

# HUI (HENRY) LUAN

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*(Updated on April 30, 2020)*

## EDUCATION

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- 2016      **PhD** in Planning, University of Waterloo, Canada  
*Dissertation:* Spatial and Spatio-temporal Analyses of Neighborhood Retail Food Environments: Evidence for Food Planning and Interventions
- 2011      **MSc** in Cartography and Geographical Information System, Wuhan University, China
- 2009      **BSc** in Geographical Information System, Wuhan University, China

## PROFESSIONAL APPOINTMENT

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- 2018-      **Assistant Professor**, Department of Geography, College of Arts and Sciences, University of Oregon
- 2017-2018      **Postdoctoral Fellow**, School of Human Kinetics and Recreation  
Memorial University of Newfoundland, Canada  
*Mentor:* Dr. Daniel Fuller, Canada Research Chair in Population Physical Activity
- 2011-2016      **Research & Teaching Assistant**, School of Planning & School of Public Health and Systems, University of Waterloo, Canada
- 2009-2011      **Research Assistant**, School of Resources of Environmental Sciences, Wuhan University, China

## RESEARCH INTERESTS

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- Methods**      GIS; Spatial and Spatio-temporal Statistics; Bayesian Modelling; Machine Learning; Big Data Analysis
- Applications**      Public Health; Crime; Urban Environments; Food Access; Active Transportation; Mobile Geospatial Health Data Analysis

## PUBLICATIONS

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### Published or Accepted

- 2020      Quick M and **Luan H.** The spatial structure of socioeconomic advantage: a Bayesian multivariate spatial factor analysis, *International Journal of Geographical Information Science*. (Accepted)

- 2019 Ransom Y\*<sup>1</sup>, **Luan H**\*, Shi X, Duncan D.T, and Subramanian S.V. Alcohol outlet density and area-level heavy drinking are independent risk factors for higher alcohol-related complaints. *Journal of Urban Health*, 2019; 96(6): 889-901.
- 2019 Hanning R, **Luan H**, Orava T, Valaitis R, Jung J, Ahmed R. Exploring Student Food Behaviour in Relation to Food Retail over the Time of Implementing Ontario's School Food and Beverage Policy. *International Journal of Environmental Research and Public Health*, 2019; 16(14), 2563.
- 2019 Fuller D, **Luan H**, Buote R, and Auchincloss A. Impact of a Public Transit Strike on Public Bicycle Share Use: An interrupted time series natural experiment study. *Journal of Transport & Health*, 2019; 13: 137-142.
- 2019 **Luan H**, Ramsay D, and Fuller D. Household income, active travel, and their interacting impact on body mass index in a sample of urban Canadians: A Bayesian spatial analysis. *International Journal of Health Geographics*, 2019; 18:4.
- 2019 Kestens Y, Winters M, Fuller D, ..., **Luan H**, ..., Thierry B, Thigpen C, and Wasfi R. INTERACT: A comprehensive approach to assess urban form interventions through natural experiments. *BMC Public Health*, 2019; 19:51.
- 2018 **Luan H**, Law J, and Lysy M. Diving into the consumer nutrition environment: a Bayesian spatial factor analysis of neighborhood restaurant environment. *Spatial and Spatio-temporal Epidemiology*, 2018; 24: 39-51.
- 2018 Perlman CM, Law J, **Luan H**, Rios S, Seitz D, Stolee P. Geographic Clustering of Admissions to Inpatient Psychiatry among Adults with Cognitive Disorders in Ontario, Canada: Does Distance to Hospital Matter?. *Canadian Journal of Psychiatry*, 2018; 63(6): 404-409.
- 2017 Quick M, Law J, and **Luan H**. The influence of on-premise and off-premise alcohol outlets on reported violent crime in the Region of Waterloo, Ontario: Applying Bayesian spatial modeling to inform land use planning and policy. *Applied Spatial Analysis and Policy*, 2017; 10(3): 435-454.
- 2016 **Luan H**, Minaker L, and Law J. Do marginalized neighborhoods have less healthy retail food environments? An analysis using Bayesian spatial latent factor and hurdle models. *International Journal of Health Geographics*, 2016; 15:29.
- 2016 **Luan H**\*, Quick M\*, and Law J. Analyzing local spatio-temporal patterns of police calls-for-service using Bayesian Integrated Nested Laplace Approximation, ISPRS International Journal of Geo-Information, 2016; 5(9), 162.
- 2016 Du Q, Zhang M, Li Y, **Luan H**, Liang S, and Ren F. Spatial patterns of Ischemic Heart Disease in Shenzhen, China: A Bayesian multi-disease modeling approach to inform health planning policies. *International Journal of Environmental Research and Public Health*, 2016; 13(4), 436.
- 2015 **Luan H**, Law J, and Quick M. Identifying food deserts and swamps based on relative healthy food access: a spatio-temporal Bayesian approach. *International Journal of Health Geographics*, 2015; 14:37.
- 2014 **Luan H** and Law J. Web GIS-based Public Health Surveillance Systems: A systematic review. *ISPRS International Journal of Geo-information*, 2014; 3(2):481-506.

