

# 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. SCI/SSCI. 🌐  
<https://doi.org/10.1080/13658816.2017.1413192>
- 2    Zhu, D. & Liu, Y. (2018a). Modelling irregular spatial patterns using graph convolutional neural networks (in progress). *arXiv preprint*, arXiv:1808.09802. 🌐  
<https://arxiv.org/abs/1808.09802>
- 3    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*, 1–1. SCI. 🌐  
<https://doi.org/10.1109/ACCESS.2018.2864662>
- 4    Zhang, S., Zhu, D., Yao, X., Cheng, X., & Liu, Y. (2018). The scale effect on spatial interactions: an empirical study using taxi o-d data of beijing and shanghai). *IEEE Access*. SCI, corresponding author and co-first author (accepted).
- 5    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. SSCI. 🌐 <https://doi.org/10.1016/j.apgeog.2017.07.001>
- 6    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. EI. 🌐 <http://ch.whu.edu.cn/CN/10.13203/j.whugis20150016>
- 7    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*

- 8 Zhu, D., Cheng, X., Zhang, F., Gao, Y., & Liu, Y. (2018). Spatial interpolation based on conditional generative adversarial neural networks. *International Journal of Geographical Information Science*. SCI/SSCI,(under review).
- 9 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*. SSCI,(under review).
- 10 Zhu, D., Zhang, F., Ye, C., Wang, S., & Liu, Y. (2019). Linking place semantics with spatial configurations through graph-based knowledge reasoning. (in progress).
- 11 Zhu, D. (2019). Geographical reconstruction by adversarial learning of spatial dependence. (in progress).

### Conferences and Invited Presentations

- 1 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
- 2 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.
- 3 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.
- 4 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

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| 2017.01-2021.12 | ■ <b>National Science Fund for Distinguished Young Scholars (no. 41625003)</b><br>Geo-spatial models and analytical methods (SI).  |
| 2017.07-2021.07 | ■ <b>The National Key Research and Development Program of China (no. 2017YFB0503600)</b><br>Big geo-data mining and spatio-temporal pattern discovery (SI).                  |
| 2015.01-2016.12 | ■ <b>National Natural Science Foundation of China (no. 41428102)</b><br>Spatial optimizing of urban facilities to mitigate traffic congestion: a case study of Beijing (SI). |
| 2013.01-2016.12 | ■ <b>National Natural Science Foundation of China (no. 41271386)</b><br>Investigating human mobility pattern based on massive spatio-temporal data (SI).                     |

### AWARDS

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| 2018 | ■ <b>Presidential Scholarship</b> , Peking University                |
|      | ■ <b>Outstanding Student Award</b> , Peking University               |
|      | ■ <b>State Scholarship Fund of China</b> , China Scholarship Council |

## AWARDS (continued)

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- 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

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Geo-spatial Modeling, Social Sensing, Spatio-temporal Analysis, Urban Geography, Artificial Neural Network

## SKILLS

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- Languages    ■ Mandarin Chinese; Strong reading, writing, listening and speaking competencies for English.
- Programming    ■ Python, SQL,  $\LaTeX$ , Pytorch, ASP.NET, Java, C/C#/Cpp, HTML, CSS, JavaScript, Processing.
- Misc.        ■ Graphic design, Photography, Modern drama creation.

## REFERENCES

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**Yu Liu**

Professor

Peking University

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**Lun Wu**

Professor

Peking University

✉ wulun@pku.edu.cn