

Huanfa Chen

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EDUCATION

2014 - present	Ph.D. in GeoInformatics – University College London Advisor: Prof. Tao Cheng, Prof. John Shawe-Taylor Thesis: Developing Police Patrolling Strategies Based on the Urban Street Network (Passed viva)
2011 - 2014	Master of Science – Peking University Thesis: Spatio-temporal Modelling of Urban Air Quality in Beijing
2007 - 2011	Bachelor of Science in Chemistry – Peking University

RESEARCH EXPERIENCE

2014 – present	Developing Police Patrolling Strategies Based on the Urban Street Network Work with Prof. Tao Cheng Part of EPSRC-funded CPC project (http://www.ucl.ac.uk/cpc/) Design effective routing strategy for police patrolling in order to monitor the crime hotspots and respond to calls for service. Utilise methods including linear optimisation, heuristics, agent-based simulation.	London, UK
2016 – present	Space-time prediction of crime Work with: Prof. Tao Cheng, Dr. Gabriel Rosser, Dr. Toby Davies, Dr. Nan Lin Predict and map where crimes are statistically most likely to occur over a future time period. Use different models of crime, including a self-exciting point process and a network-time kernel density estimation model.	London, UK
01 – 09 /2014	Spatio-temporal Modelling of Urban Air Quality in Beijing Work with: Prof. Qi Li Conduct statistical analysis of the PM2.5 concentration time series data in Beijing. Build a spatio-temporal ARIMA model to predict the future air pollution level. The model has high predicting accuracy.	Beijing, China
01/2012 – 09/2014	A 3D Simulation System for Hazardous Chemical Leakage Accidents Work with: Prof. Qi Li Design and implement a 3D GIS system for simulating chemical leakage accident based on atmospheric dispersion models, to support emergency response.	Beijing, China

WORK EXPERIENCE

2019 – present	Teaching Fellow in Spatial Data Science and Quantitative Methods, UCL Centre for Advanced Spatial Analysis Teaching courses: Data Science for Spatial Systems, Quantitative Methods	London, UK
2014 – 2019	University College London – Postgraduate Teaching Assistant Teaching skills: lecture in “Agent-Based Simulation” as part of the Msc Course <i>Spatio-Temporal Data Mining</i> in 2016 and 2017. Communication skills: guide the tutorial session of Spatio-Temporal Data Mining (CEGE076, 2015–2017) and GIS Principles and Technology (CEGE082, 2017). Tutorials involve programming in R/Python/Netlogo.	London, UK
06 – 08 / 2011	China Branch of Micro-Vu Inc. – Software Testing Engineer Internship	Beijing, China

Team working skills: work with three software developers to ensure the functionality of the software.

06 – 08 / 2008

Spring Education Group – Volunteering Tutor

Guangdong,

Teaching skills: teach geography, chemistry and English courses to a class of 20 primary school students.

China

PUBLICATIONS

Peer-Reviewed Journal Articles

- Yibin Ren, **Huanfa Chen**, Tao Cheng. A Hybrid Integrated Deep Learning Model for Citywide Spatio-Temporal Flow Volume Prediction. Submitted to International Journal of Geographical Information Science.
- **Huanfa Chen**, Tao Cheng, Xinyue Ye. Designing Efficient and Balanced Police Patrol Districts on an Urban Street Network. International Journal of Geographical Information Science, 2018, in press.
- **Huanfa Chen**, Tao Cheng, John Shawe-Taylor. Balanced Route Design for Min-Max Multiple-Depot Rural Postman Problem (MMMDRPP): a police patrolling case. International Journal of Geographical Information Science, 2018, 32(1), pp.169–190. (Indexed by SCI, impact factor 2.370)
- **Huanfa Chen**, Tao Cheng, Sarah Wise. Developing an online cooperative police patrol routing strategy. Computers, Environments and Urban Systems, 2017, 62, 19–29. (Indexed by SSCI, impact factor 2.092)
- Hamed Karimian, Qi Li, **Huanfa Chen**. Accessing Urban Sustainable Development in Isfahan, Applied Mechanics and Materials. 2013, 253-255, 244-248
- Yan Qiao, **Huanfa Chen**, Yiyang Lin, Zhiyi Yang, Xinhao Cheng, Jianbin Huang. Photoluminescent Lanthanide-Doped Silica Nanotubes: Sol-Gel Transcription from Functional Template, *Journal of Physical Chemistry C*, 2011, 115, 7323–7330
- Yan Qiao, **Huanfa Chen**, Yiyang Lin, Jianbin Huang. Controllable Synthesis of Water-Soluble Gold Nanoparticles and Their Applications in Electrocatalysis and Surface-Enhanced Raman Scattering, *Langmuir* 2011, 27, 11090-11097