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<sup>1</sup> \* denotes joint first authors/equal contributions.

## Submitted or Under Revision

2019 Fuller D, Anaraki JR, **Luan H**, Simango B, Dorani F, and Bozorgi A. Predicting sleep, sedentary behavior, and physical activity with Apple Watch and FitBit using Rotation Forest models (under review, *Journal for the Measurement of Physical Behaviour*)

## In Preparation

**Luan H** and Fuller D. Urban sprawl across Canada at the small-area level: A Bayesian spatial factor analysis (analysis done, in preparation for *Computers, Environment and Urban Systems*)

**Luan H**, Ransome Y, and Brady K. Trends of late HIV diagnosis in Philadelphia at small-area levels: a Bayesian spatiotemporal zero-inflated Poisson model for data with excess zeros (analysis done, in preparation for *International Journal of Geographical Information Science*)

Ransome Y, **Luan H**, Brady K, Quick H, and Dean LT. Neighborhood social capital and late HIV diagnosis: a spatiotemporal analysis

## TALKS AND CONFERENCE/WORKSHOP PARTICIPATION

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### Invited Talks

2019 **Luan H**. “Bayesian spatial modeling and its applications in health and crime geography”, School of Resource and Environmental Sciences, Wuhan University, Dec 27, 2019, Wuhan, China

2018 **Luan H**. “Harnessing the power of probabilistic modeling in spatial data science: The application of Bayesian spatial and spatiotemporal analysis in addressing societal challenges”, Department of Geography, University of Oregon, Feb 15, 2018, Eugene, USA

2017 **Luan H**. “Advanced spatial analysis: Bayesian spatial statistical modeling”, School of Geodesy and Geomatics, Wuhan University, June 1, 2017, Wuhan, China

2017 **Luan H**. “The Healthy City movement in Canada: What can Artificial Intelligence-enabled high-definition mapping do?”, *the company of Ecopia – AI Enabled Feature Extraction* (<https://www.ecopiatech.com/>), Dec 8, Toronto, Canada.

2017 Chuenpagdee R, Furst B, Hartt M, **Luan H**, Lynch N, Moos M, and Tchoukaleyska R. “Creating and sustaining collaborative research networks on small and mid-sized cities”. Roundtable discussion at *Small and Adaptive Cities 2017: Sustainable futures in the urban periphery*, Sep 29, St. John’s, Newfoundland, Canada.

