

Haifeng Niu

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RESEARCH AREAS

Urban big data mining, spatial data science, geo-visualization, and urban sensing and modelling. I have a strong interest in how the intersection of machine learning & AI and urban big data better supports urban planning, policy-making and smart management.

APPOINTMENTS

University of Cambridge

Postdoctoral Research Associate, Department of Land Economy Jan 2022–Present

- Leading spatial analysis work in European Union’s Horizon 2020-funded project Emotional Cities(WP4)

EDUCATION

University of Cambridge (Cambridge)

PhD in Land Economy Oct 2017–Dec 2021

- Supervisor: Prof. Elisabete A. Silva (MRTPI, FAcSS)
- Thesis: Sensing urban dynamics through crowdsourced data with the support of machine learning techniques

Huazhong University of Science and Technology (HUST)

MPhil in Urban and Rural Planning Sep 2014–Jun 2017

Sichuan Agricultural University (SAU)

BSc in Resources Environment & the Management of Urban and Rural Planning Sep 2010–Jun 2014

PUBLICATIONS

Journal Articles

2021 Niu, H.* and Silva, E. A. “Delineating urban functional use from points of interest data with neural network embedding: A case study in Greater London.” *Computers, Environment and Urban Systems*, 88. doi:10.1016/j.compenvurbsys.2021.101651

*Corresponding author

- 2020 Niu, H.* and Silva, E. A. “Crowdsourced Data Mining for Urban Activity: Review of Data Sources, Applications, and Methods.” *Journal of Urban Planning and Development*. doi:10.1061/(ASCE)UP.1943-5444.0000566
- 2017 He, Y., Niu, H. and Deng, W. “Regional Characteristics of Ancient Villages and Townships under the Influence of External Mechanism.” *City Planning Review*. (10), p.14.
- 2016 He, Y., Niu, H. and Qian, H. “A Research of City Spatial Memory Based on the Event History” *Urbanism and Architecture*. (16), p.3.

Book Chapters

- 2021 Silva, E.A., Liu, L., Kwon, H.R., Niu, H., Chen, Y. and Reis, J. “What’s new in urban data analytics?” In: *Applied Data Analysis for Urban Planning and Management*, edited by Alasdair Rae and Cecilia Wong., England: SAGE.
- 2021 Silva, E.A., Liu, L., Kwon, H.R., Niu, H., Chen, Y. “Hard and soft data integration in geocomputation: mixed methods for data collection and processing in urban planning.” In: *Handbook of Planning Support Science*, edited by Stan Geertman and John Stillwell doi:10.4337/9781788971089.00010

In Submission

- 2022 Niu, H.* and Silva, E. A. “Understanding temporal and spatial patterns of urban activities across demographic groups through geotagged social media data.” Submitted to *Computers, Environment and Urban Systems*, Jan 2022.
- 2021 Chen, Y., Niu, H. *, and Silva, E. A. “The Road to Recovery: sensing public opinion towards reopening measures with social media data in post-lockdown cities.” Revising for the 2nd round resubmission to *Cities*, Jul 2022.

Conference Papers Presented

- 2022 A. Seraphim, H. Niu and Silva, E. A. “Systematic review of spatial determinants of urban health: A policy-to-science approach” The 13th International Urban Planning and Environment Congress, Tartu University, Estonia. Aug 1.
- 2021 H. Niu and Silva, E. A. “Delineating fine-scale urban functional use from Points of Interest data with word embedding model.” 13th World Congress of the Regional Science Association International (RSAI) 2018, Virtual, Regional Science Association International. May .
- 2020 H. Niu and Silva, E. A. “Delineating fine-scale urban functional use from Points of Interest data with word embedding model.” ACSP 2020 Annual Conference, Virtual, Association of Collegiate Schools of Planning. Nov .
- 2020 H. Niu and Silva, E. A. “Delineating Fine-scale Urban Functional Use from Points of Interest Data with Doc2Vec.” GIScience Research UK (GISRUK) Conference, Birkbeck, University of London and University College London. Jul .
- 2019 H. Niu and L. Liu. “Machine learning the images of a city and informing urban policy making”. Data for Policy 2019: Digital Trust and Personal Data. London, UK. Jun .

INVITED TALKS

- 2022 The 2nd Annual Business Meeting of the eMotional Cities project, Tartu University, Estonia. Jul 30.

- 2022 Brown Bag Seminar, Department of Land Economy, University of Cambridge, UK.
- 2021 The 1st Annual Business Meeting of the eMotional Cities project, Virtual.
- 2019 Peking University-Cambridge University Joint Workshop on Innovations in Urban Governance, University of Peking, China. Dec.
- 2019 BP 'Quantum Computing for Smart Cities' workshop, Institute for Manufacturing, University of Cambridge, UK. May.
- 2018 Centre for Digital Built Britain Summer Showcase 2018, Centre for Digital Built Britain, University of Cambridge, UK. Jul.
- 2018 The Early Career Researchers' Conference (ECRC) 2018, Department of Land Economy, University of Cambridge, UK. Apr.

GRANTS AND AWARDS

Grants and Fellowships

- 2019 Tsinghua University–Cambridge University Joint Research Initiative Fund (£10,000). Co-PI.
- 2018 Centre for Digital Built Britain Mini-projects Programme (£20,000). PI.
- 2017 National Natural Science Foundation of China No.51578256 (£80,000). Co-PI.

Awards and Honors

- 2021 St Edmund's College (Cambridge) Academic Awards
- 2018 China Scholarship Council Scholarship
- 2017 HUST Academic Awards
- 2017 Hubei Excellent Urban and Rural Planning Design Award (Third Prize)
- 2015 HUST Academic Awards
- 2015 National Excellent Urban and Rural Planning and Design Award (Third Prize)

TEACHING EXPERIENCE

Department of Land Economy, University of Cambridge

- 2019–21 RMO3: Spatial Analysis and Modelling (Guest Lecturer/Supervisors Coordinator)
- Coordinating the whole supervision offered with lecturers and other supervisors.
 - Developing new materials, PowerPoints, and practical exercises for lab work, supervision and assignment which cover social media data collection, sentiment analysis and geo-visualisation.
 - Building course website (<https://hn303.github.io/CamLandEc-RMO3/>) for students to access materials such as notes, instruction and scripts online.
 - Lecturing students in the main module about new topics in spatial analysis and modelling.
 - Supervising MPhil students from PGR, REF and EP.
- 2017–18 RMO1: Mixed Research Methods Option B (Guest Lecturer/Supervisor)

- Demonstrating practices of Geographic Information System software (ArcGIS) for MPhil students.
- Developing materials for supervision and assignments.
- Supervising MPhil students from PGR, REF and EP.

School of Architecture and Urban Planning, Huazhong University of Science and Technology

2016–17 Graduate Project (Supervisor)

- Supervising dissertation and project for undergraduate students

2015–16 Rural and Urban Design Practice Course (Supervisor)

- Supervising student in Urban Design competition

SUPERVISING EXPERIENCE

M.Phil. Dissertation Supervisor, University of Cambridge

2021 Xinmeng Tu (MPhil in Land Economy Research)

M.Phil. Dissertation Presentation Panellist, University of Cambridge

2017–18 M.Phil. in Planning, Growth and Regeneration

PROFESSIONAL ASSOCIATION

2022– Member, Urban Health Cluster WG2 and WG4, European Union

2020– Liaison in UK, Journal of Urban Planning International, China

2018–22 Member, The Association for Geographic Information, UK

2015–17 Member, ICOMOS-International Scientific Committee on Shared Built Heritage – Wuhan Research Centre, China

Updated August 2022