

# Curriculum Vitae

**Dr Jing Yao** (BSc, MSc, MSc (Eng.), PhD)

Senior Lecturer in Urban Big Data and Quantitative Methods

Urban Big Data Centre (UBDC), the GCRF Centre for Sustainable, Healthy and Learning Cities and Neighbourhoods (SHLC), School of Social & Political Sciences  
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## Present Appointment

Senior Lecturer in Urban Big Data and Quantitative Methods, School of Social & Political Sciences, University of Glasgow

## Employment History

|                |                                 |                               |
|----------------|---------------------------------|-------------------------------|
| 2019.8-now     | Senior Lecturer                 | University of Glasgow, UK     |
| 2014.10-2019.7 | Lecturer                        | University of Glasgow, UK     |
| 2013.6-2014.9  | Research Fellow                 | University of St Andrews, UK  |
| 2013.1- 2013.5 | Postdoctoral Associate          | Arizona State University, USA |
| 2012.8-2012.12 | Teaching Assistant              | Arizona State University, USA |
| 2009.8-2012.8  | Research Assistant              | Arizona State University, USA |
| 2008.5-2009.8  | Lecturer (faculty)              | Hohai University, China       |
| 2005.9-2008.5  | Teaching Assistant<br>(faculty) | Hohai University, China       |

## Academic Qualifications

|          |                                |                               |
|----------|--------------------------------|-------------------------------|
| 2012. 12 | PhD in Geography               | Arizona State University, USA |
| 2012. 05 | M.S. in Industrial Engineering | Arizona State University, USA |
| 2005. 05 | M.S. in Geography              | Nanjing University, China     |
| 2002. 05 | B.S. (Honours) in Geography    | Nanjing University, China     |

## Research and Teaching Interests

GIScience; Spatial Optimization; Spatial Statistics; Quantitative Methods; Health Geography; Urban and Regional Planning and Development; location modelling.

## Awards and Fellowships

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|------|---|
| 2017 | Fellow of the Higher Education Academy (FHEA), UK.  |
| 2012 | Chinese Government Award for Outstanding Self-financed Students Abroad, China Scholarship Council, \$6,000. |
| 2009 | University Graduate Fellowship, Arizona State University, USA.  |

## Grants

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|-----------|--|
| 2019-2024 | <i>Urban Big Data Centre</i> . Co-I (PI: Prof. Nick Bailey). Economic and Social Research Council.   |
| 2017-2021 | <i>GCRF Centre for Sustainable, Healthy, and Learning Cities and Neighbourhoods (SHLC)</i> . Co-I (PI: Prof. Ya Ping Wang). Global Challenges Research Fund (GCRF) Research Councils UK Collective Fund, £7,105,262.   |
| 2017-2019 | EuroGEOSS-Hub: the European approach to Data Hub for GEOSS. Co-I. (PI: François ROBIDA, Geological and Mining Research Bureau Joint Research Center, European). Horizon 2020 Research and Innovation Framework Programme. European Commission.   |
| 2016      | <i>Postdoctoral and Early Career Researcher Exchanges Funds</i> . Scottish Alliance for Geoscience, Environment and Society, £2,500.   |
| 2015-2018 | <i>The Re-Making of Chinese Urban Neighborhoods: Socio-Spatial Transformation and Access to Public Services</i> . Co-I (PI: Prof. Ya Ping Wang). Economic and Social Research Council and National Natural Science Foundation of China: UK-China Research and Innovation Partnership Fund (Newton Fund), £606,945. |
| 2015      | <i>Glasgow-Nankai Research Exchange Grant</i> . University of Glasgow, £1,500.   |
| 2013-2015 | <i>Spatial Optimization Approaches for Solving the Continuous multi-Weber Problem</i> . PI. National Natural Science Foundation of China, ¥230,000.  |

2013-2015 *Continuous Geographic Physical Process Model and its Integration with GIS*. Co-I (PI: Dr. Xiaoxiang Zhang). National Natural Science Foundation of China, ¥250,000.