### Conference Presentations

2020 **Luan H**, Ransome Y, Nassau T, and Brady K. “Bayesian spatiotemporal models for zero-inflated count data: Exploring the trends of late-stage HIV diagnosis rates among Black/African American population in Philadelphia, 2010-2016”, *American Association of Geographers Annual Meeting*, April 6-10, Denver, USA. [Cancelled due to COVID-19]

- 2020 Song I<sup>†2</sup> and **Luan H.** “Local explanations of individual characteristics and district-level air pollution on low birth weight in South Korea: a Bayesian network approach”. *American Association of Geographers Annual Meeting*, April 6-10, Denver, USA. [Cancelled due to COVID-19]
- 2020 Fuller D, **Luan H**, Alfosool A, and Chen Y. “Time weighted approaches for combining GPS and area level data to create individual measures”. *American Association of Geographers Annual Meeting*, April 6-10, Denver, USA. [Cancelled due to COVID-19]
- 2019 **Luan H.** “Imputing censored health data at small-area levels: A Bayesian spatiotemporal modelling approach”, *American Association of Geographers Annual Meeting*, April 2-7, Washington DC, USA.
- 2017 **Luan H**, Fuller D, and Dorani F. “Urban sprawl in Canada at the Census Tract level: a nationwide spatial analysis”, *Small and Adaptive Cities 2017: Sustainable futures in the urban periphery*, September 29 to October 1, St. John’s, Newfoundland, Canada.
- 2017 Minaker L, Law J, **Luan H**, and Quick M. “Obesity, its associations with the food environment, and spatio-temporal indicators of the food environment in the Region of Waterloo, Ontario”, *Canadian Obesity Summit*, April 26-28, Banff, Alberta, Canada.
- 2017 **Luan H**, Quick M, and Law J. “A spatial zero-inflated Poisson model for analyzing violent crime data with zero-inflation”, *American Association of Geographers Annual Meeting*, April 5-9, Boston, Massachusetts, USA.
- 2016 **Luan H**, Law J, and Quick M. “Local spatio-temporal patterns of relative healthy food access in the Region of Waterloo, Ontario, 2011-2014”, *The Ontario Public Health Convention (TOPHC)*, April 4-6, Toronto, Canada.
- 2015 Quick M, **Luan H**, and Law J. “The influence of alcohol outlet density on violent crime calls-to-police in Waterloo Region: A Bayesian spatial analysis”, *Canadian Association of Geographers Annual Meeting*, June 1-5, Vancouver, Canada.
- 2015 **Luan H**, Law J, and Minaker L. “Diving into the consumer nutrition environment: a retail food environment index based on spatial Bayesian factor analysis at a small-area level”, *American Association of Geographers Annual Meeting*, April 21-25, Chicago, Illinois, USA.
- 2014 **Luan H** and Quick M. “Is neighborhood socioeconomic status associated with fast food accessibility? A spatial analysis of the Region of Waterloo”, *Canadian Association of Geographers – Ontario Division (CAGONT), Critical Human and Physical Geographies*, October 24-25, 2014, York University, Toronto, Canada.
- 2012 **Luan H** and Law J. “Web GIS in Public Health Surveillance and Planning”, *Canadian Association of Geographers Annual Meeting*, May 28 – June 2, 2012, Waterloo, Canada.

### Conference Posters

- 2019 Nzeyimana A<sup>†</sup> and **Luan H.** “Representation learning from geospatial data”, *American Association of Geographers Annual Meeting*, April 2-7, Washington DC, USA.

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<sup>2</sup> † indicates graduate advisee.

- 2018 Dean L, **Luan H**, Brady K, and Ransome Y. “Does bankruptcy risk predict HIV new cases? A spatio-temporal analysis of the local credit economy and HIV in Philadelphia, PA”, *Annual Meeting of Society for Epidemiologic Research*, June 19-22. Baltimore, USA.
- 2018 **Luan H**, Fuller D, Buote R, and Stanley. “User guide for big data in population and public health”, *Public Health 2018*, May 28-31, Montreal, Canada.
- 2017 **Luan H** and Ransome Y. “A Bayesian spatial versus tradition approach to characterize socioeconomic deprivation: what is the impact on public health ecological studies?”, *GeoMed 2017: International conference on spatial statistics, spatial epidemiology & spatial aspects of public health – deeper insight from big data and small areas*, September 7-9, Porto, Portugal.
- 2016 Perlman CM, Law J, Rios S, **Luan H**, Seitz D, and Stolee P. “ ‘Hotspots’ of Psychiatric Hospitalizations among Older Adults with Delirium, Dementia, and Cognitive Disorders in Ontario, 2011-2014”, *2016 CAHSR Conference: A Learning Healthcare System: Let the Patient Revolution Begin!*, May 10-12, Toronto, Canada.

