

Qingqing CHEN

Ph.D. Candidate | Urban Data Scientist

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📍 United States

Ph.D. Candidate focuses on critically understanding urban spaces by leveraging (geo)computational techniques and data informatics. Interested in urban data science, geocomputation, spatial analysis and visualization, social media and big data. Skilled in quantitative research, programming, statistics, data analysis and visualization. Ability to establish priorities and meet challenges head-on.

🎓 EDUCATION

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| 2021 - present | Doctor of Philosophy (Geography) , University at Buffalo - SUNY, United States |
| 2014 - 2015 | Master of Science (Physics) , National University of Singapore, Singapore |
| 2010 - 2014 | Bachelor of Science (Physics) , Minjiang University of China, China |

🔍 PUBLICATIONS

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| Under review | Chen, Q. , Poorthuis, A., Crooks, A. Mapping the Invisible : Decoding Perceived Urban Smells through Geosocial Media in New York City, <i>Annals of the American Association of Geographers</i> . |
| Under review | Chen, Q. , Crooks, A., Sullivan, A., Surtees, J., and Tumiel-Berhalter, L. From Print to Perspective : A mixed-method analysis of the convergence and divergence of COVID-19 topics in newspapers and interviews, <i>PLOS Digital Health</i> . |
| Under review | Poorthuis, A., Chen, Q. , Zook, M. A nationwide dataset of de-identified activity spaces derived from geotagged social media data, <i>Environment and Planning B : Urban Analytics and City Science</i> . |
| Under review | Chuang, I.-T. and Chen, Q. . Urban Street Dynamics : Assessing the Relationship of Sidewalk Width and Pedestrian Activity Based on Mobile Phone Data, <i>Urban Studies</i> . |
| 2024 | Chen, Q. , Wang, B., Crooks, A. (2024). Community resilience to wildfires : A network analysis approach by utilizing human mobility data, <i>Computers, Environment and Urban Systems</i> , 110, 102110, https://doi.org/10.1016/j.compenvurb-sys.2024.102110 . |
| 2024 | Crooks, A. and Chen, Q. (2024). Exploring the new frontier of information extraction through large language models in urban analytics, <i>Environment and Planning B : Urban Analytics and City Science</i> , 51(3), 565-569. https://doi.org/10.1177/23998083241235495 |
| 2023 | Chen, Q. , Croitoru, A. and Crooks, A. (2023). A Comparison between Online Social Media Discussions and Vaccination Rates : A Tale of Four Vaccines, <i>DIGITAL HEALTH</i> . 2023;9. doi:10.1177/20552076231155682 |
| 2022 | Chuang, I.-T., Chen, Q. and Poorthuis, A. (2022). Categorizing Urban Space based on Visitor Density and Diversity : A View through Social Media Data, <i>Environment and Planning B : Urban Analytics and City Science</i> , 0(0). https://doi.org/10.1177/23998083221139848 |
| 2022 | Chen, Q. and Crooks, A. (2022). Analyzing the Vaccination Debate in Social Media Data Pre- and Post-COVID-19 Pandemic, <i>International Journal of Applied Earth Observation and Geoinformation</i> . 110, 102783 https://doi.org/10.1016/j.jag.2022.102783 |
| 2022 | Chuang, I.-T. and Chen, Q. (2022). Are Urban Hotspots in COVID-19 Pandemic : A Longitudinal Study of Human Mobility Pulse through Mobile Location Data, <i>SSRN</i> . http://dx.doi.org/10.2139/ssrn.4015368 |
| 2021 | Chen, Q. and Crooks, A. (2021). Delineating a '15-Minute City' : An Agent-based Modeling Approach to Estimate the Size of Local Communities, <i>In Proceedings of the 4th ACM SIGSPATIAL international workshop on GeoSpatial simulation</i> (pp. 29-37) https://dl.acm.org/doi/abs/10.1145/3486184.3491080 |
| 2021 | Chen, Q. , Chuang I.-T., Poorthuis, A. (2021). Entangled Footprints : Understanding Urban Neighbourhoods by Measuring Distance, Diversity, and Direction of flows in Singapore, <i>Computers, Environment and Urban Systems</i> , 90, 101708. https://doi.org/10.1016/j.compenvurb-sys.2021.101708 |
| 2021 | Chen, Q. and Poorthuis, A. (2021). Identifying Home Locations in Human Mobility Data : An Open-source R Package for Comparison and Reproducibility, <i>International Journal of Geographical Information Science</i> , 35(7), 1425-1448. https://doi.org/10.1080/13658816.2021.1887489 |
| 2017 | Ng, C.-L., Chen, Q. , Chua, J.-J. and Hemond, H.F. (2017). A Multi-Platform Optical Sensor for In Vivo and In Vitro Algae Classification, <i>Sensors</i> 2017, 17, 912. https://doi.org/10.3390/s17040912 |
| 2016 | Ng, C. L., Ng, Y. J., Chen, Q. , and Hemond, H. F. (2016). Corrections for Matrix Effects on Fluorescence Measurement of A Multi-platform Optical Sensor, <i>Water Practice and Technology</i> , 11(3), 644-660. https://doi.org/10.2166/wpt.2016.069 |