## Publications

### *Book Chapter*

**Yao J.** 2009. Chapter 9 *Application of GIS in the Management of Flood*. In L. Kang and X. Zhang (ed.), *Principles and Applications of Geographical Information Systems (in Chinese)*. China Water & Power Press, pp. 143-156.

Michael Zeiler, *Modeling Our World: The ESRI® Guide to Geodatabase Design*, translated by X. Zhang, F. Zhang, & **J. YAO** et al., Posts & Telecom press, 2004, 200pp. (in Chinese) (English Version: Michael Zeiler, *Modeling Our World: The ESRI® Guide To Geodatabase Design*, ESRI Press, 1999, 200pp).

### *Peer-reviewed Journal Articles*

**Yao, J.**, Murray, A. T., Wang, J., & Zhang, X. (2019). Evaluation and development of sustainable urban land use plans through spatial optimization. *Transactions in GIS*. 23, 705-725.

**Yao, J.**, Zhang, X., & Murray, A. T. (2019). Location Optimization of Urban Fire Stations: Access and Service Coverage. *Computers, Environment and Urban Systems*, 73, 184-190.

**Yao, J.**, & Agadjanian, V. (2018). Bypassing health facilities in rural Mozambique: spatial, institutional, and individual determinants. *BMC Health Services Research*, 18(1), 1006.

**Yao, J.**, Wong, D. W.S., Bailey, N. and Minton, J. (2018). Spatial segregation measures: a methodological review. *Tijdschrift voor Economische en Sociale Geografie*, Doi:10.1111/tesg.12305.

**Yao, J.**, Zhang, X., & Murray, A. T. (2018). Spatial Optimization for Land-use Allocation: Accounting for Sustainability Concerns. *International Regional Science Review*, 41(6), 579-600.

Zhang, X., **Yao, J.** and Sila-Nowicka, K. (2018). Exploring spatiotemporal dynamics of urban fires: A case of Nanjing, China. *ISPRS International Journal of Geo-Information*, 7(1), 7. (doi:10.3390/ijgi7010007).

**Yao, J.**, & Fotheringham, A. S. (2016). Local spatiotemporal modeling of house prices: a mixed model approach. *The Professional Geographer*, 68(2), 189-201.

Agadjanian, V., **Yao, J.**, & Hayford, S. R. (2016). Place, Time and Experience: Barriers to Universalization of Institutional Child Delivery in Rural Mozambique. *International Perspectives on Sexual and Reproductive Health*, 42(1), 21-31.

- Agadjanian, V., Hayford, S. R., Luz, L., & **Yao, J.** (2015). Bridging user and provider perspectives: Family planning access and utilization in rural Mozambique. *International Journal of Gynecology & Obstetrics*, 130, E47-E51.
- Fotheringham, A. S., Crespo, R., & **Yao, J.** (2015). Exploring, modelling and predicting spatiotemporal variations in house prices. *The Annals of Regional Science*, 54(2), 417-436.
- Fotheringham, A. S., Crespo, R., & **Yao, J.** (2015). Geographical and temporal weighted regression (GTWR). *Geographical Analysis*, 47(4), 431-452.
- Yao, J.**, Agadjanian, V., & Murray, A. T. (2014). Spatial and social inequities in HIV testing utilization in the context of rapid scale-up of HIV/AIDS services in rural Mozambique. *Health & Place*, 28, 133-141.
- Yao, J.**, & Murray, A. T. (2014). Locational effectiveness of clinics providing sexual and reproductive health services to women in rural Mozambique. *International Regional Science Review*, 37(2), 172-193.
- Yao, J.**, & Murray, A. T. (2014). Serving regional demand in facility location. *Papers in Regional Science*, 93(3), 643-662.
- Yao, J.**, Murray, A. T., & Agadjanian, V. (2013). A geographical perspective on access to sexual and reproductive health care for women in rural Africa. *Social Science & Medicine*, 96, 60-68.
- Yao, J.**, & Murray, A. T. (2013). Continuous surface representation and approximation: spatial analytical implications. *International Journal of Geographical Information Science*, 27(5), 883-897.
- Yao, J.**, Murray, A. T., Agadjanian, V., & Hayford, S. R. (2012). Geographic influences on sexual and reproductive health service utilization in rural Mozambique. *Applied Geography*, 32(2), 601-607.
- Cudnik, M. T., **Yao, J.**, Zive, D., Newgard, C., & Murray, A. T. (2012). Surrogate markers of transport distance for out-of-hospital cardiac arrest patients. *Prehospital Emergency Care*, 16(2), 266-272.

