Di Zhu

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EDUCATION

2018 – Now	▰	**Visiting Researcher** Department of Civil, Environmental & Geomatic Engineering, University College London.
2017 – Now	▰	**Research Assistant** School of Earth and Space Sciences, Peking University.
2014 – Now	▰	**Ph.D. Candidate** Cartography and Geographic Information Science. Institute of Remote Sensing and Geographical Information Systems, Peking University.
2010 – 2014	▰	**B.S.** Geographic Information Systems. School of Earth and Space Sciences, Peking University.
2011 – 2014	▰	**B.S.** Economics. National School of Development, Peking University.

ACADEMIC EXPERIENCES

Peer-reviewed Journal Papers

1 Zhu, D., Huang, Z., Shi, L., Wu, L., & Liu, Y. (2018). Inferring spatial interaction patterns from sequential snapshots of spatial distributions. *International Journal of Geographical Information Science, 4*(32), 783–805. ⚲ https://doi.org/10.1080/13658816.2017.1413192

2 Zhu, D. & Liu, Y. (2018a). Modelling irregular spatial patterns using graph convolutional neural networks. *arXiv preprint,* arXiv:1808.09802. ⚲ https://arxiv.org/abs/1808.09802

3 Zhu, D., Wang, N., Wu, L., & Liu, Y. (2017). Street as a big geo-data assembly and analysis unit in urban studies: a case study using beijing taxi data. *Applied Geography, 86,* 152–164. ⚲ https://doi.org/10.1016/j.apgeog.2017.07.001

4 Zhang, S., Zhu, D., Yao, X., Cheng, X., He, H., & Liu, Y. (2018). The scale effect on spatial interaction patterns: an empirical study using taxi od data of beijing and shanghai. *IEEE Access, 6,* 51994–52003. Co-first author, Corresponding author. ⚲ https://doi.org/10.1109/ACCESS.2018.2869378

5 Yao, X., Zhu, D., Gao, Y., Wu, L., Zhang, P., & Liu, Y. (2018). A stepwise spatio-temporal flow clustering method for discovering mobility trends. *IEEE Access, 6,* 44666–44675. ⚲ https://doi.org/10.1109/ACCESS.2018.2864662

6 Yao, X., Wu, L., Zhu, D., Gao, Y., & Liu, Y. (2018). Visualizing spatial interaction characteristics with direction-based pattern maps. *Journal of Visualization,* 1–15. ⚲ https://doi.org/10.1007/s12650-018-00543-4

7 Wu, L., Cheng, X., Kang, C., Zhu, D., Huang, Z., & Liu, Y. (2018). A framework for mixed use decomposition based on temporal activity signatures extracted from big geo-data. *International Journal of Digital Earth.* ⚲ https://doi.org/10.1080/17538947.2018.1556353

8   Zhu, D. & Liu, Y. (2017). An incremental map-matching method based on road network topology. *GEOMATICS AND INFORMATION SCIENCE OF WUHAN UNIVERS, 42*(1), 77–83. 🔗 http://ch.whu.edu.cn/CN/10.13203/j.whugis20150016

9   Liu, Y., Zhan, Z., Zhu, D., Chai, Y., Ma, X., & Wu, L. (2018). Incorporating multi-source big geo-data to sense spatial heterogeneity patterns in urban space. *GEOMATICS AND INFORMATION SCIENCE OF WUHAN UNIVERS, 43*(3), 327–335. 🔗 https://doi.org/10.13203/j.whugis20170383

10   Zhu, D., Cheng, X., Zhang, F., Gao, Y., & Liu, Y. (2018). Spatial interpolation using conditional generative adversarial neural networks. *International Journal of Geographical Information Science*. under review.

11   Zhu, D., Zhang, F., Wang, S., Cheng, X., Wang, Y., Huang, Z., & Liu, Y. (2019). Place-based graphs: understanding place semantics in geographical networks. *Cartography and Geographic Information Science*. under review.