TEACHING EXPERIENCE

- Dec 2023 | **Lecturer, University at Buffalo(UB), United States**
Aug 2023 | **Univariate Statistics in Geography (Lecture)**, Department of Geography
- > Designing and organizing class focused on descriptive and inferential aspects of statistics
 - > Teaching and mentoring 28 undergraduate students
 - > Evaluating students' assignments and proctoring exams
- Univariate Statistics Geographical Applications R & RStudio
- May 2023 | **Teaching Assistant, University at Buffalo(UB), United States**
Jan 2022 | **Geographical Information Systems (Laboratory)**, Department of Geography
- > Taught and mentored 50 students (both undergraduate & graduate) in practical GIS lab
 - > Evaluated students' assignments and proctored exams
- Geographical Information Systems (GIS) ArcGIS Pro
- Jan 2020 | **Graduate Teaching Assistant, Singapore University of Technology & Design(SUTD), Singapore**
Nov 2019 | **Computational Urban Analysis**, MSc Urban Science, Policy & Planning program
- > Provided assistance to 20 graduate students in practical programming lab
 - > Assisted and mentored students in groups and on an individual basis
 - > Evaluated students' assignments together with professor
- Practical Programming Lab Assignment Evaluation
- May 2019 | **Graduate Teaching Assistant, Singapore University of Technology & Design(SUTD), Singapore**
Jan 2019 | **Research Methodology for Urban Analysis**, MSc Urban Science, Policy & Planning program
- > Enhanced class productivity by providing assistance in class
 - > Discussed students' questions with professor & mentored students in final projects
- Practical Programming Lab Training & Guidance

WORK EXPERIENCE

- Aug 2023 | **Research Assistance, University at Buffalo (UB), United States**
Jun 2023 | **Department of Geography , PI : Dr. Andrew Crooks**
- Key Responsibilities**
- > Conducted a "big-thick" data analysis for analyzing pandemic impacts via newspapers and interviews
 - > Analyzed and compared convergence and divergence in pandemic topics through topic modeling
- Topic Modeling Big-Thick Data Space & Time
- Aug 2022 | **Research Assistance, University at Buffalo (UB), United States**
Jun 2022 | **Department of Geography , PI : Dr. Andrew Crooks**
- Key Responsibilities**
- > Analyzed and visualized large scale social media and mobile mobility data
 - > Quantified disaster resilience by leveraging network analysis techniques
- Network Analysis Resilience Triangle Time-series Clustering Space & Time
- Jan 2021 | **Research Associate, Singapore University of Technology & Design(SUTD), Singapore**
Apr 2018 | **Humanities, Arts and Social Sciences (HASS), PI : Dr. Ate Poorthuis**
- Key Responsibilities**
- > Analyzed and visualized large scale survey data and social media data
 - > Conducted Q method analysis to identify Quality of life (QoL) indicators
 - > Conducted segmentation analysis with machine learning techniques
 - > Designed and developed interactive visualization dashboard for client-side
 - > Developed an R package to adopt different algorithms for inferring meaningful locations
 - > Performed data collection through web crawling and interfacing with APIs
- Key Projects**
- > **New Urban Kampung Research Programme**
 - > Objective : Analyzing shifts in socio-demographic factors & creating new housing solutions in tandem with residents' evolving needs and aspirations through a combination of big data & advanced modelling tools.
 - > **The Relational Footprints of Urban Neighborhoods : Inferring Spatial Interactions from Social Media in Singapore**
 - > Objective : Understanding the social diversity by human footprints between neighborhoods from social media data.
 - > **R Package for Identifying Meaningful Locations of Social Media Users**
 - > Objective : Providing a consistent framework & interface to adopt different approaches to infer meaningful locations from social media data & enabling researchers to write structured, algorithmic 'recipe' to identify meaningful locations.
- Interactive Visualization Spatial Analysis Segmentation Analysis Machine Learning Text Mining