## Software Development

2013-2014 PyGWR — A New Version GWR and Extension.

- A project led by Professor Stewart Fotheringham at Centre for Geoinformatics, University of St Andrews, UK.
- The only developer of PyGWR.
- A prototype was used in a short course for PhD students given by Professor Stewart Fotheringham and Dr Jing Yao (Lab Instructor) at Arizona State University, USA in March, 2014

2013-2014 Development of GWR4.0.8 and GWR 4.0.9.

- An international collaboration project organized by Tomoki Nakaya (Department of Geography, Ritsumeikan University, Japan), Martin Charlton, Paul Lewis, Chris Brunsdon (National Centre for Geocomputation, National University of Ireland, Ireland), Jing Yao (School of Social and Political Sciences, University of Glasgow) and Stewart Fotheringham (School of Geographical Sciences & Urban Planning, Arizona State University)  
(<http://gwr.maynoothuniversity.ie/gwr4-software/>)
- Developer and group member.

2010-2011 Development of GeoDaSpace and PySAL.

- Projects led by Professors Luc Anselin and Serge Rey at the GeoDa Center for Geospatial Analysis and Computation, Arizona State University, USA  
(<https://spatial.uchicago.edu/software>)
- Developer and group member.

## Presentations

- Yao J.**, Y.P. Wang, X. Zhang. Spatial Patterns of Urban Expansion in Chinese Cities. *The 29<sup>th</sup> International Cartographic Conference of the International Cartographic Association*, Tokyo, Japan, July 15 – 20, 2019.
- Yao J.**, X. Zhang. A Spatial Optimization Approach for Vector-based Land Use Planning. *The 22<sup>nd</sup> Conference on Geo-information Science*, Limassol, Cyprus, June 17 – 20, 2019.
- Yao J.**, A.T. Murray. Location Modeling to Support Sustainable Urban Land Use Planning. *International Symposium on Locational Decisions (ISOLDE) XIV*, Toronto, Ontario, Canada, July 9 – 14, 2017.
- Yao J.**, X. Zhang. Location Optimization of Fire Stations: Trade-off between Accessibility and Service Coverage. *The Ninth International Conference on Geographic Information Science*, Montreal, Canada, September 27-30, 2016.
- Yao J.**, X. Zhang. Spatial-Temporal Dynamics of Urban Fire Incidents: A Case Study of Nanjing, China. *The XXIII International Society for Photogrammetry and Remote Sensing (ISPRS) Congress*, Prague, Czech Republic, July 12-19, 2016.
- Yao J.**, A.S. Fotheringham. A Framework for Geographically Weighted Analysis and a Supporting Python Library – PyGWA. *Annual Meeting of the Association of American Geographers*, Chicago, IL, USA, April 21-25, 2015.
- Yao J.**, A.S. Fotheringham. Local Spatiotemporal Modelling of House Prices: A Mixed Model Method. *The 61<sup>st</sup> North American Meetings of the Regional Science Association International*, Bethesda, Washington, D.C., USA, November 12-15, 2014.