Peer-reviewed Conference/Workshop Proceedings

- **Huanfa Chen**, Tao Cheng. Designing police patrol districts on street network. in *Proceedings of the 14th International Conference of GeoComputation, 2017, Leeds, UK*.
- **Huanfa Chen**, Tao Cheng. Modelling Police Patrol Routing as Min-Max Postmen Problems. in *Proceedings of Geographical Information Science Research - UK 2017 (GISRUK 2017)*, 2017.
- **Huanfa Chen**, Tao Cheng*, Sarah Wise, 2015. Designing Daily Patrol Routes for Policing Based on Ant Colony Algorithm. *ISPRS Annals of Photogrammetry, Remote Sensing and Spatial Information Sciences*, II-4/W2, pp.103–109.
- **Huanfa Chen**, Qi Li, Yajie Zhu, Hamed Karimian. Research of 3D simulation system for chemical accidents based on atmospheric dispersion model, in *Proceedings of International Conference on Earth Science and Environmental Protection 2013 (ICESEP 2013)*, 2013.
- Hamed Karimian, Qi Li, **Huanfa Chen**. Correlation between AOD and Pm2.5 over Tehran Iran, in *Proceedings of International Conference on Earth Science and Environmental Protection 2013 (ICESEP 2013)*, 2013, Kunming, China.
- Yajie Zhu, Qi Li, **Huanfa Chen**. System Design of a Simulation System for Hazardous Chemicals Leakage, in *Proceedings of the 12th International Conference of GeoComputation, 2013, Wuhan, China*

Presentations

- Oral presentation, A Police Districting Problem on Street Network. In *Association of American Geographers (AAG) Annual Meeting*, Apr. 10-14, 2018, New Orleans, LA, USA.

- Oral presentation, Spatio-temporal Optimisation of Cooperative Police Patrol Routes. In *Association of American Geographers (AAG) Annual Meeting*, March 29-Apr. 2, 2016, San Francisco, CA, USA.
- Oral presentation, Designing Daily Patrol Routes for Policing Based on Ant Colony Algorithm. In *the 1st International Symposium on Spatiotemporal Computing (ISSC 2015)*, Fairfax, VA, US.

RESEARCH INTERESTS

My research interests lie at the intersection of spatio-temporal modelling, GIScience, and spatial optimisation. I focus on developing data-driven methods for crime mapping, predictive policing, and optimisation of police operations, which serves to reduce crime and to increase the efficiency of police activities.

LEADERSHIP EXPERIENCE

2016 – 2018	General Secretary of the Peking University Alumni Association in the UK	UK
	<ul style="list-style-type: none"> • Coordinate a 20-person committee to guarantee the development of the association. Oversaw a 10% membership boost compared to the previous year. • Organise monthly committee meetings and 150-person annual meetings. 	
2011 – 2012	Coordinator of Badminton Club of Peking University	Beijing, China
	<ul style="list-style-type: none"> • Organise weekly training for the 20-person club and games against other teams. 	

AWARDS

2018	Roger Tomlinson Prize. This annual prize is awarded for the best PhD thesis submitted to UCL which relates to the development or application of GIS.
2018	EPSRC Connected Nation Pioneers Award. Selected as one of the 16 finalists out of all UK doctoral students due to pioneering research and exploitation potential.
2017	Future Star Award , in the 2017 Shanghai Open Data Apps Competition. Responsible for design and implementation of the project entitled <i>Planning Docking Stations and Optimising Operations in Sharing Bicycle Management</i> .
2017	Travel Fund for Early-Career Researchers. Lorentz Centre, Leiden University, Netherland. Selected out of 50 applicants due to academic performance to receive €300 to attend the Workshop <i>Movement: New Sensors, New Data, New Challenges</i> .
2014 – 2018	UCL-CSC Joint Research Scholarship. From University College London & China Scholarship Council. (Full Ph.D. scholarship. Covering tuition fees and expenses.)
2015	Excellent Prize , in the 2015 ISPRS-Scientific Initiative Open Data Challenge. Selected out of 100 teams due to outstanding algorithm performance.
2015	Honourable Mention for Best Young Researcher Paper. In the 1st International Symposium on Spatiotemporal Computing (ISSC 2015), Fairfax, VA, US. (\$500)
2010	China National Petroleum Corporation Scholarship. Peking University. Selected out of 150 undergraduate students to receive ¥5,000 due to outstanding academic performance.
2008	Merit Student Awards. Peking University. Selected out of 150 undergraduate students due to outstanding overall performance.

ADDITIONAL INFORMATION

Languages	English (fluent), Madarin (native), Cantonese (fluent) and Teochew (native)
Programming language	R, Java, Python, C++, Linux Bash
Applications	Esri ArcGIS, MS Office Suite, WordPress
Academic membership	Member of AAG Applied Geography Specialty Group Awards Committee; Member of International Cartographic Association Commission on Location Based Services; member

of The International Association of Chinese Professionals in Geographical Information Sciences

Reviewer

IEEE Transactions on Cybernetics (since 2017)

Interests

Travel, sports (practising badminton in competition), history and science