Mar 2018 | Research Engineer, Singapore-MIT Alliance for Research & Technology Centre (SMART), Singapore
 Oct 2015 | Center for Environmental Sensing & Modeling (CENSAM), PI : Dr. Harold Hemond

Key Responsibilities

- > Prepared reagents for calibration and carried out laboratory data collection & analysis
- > Investigated matrix effects on fluorescence properties and explored methods for algae classification
- > Validated & qualified optical sensor in measuring standards samples & calibrated spectrometer wavelength
- > Scheduled and trained 1 research assistant & 5 interns
- > Organised lab test solutions, compounds and accurately ordered & inventoried lab chemicals and supplies

Reagent Calibration Data Collection Algae Classification Lab Management Training & Guidance

CONFERENCE PRESENTATIONS/TALKS

Upcoming	Chen, Q. , Poorthuis, A. and Crooks, A. “ <i>Mapping the Invisible : Decoding Perceived Urban Smells through Geosocial Media in New York City</i> ”, American Association of Geographers (AAG 2024), Hawaiian, U.S.
Feb 21, 2024	Chen, Q. “ <i>Where to go ?</i> ”, MIT Senseable City Lab, Boston, MA, U.S.
Sep 14-17, 2023	Poorthuis, A., Chen, Q. and Zook, M. “ <i>A Nationwide Dataset of De-identified Activity Spaces Derived from Geotagged Social Media Data</i> ”, 2023 European Colloquium on Theoretical and Quantitative Geography (ECTQG'23), Braga, Portugal
Sep 5, 2023	Chen, Q. , Wang, B. and Crooks, A. “ <i>Community Resilience to Wildfires : A Network Analysis Approach by Utilizing Human Mobility Data</i> ”, The Fourth Spatial Data Science Symposium (SDSS2023), Virtual
Aug 11, 2023	Kate Brandt, Chen, Q. , Keiko Nomura, Maryam Torkashvand, Alexi Vogel, Jinwen Xu, Hao Yang and Min Gon Chung. “ <i>International Supply Chain Shocks in a Metacoupled World</i> ”, I-GUIDE Summer School (I-GUIDE'23), Boulder, CO, U.S.
Jul 20, 2023	Chen, Q. and Crooks, A. “ <i>A Tale of Vaccination Debates & Public Responses : Data-driven Insights from a Multi-medium Exploration</i> ”, UB PIPP Modeling Workshop, Buffalo, NY, U.S.
Mar 23-27, 2023	Chen, Q. , Wang, B. and Crooks, A. “ <i>Community Resilience to Wildfires : A Network Analysis Approach by Utilizing Human Mobility Data</i> ”, American Association of Geographers (AAG 2023), Denver, CO, U.S.
Mar 16, 2023	Chuang, I.-T., Chen, Q. and Poorthuis, A.. “ <i>Categorizing Urban Space based on Visitor Density and Diversity : A View Through Social Media Data</i> ”, Spatial Lightning Talks 2023, Center for Spatial Studies, US Santa Barbara, CA, U.S.
Feb 18, 2022	Chen, Q. and Crooks, A. “ <i>Analyzing the Vaccination Debate in Social Media Data Pre- and Post-COVID-19 Pandemic</i> ”, Graduate Student Lightning Talks, 2022 Colloquium Speaker Series, UB Department of Geography, Buffalo, NY, U.S.
Feb 25-Mar 01, 2022	Chen, Q. and Crooks, A. “ <i>Tracking the Dynamics of Vaccination Sentiment in Large-Scale Social Media Data</i> ”, American Association of Geographers (AAG 2022), Virtual
Nov 02-05, 2021	Chen, Q. and Crooks, A. “ <i>Delineating a ‘15-Minute City’ : An Agent-based Modeling Approach to Estimate the Size of Local Communities</i> ”, 4th ACM SIGSPATIAL International Workshop on GeoSpatial Simulation, Virtual
Sep 07-10, 2021	Chuang, I.-T. and Chen, Q. . “ <i>Re-assess Meaningful Urban Spaces : Sensing Auckland Social ‘Hotspots’ with Mobile Location Data under the COVID-19 Impact</i> ”, 5th International Conference ‘Urban e-Planning’, Institute of Geography and Spatial Planning, University of Lisbon, Lisbon, Portugal
Nov 22-25, 2019	Chen, Q. and Poorthuis, A., “ <i>Identifying Home Locations in Human Mobility Data : An Open-source R Package for Comparison and Reproducibility</i> ”, GSES & GeoAI-UC Geoinformatics Weeks, Guangzhou, China