- Yao J.**, A.T. Murray, and V. Agadjanjan. Geographical Access to Sexual and Reproductive Health Care for Women in Rural Mozambique. *Annual Meeting of the Association of American Geographers*, Los Angeles, CA, USA, April 9-13, 2013.
- Yao J.**, A.T. Murray. Evaluation of Health Care Facility Locations: a Case Study in Rural Mozambique. *Western Regional Science Conference*, Santa Barbara, CA, USA, Feb 25 - 27, 2013.
- Yao J.**, A.T. Murray. Assessment of Sexual and Reproductive Health Service Location in Rural Mozambique. *International Symposium on locational decisions (ISOLDE) XII*, Nagoya and Kyoto, Japan, July 19 - 24, 2012.
- Yao J.**, A.T. Murray. Continuous Surface Representation and Approximation: Spatial Analytical Implications. *Annual Meeting of the Association of American Geographers*, New York, NY, USA, February 24-28, 2012.
- Yao J.**, A.T. Murray. Heuristics for Solving Multi-Weber Problem Extensions. *North American Regional Science Conference*, Miami, FL, USA, November 9-12, 2011.
- Yao J.**, A.T. Murray, V. Agadjanjan, S. Hayford. Exploratory Spatial Analysis of Sexual and Reproductive Health Services Utilization in Rural Mozambique. *Annual Meeting of the Association of American Geographers*, Seattle, WA, USA, April 12-16, 2011.
- Yao J.**, A.T. Murray. Siting A Single Facility to Best Serve an Area. 2010 North American Regional Science Conference, Denver, CO, USA, November 10-13, 2010.
- Yao J.**, A.T. Murray, S. Hayford, V. Agadjanjan, B. Cau. Regional Variability of Women's HIV/AIDS Risks: A Case Study of Gaza, Mozambique. *Annual Meeting of the Association of American Geographers*, Washington, D.C., USA, April 14-18, 2010.

## **Supervision**

### ***PhD Students***

- 2018-        Mr Weicong Luo (lead supervisor), "*Measuring and Optimizing Healthcare Access in a Rapid Urbanization Context*". University of Glasgow.
- 2018-2019   Mr Yuhao Jin (visiting student from Sun Yat-sen University from China), "*Big-data Driven Spatial Analytics for Land-use Dynamics Analysis and Modeling*".

### ***Master Students***

I've supervised about 20 Master dissertations at University of Glasgow on a variety of topics including urban planning, real estate market and urban transport, among others.

### ***Visiting Scholar***

2016-2017 Dr Xuemei Bi, the Center of Earthquake Emergency  
Technical Support, Earthquake Administration of Jiangsu,  
China

2016 Professor Jing Wang, Wuhan University, China

## **Teaching & Related Administration**

### ***2014-2019, University of Glasgow, UK***

- |                               |   |
|-------------------------------|---|
| Postgraduate                  | <ul style="list-style-type: none"><li>• Social Science Statistics I (course convener)</li><li>• Social Science Statistics II (course convener)</li><li>• Principles of Applications of GIS (course convener)</li><li>• Programming with GIS (course convener)</li><li>• Fundamental of Transport Studies (co-taught)</li><li>• International Real Estate Analysis (co-taught)</li></ul> |
| Undergraduate                 | <ul style="list-style-type: none"><li>• Researching the City: A Spatial Perspective (course convener)</li></ul>   |
| UBDC/SHLC<br>training courses | <ul style="list-style-type: none"><li>• Introduction to R</li><li>• Using R: Mapping Spatial Data</li><li>• Introduction to R for Spatial Analysis</li><li>• Introduction to R for Statistical Analysis</li></ul>   |

### ***2014, University of St Andrews, UK***

- Quantitative Methods in Geography (co-taught)

### ***2012, Arizona State University, Arizona, USA.***

- Geographic Information Science I (teaching assistant)

### ***2005-2009, Hohai University, Nanjing, China.***

- Undergraduate thesis advisor (number students: 6)
- Principles of Spatial Databases (course convener)
- Principles of Geographic Information Systems (course convener)
- Web-based Geographic Information Systems (course convener)

***Administration, University of Glasgow, UK.***

- 2018 – now MSc Urban Analytics program convener
- 2017 – now Nankai undergraduate exchange program convenor
- 2015 – 2017 Honours convenor
- 2015 – 2017 Exam Officer
- 2015 – 2017 International/Erasmus exchange coordinator
- 2016 – now Advisor of Studies