12   Zhu, D., Yao, X., Cheng, X., Zhang, F., Zhang, Y., Huang, Z., & Liu, Y. (2019). Estimating spatial configuration of intra-urban human activities using graph convolutional neural networks. *EPJ Data Science*. under review.

13   Zhang, F., Wu, L., Zhu, D., & Liu, Y. (2019). Social sensing from street-level imagery: a case study in learning urban mobility patterns. *ISPRS Journal of Photogrammetry and Remote Sensing*. under review.

Conferences and Invited Talks

1   Zhu, D., Cheng, T., & Liu, Y. (2019). Geo-propagation from incomplete spatial distribution data: a case study of house price estimation. In *Proceedings of the 27th conference on gis research uk*. Newcastle upon Tyne, United Kingdom.

2   Zhu, D. & Liu, Y. (2018b). Modelling spatial patterns using graph convolutional networks (Short Paper). In *10th international conference on geographic information science (oral presentation)*. Melbourne, Australia. doi:10.4230/LIPIcs.GISCIENCE.2018.73

3   Zhu, D., Shi, L., Wang, Y., Cheng, X., & Liu, Y. (2017). Infer spatial interaction patterns from spatial distributions. In *The 25th international conference on geoinformatics (oral presentation)*. Buffalo, USA.

4   Zhu, D., Wang, N., & Liu, Y. (2016). Street perspective: a novel spatial unit in urban social sensing. In *17th international symposium on spatial data handling (oral presentation)*. Beijing, China.

5   Zhu, D. & Liu, Y. (2016). The distance effect in spatial interaction and spatial similarity: a big data view of tobler's first law. In *The 33rd international geographical congress (oral presentation)*. Beijing, China.

PROJECTS

2019.01-2023.12	🔖 **The Major Program of the National Natural Science Foundation of China (no. 41830645)** Theoretical and analytical methods of spatial interaction networks in geo-spatial big data (CI).
2017.01-2021.12	🔖 **National Science Fund for Distinguished Young Scholars (no. 41625003)** Geo-spatial models and analytical methods (SI).

PROJECTS (continued)

2017.07-2021.07	▮	**The National Key Research and Development Program of China (no. 2017YFB0503600)** Big geo-data mining and spatio-temporal pattern discovery (SI).
2018.10-2019.10	▮	**The China Scholarship Council funding (no. 201806010077)** Modelling spatial heterogeneity and spatial interactions from the big geo-data perspective (PI).
2015.01-2016.12	▮	**National Natural Science Foundation of China (no. 41428102)** Spatial optimizing of urban facilities to mitigate traffic congestion: a case study of Beijing (SI).
2013.01-2016.12	▮	**National Natural Science Foundation of China (no. 41271386)** Investigating human mobility pattern based on massive spatio-temporal data (SI).

AWARDS

2018	▮	**Presidential Scholarship**, Peking University
	▮	**Outstanding Student Award**, Peking University
	▮	**State Scholarship Fund of China**, China Scholarship Council
2017	▮	**Tang Lixin Scholarship**, Peking University
	▮	**Research Assistant Scholarship**, Peking University
2016	▮	**Excellent in Academics Award**, Peking University
2015	▮	**Individual Scholarship for Outstanding Scientific Research**, Peking University
2014	▮	**Longruan Tech Scholarship**, Beijing LongRuan Technologies Inc.
2012	▮	**Founder Scholarship**, Peking University
2011	▮	**54 Scholarship**, Peking University

RESEARCH INTERESTS

Geospatial modelling; Social sensing; Spatiotemporal data mining; Applied artificial intelligence

SKILLS

Languages	▮	Mandarin Chinese; English.
Programming	▮	Python, SQL, LaTeX, Pytorch, C#, ASP.NET, Java, C/C++, HTML, CSS, JavaScript, ArcGIS, QGIS.
Misc.	▮	Graphic design, Photography, Violin, Guitar, Modern drama creation.

REFERENCES

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