## Workshops

- 2019 *Landscape Carbon for Atmospheric Recovery (LCSAR) Workshop*, Oct 25-27, Portland
- 2018 *Applications of Geospatial Information and Spatial Analytical Techniques in Public Health*, July 17-19, Shanghai, China
- 2018 *Food Environment Measures for Canadian Cities*, April 26-27, Toronto, Ontario, Canada.
- 2017 *Healthy Cities Research Think Tank meeting*, November 30 to December 1, Toronto, Ontario, Canada
- 2017 *The Future of Walkability Measures*, November 16-17, St. John’s, Newfoundland, Canada.

## TEACHING EXPERIENCE

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### Teaching

- 2018- **University of Oregon, Instructor**  
 GEOG281: *The World & Big Data*  
 GEOG4/590: *GIS and Public Health*  
 GEOG4/594: *Spatial Analysis*  
 GEOG607: *GIScience seminar - Topics in Spatial and Spatiotemporal Analysis*
- 2017-2018 **Memorial University of Newfoundland**  
**Co-Instructor**, HKR6130: *Computer Applications for Physical Activity Measurement and Intervention*  
**Guest Lecturer**, HKR6134: *Graduate Seminar Series*

2011-2016 **University of Waterloo, Teaching Assistant and Lab Instructor**  
 PHS661: *GIS and Public Health*  
 PLAN418/674: *Spatial Demography*  
 PLAN/GEOG387: *Spatial Databases*  
 PLAN350: *Research Methods for Planners*  
 PLAN/CIVE484: *Physical Infrastructure Planning*

## ADVISING AND MENTORING

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### Graduate Student Activities

2019 –	Insang Song, PhD, Geography	Advisor
2019 –	Shiloh L. Deitz, PhD, Geography	Committee Member
2019 –	Bill Limpisathian, PhD, Geography	Committee Member
2019	Antoine Nzeyimana, PhD, Geography	Committee Member
2019 –	Habeom Kim, PhD, Anthropology	Committee Member/Institutional Representative
2018 –	Mohammad Eshghi, PhD, Geography	Committee Member

## GRANTS AND FUNDING

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### Awarded

2020 **Hui Luan** (PI) and Xiaobo Su. “How does socioeconomic inequality impact opioid overdose deaths in the U.S.?: A multi-scale Bayesian spatiotemporal modelling approach”, Faculty Research Award, University of Oregon, \$7,000

2020 **Hui Luan** (PI), Yusuf Ransome, Lorraine Dean, Insang Song. “Integrating Spatial Data Science and Epidemiology: Bayesian spatiotemporal modeling of HIV at small area-levels in Philadelphia, 2009-2016”, funded by the Data Science Initiative Seed Funding Program, University of Oregon, \$50,000

2019 Lucas Silva (PI), Heidi Huber-Stearns, Krista McGuire, **Hui Luan**, Ryan S Walch, Trudy Ann Cameron. “Interdisciplinary Science for Environmental and Society Security”, Incubating Interdisciplinary Initiatives (I3) Award, University of Oregon, \$50,000 (Role: Co-investigator)

2018 **Hui Luan** (PI), “Spatio-temporal statistical modeling of zero-inflated count data at a small spatial scale”, funded by the National Science Foundation China, ¥240,000 (~\$35,000)

2018 Daniel Fuller (PI), Yan Kestens, **Hui Luan**, Jeff Brook, Meghan Winters, IPPH Planning and Dissemination Grants – “Building healthy cities”, funded by Canadian Institutes of Health Research, \$10,000 (Role: Co-investigator)