**Invited Talks**

- 2019.07 *“Urban Fire Dynamics and Location Optimization of Urban Fire Stations”*. Tohoku University, Sendai, Japan.
- 2019.07 *“GIS Teaching in Higher Education: Cases in the USA and the UK”*. The 8th Teaching Workshop for National College Young Teachers of GIS, Hohai University, Nanjing, China.
- 2018.01 *“Design and Development of Open-source Software for Spatial Analysis”*. Institute of Geographic Sciences and Natural Resources Research, Chinese Science Academy, China.
- 2017.06 *“Optimisation Problems in Geographically Weighted Regression.”* School of Government, Peking University, China.
- 2016.05 *“Spatiotemporal Analyses of Urban Fires and Optimizing Fire Station Locations: An Initial Study on Smart Fire Fighting.”* Department of Geography & Planning, University of Liverpool, UK.
- 2015.12 *“Spatial Analysis and Urban Big Data in Agricultural Land Use Research.”* Beijing Agriculture and Forestry Academy of Sciences, Beijing, China.
- 2015.08 *“Spatial Analysis and Urban Big Data Research in UK.”* the Institution of Remote Sensing and Digital Earth, Chinese Academy of Sciences, Beijing, China.
- 2015.07 *“Spatial Statistics in Social Sciences and the Challenges of Big Data.”* Zhou Enlai School of Government, Nankai University, Tianjin, China.
- 2014.12 *“Applications of Spatial Analytics in National Geographic Conditions Monitoring.”* National Administration of Surveying, Mapping and Geoinformation, Beijing, China.



## Invited Master Courses

- 2019.08    “Geographically Weighted Regression”. University of Augsburg, Germany.
- 2017.06    “Using PySAL for Spatial Analysis”. Hohai University, China.
- 2017.06    “Geographically Weighted Regression”. Hohai University, China.

## Professional Services

### *PhD Examiner*

- 2018       Internal    “Monitoring and Control of Transport Networks Using Parsimonious Models” by Ms Ruzanna Mat Jusoh, University of Glasgow, UK.
- 2018       External    “Error Propagation in Geographically Weighted Regression” by Mr Jaakko Madetoja, Aalto University, Finland.

### *Grant Reviewer*

- National Natural Science Foundation of Chinese (China)
- Economic and Social Research Council (UK)

### *Book Reviewer*

- “Seeing Cities Through Big Data – Research, Methods and Applications in Urban Informatics” Springer (2015)

### *Journal Reviewer*

|   |  |
|---|--|
| <i>Geographical Analysis</i>  | <i>Applied Geography</i>                                 |
| <i>International Regional Science Review</i>                        | <i>PLOS ONE</i>  |
| <i>International Journal of Geographical Information Science</i>    | <i>Socio-Economic Planning Sciences</i>                  |
| <i>The Annals of Regional Science</i>                               | <i>Spatial Economic Analysis</i>                         |
| <i>Transactions in GIS</i>  | <i>Social Science &amp; Medicine</i>                     |
| <i>Computers, Environment and Urban Systems</i>                     | <i>Tropical Medicine &amp; International Health</i>      |
| <i>Environment and Planning B: Urban Analytics and City Science</i> | <i>Annals of the American Association of Geographers</i> |
| <i>Health and Place</i>   | <i>BMJ Open</i>  |
| <i>Journal of Urban Planning and Development</i>                    | <i>Journal of the Operational Research Society</i>       |

*Land Use Policy*

*Geocarto International*

*Transportation Letters: The  
International Journal of Transportation  
research*

*Journal of Official Statistics*

*Sustainability*

***Professional Society Membership***

Since 2009 Association of American Geographers

Since 2010 Regional Science Association International

Since 2011 Western Regional Science Association

Since 2013 Scottish Alliance for Geoscience, Environment and Society

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