REVIEWS/PROFESSIONAL SERVICES

2024	International Journal of Geographical Information Science (IJGIS)
2023	PLOS ONE
	Annals of the American Association of Geographers (AAG)
	Environment and Planning B : Urban Analytics and City Science (EPB)
2022	PLOS ONE
	Environment and Planning B : Urban Analytics and City Science (EPB)
2021	Environment and Planning B : Urban Analytics and City Science (EPB)

AWARDS

- 2024 **Teaching Assistantship**, Department of Geography, University at Buffalo, United States
- 2023 **Quantitative Finance Women's Mentorship Program**, Morgan Stanley, United States
NSF-funded Travel Awards of 2023 I-GUIDE Summer School Program, UCAR-NSF, United States
Hugh W. Calkins Award, Department of Geography, University at Buffalo, United States
Student Academic Excellence, University at Buffalo, United States
Excellence in Teaching Award, Department of Geography, University at Buffalo, United States
Teaching Assistantship, Department of Geography, University at Buffalo, United States
- 2022 **Teaching Assistantship**, Department of Geography, University at Buffalo, United States
- 2021 **PhD Excellence Initiative Fellowship**, Department of Geography, University at Buffalo, United States
- 2012 **Excellent Student Cadre**, Minjiang University of China, China
The First Prize Scholarship, Minjiang University of China, China
- 2011 **The First Prize Scholarship**, Minjiang University of China, China
Pacemaker to Merit Student, Minjiang University of China, China

TECHNICAL SKILLS

- DATA SCIENCE** R (Proficient in tidyverse, ggplot, spatial libraries, interactive visualization dashboard, package development, and project management)
Python (Familiar with NumPy, and pandas)
Spatial Statistics (Familiar with spatial autocorrelation, spatial regression modelling and network analysis)
Machine Learning (Familiar with regression, dimension reduction, clustering and classification)
Text mining (Good at sentiment analysis, tf-idf statistic, n-grams, topic-modelling, co-occurrence analysis & named entity recognition)
Statistics (Proficient in descriptive and inferential statistics)
- TOOLS** ArcGIS Pro, Tableau, Elasticserach, Bash, Git, Markdown, Jupyter Notebooks, Anaconda
- LANGUAGES** English (Fluent), **Mandarin** (Mother tongue)