2017 **Hui Luan** (PI), “Bayesian spatio-temporal modeling of crime count data at a small-area level”, funded by China Postdoctoral Science Foundation, ¥50,000 (~\$8,000)

### Not funded

- 2019 **Hui Luan** (PI), Xiaobo Su. Trustee Grants, Social, Political, and Economic Inequality, Russell Sage Foundation, “The impacts of socioeconomic inequality on opioid overdose deaths in the U.S.: A multi-scale spatiotemporal modelling with Bayesian approaches”, \$171,900
- 2018 Daniel Fuller (PI), Yan Kestens, **Hui Luan**, Kevin Stanley, Mark Tremblay, Meghan Winters, IPPH Planning and Dissemination Grants – “Artificial Intelligence for Population Health”, Canadian Institutes of Health Research, \$20,000
- 2016 Jane Law (PI), Leia Minaker, **Hui Luan**, and Brian Cook. “Advancing the understanding of the retail food environment in Toronto by analyzing the locations and in-store characteristics of food outlets using new spatial statistical approaches to improve personal and population health”, Canadian Institutes of Health Research, \$130,000

## HONORS AND AWARDS

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- 2020 Faculty Research Award, University of Oregon
- 2018 New Junior Faculty Research Award, University of Oregon
- 2017 The Healthy Cities Research “Think Tank” Travel Award, Canadian Institutes of Health Research
- 2016 Doctoral Thesis Completion Award, School of Planning, Faculty of Environment, University of Waterloo
- 2011-2015 International Doctoral Award, University of Waterloo

## ADDITIONAL TRAINING

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- 2013 Fundamentals of University Teaching, Center for Teaching Excellence, University of Waterloo, Waterloo, Ontario

## SERVICE

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### Journal Referee

- 2015- International Journal of Health Geographics (10)
- 2017- International Journal of Environmental Research and Public Health (2)  
Journal of Community Psychology (2)
- 2018- Public Health Nutrition  
Spatial and Spatio-temporal Epidemiology (4)
- 2019- ISPRS International Journal of Geo-Information  
Geospatial Health  
Environment and Planning B: Urban Analytics and City Science  
The Professional Geographer
- 2020- Transaction in GIS

### Departmental Service

University of Oregon

- 2019 Member, New Faculty Search Committee, Department of Geography

2018- Member, Graduate Admissions Committee, Department of Geography

## Professional Service

2019 Organizer and Chair of the session “Spatiotemporal disease mapping and analysis” in the annual meeting of AAG, 2019

2018-19 Guest editor of the special issue “Methodological and Applications of Geographic Information Science and Spatial Statistical Analysis in Public Health” in the *International Journal of Environmental Research and Public Health*

2017 Co-organizer of the Canadian Urban Environmental Health Research Consortium (CANUE) Walkability workshop, “The Future of Walkability Measures”, November 16-17, St. John’s, NL, Canada. Small workshop with a diverse group of researchers from public health, geography, urban planning, and computer science on the conceptual and methodological development of future walkability measures

## PROFESSIONAL MEMBERSHIP

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2011- Canadian Association of Geographers

2012-2013 Ontario Professional Planners Institute

2014- American Association of Geographers

2018- Society for Epidemiologic Research

## KNOWLEDGE TRANSLATION ACTIVITIES

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2019 GIS expert consultant to PROPUBLICA: *One Trump Tax Cut Was Meant to Help the Poor. A Billionaire Ended Up Winning Big*. Available at: <https://www.propublica.org/article/trump-inc-podcast-one-trump-tax-cut-meant-to-help-the-poor-a-billionaire-ended-up-winning-big>

2018 Webinar: *Measuring walkability and urban sprawl – Opportunities and Challenges*. Feb 28. Available at: <http://canue.ca/measuring-walkability-urban-sprawl-opportunities-challenges/>

2017 Blog: *Menu labeling: would it have an impact on your eating choices in a restaurant?* Available at: <http://walkabilly.ca/home/hui-henry-luan/menu-labeling-would-it-have-an-impact-on-your-eating-choices-in-a-restaurant/>