model subway network with turnstile data and propose optimization that balances traffic time and infection risk.

Sustainable and Green City

Capture Pedestrian Flows with Traffic Cameras

Detect pedestrians in 18 million photos of street intersections and identify patterns with time series clustering.

Evaluate the Reliability of Green View Index in NYC

Identify challenges in measuring Green View Index by comparing it with tree census, lidar, and field observations.

Detect Forest Changes with Remote Sensing

Develop robust high-resolution forest change detection based on Dynamic World and remote sensing data on GEE.

Urban Greenery and Excessive Heat Waves

Study the relationship between extreme air temperature and urban greenery in Changjiang delta region with GWR.

More detailed summaries of the projects are available on my portfolio website *www.tim-wu.com* .

Awards

2021	**Data for Good Scholar Program**, Columbia University Data Science Institute	
2020	**Shanghai Municipal Excellent University Graduate**, New York University Shanghai	
2019	**Youth Representative**, United Nations Civil Society Unit	
2018	**Dean's Undergraduate Research Fund**, New York University Shanghai	