Jiameng Lai

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Education

M.S. of Cartography and Geographic Information Science, Nanjing University 2017.09-2020.07 (expected)

Overall GPA: 4.48/5.0 Major GPA: 4.57/5.0

B.S. of Geographic Information Science, Nanjing University 2013.09-2017.07

Overall GPA: 4.46/5.0 Major GPA: 4.48/5.0

Research Interests

- Urbanization; Remote sensing; Urban environment; Land use and land cover change; Land-atmospheric interaction.

Publications (* denotes corresponding author)

Journal articles, In Preparation/Under Review

1. **Lai, J.**, Zhan, W.*, Voogt, J., Quan, J., Huang, F., Zhou, J., Bechtel, B., Hu, L., Wang, K., Cao, C., and Lee, X. Meteorological controls on daily variations of nighttime surface urban heat islands. *Remote Sensing of Environment*. [Revised and under the 3rd round of review]
2. **Lai, J.**, Zhan, W.*, Quan, J., Bechtel, B., Wang, K., Zhou, J., Huang, F., Chakraborty, T., Liu, Z., and Lee, X. Statistical simulation of next-day nighttime surface urban heat islands. *ISPRS Journal of Photogrammetry and Remote Sensing*. [Rejected but encourage resubmission]
3. Liu, Z., Zhan, W.*, **Lai, J.**, Hong, F., Quan, J., Bechtel, B., Huang, F., and Zou, Z., Taxonomy of multi-temporal patterns for clear-sky climatology of surface urban heat islands. [In preparation]
4. Huang, F., Zhan, W.*, Wang, Z., Voogt, J., Hu, L., Quan, J., Liu, C., Zhang, N., and **Lai, J.** The first satellite-based identification of vertical profile of urban heat island from boundary layer to subsurface under clear skies. *Remote Sensing of Environment*. [Under review]
5. Jiang, S., Zhan, W.*, Yang, J., Liu, Z., Huang, F., **Lai, J.**, Li, J., Hong, F., Huang, Y., Chen, J., and Li, X. Urban heat island studies based on local climate zone: A systematic review with meta-analysis. *Acta Geographica Sinica*. [In submission]

Journal articles, Published

6. **Lai, J.**, Zhan, W.*, Huang, F., Voogt, J., Bechtel, B., Allen, M., Peng, S., Hong, F., Liu, Y., and Du, P.*, 2018. Identification of typical diurnal patterns for clear-sky climatology of surface urban heat islands. *Remote Sensing of Environment*, 217, 203-220.
7. **Lai, J.**, Zhan, W.*, Huang, F., Quan, J., Hu, L., Gao, L., and Ju, W., 2018. Does quality control matter? Surface urban

heat island intensity variations estimated by satellite-derived land surface temperature products. *ISPRS Journal of Photogrammetry and Remote Sensing*, 139, 212-227.

8. Liu, Z., Zhan, W.*, **Lai, J.**, Hong, F., Quan, J., Bechtel, B., Huang, F., and Zou, Z., 2019. Balancing prediction accuracy and generalization ability: A hybrid framework for modelling the annual dynamics of satellite-derived land surface temperatures. *ISPRS Journal of Photogrammetry and Remote Sensing*, 151, 189-206.
9. Hong, F., Zhan, W.*, Göttsche, F.M., Liu, Z., Zhou, J., Huang, F., **Lai, J.**, and Li, M., 2018. Comprehensive assessment of four-parameter diurnal land surface temperature cycle models under clear-sky. *ISPRS Journal of Photogrammetry and Remote Sensing*, 142,190-204.
10. Huang, F., Zhan, W.*, Wang, Z., Wang, K., Chen, J.M., Liu, Y., **Lai, J.**, and Ju, W., 2017. Positive or negative? Urbanization‐induced variations in diurnal skin‐surface temperature range detected using satellite data. *Journal of Geophysical Research: Atmospheres*, 122(24), 13-229.
11. Zou, Z., Zhan, W.*, Liu, Z., Bechtel, B., Gao, L., Hong, F., Huang, F., and **Lai, J.**, 2018. Enhanced modeling of annual temperature cycles with temporally discrete remotely sensed thermal observations. *Remote Sensing*, 10(4), 650.
12. Zou, Z., Huang, F., **Lai, J.**, Liu, Z., and Zhan, W.*, 2018. Impacts of temporal upscaling methods on calculation of surface urban heat island intensity. *Geography and Geo-Information Science*, 2018(3), 26-31 (in Chinese).

Grants

2018-present **PI**, "Satellite-based attribution and prediction of spatio-temporal evolution of surface urban heat islands", funded by Jiangsu Provincial Education Department, China, **RMB 15,000***.

* Only 9 master students in Nanjing University received this funding, and I am the only one from the Geography field.

Research Experiences

- Investigation on impacts from the quality of satellite land surface temperature (LST) product on the estimation of surface urban heat islands (SUHIs) (**Paper #6**), funded by National Key R&D Program of China 2016-2018
  - Quantified the possible biases in the satellite-based SUHI estimation induced by data quality.
  - Compared the SUHI variations caused by LST quality in 86 Chinese cities within different climatic zones.
- Satellite-based investigation on the diurnal patterns of surface urban heat islands (**Paper #5**), funded by National Natural Science Foundation of China 2017-2018
  - Reconstructed the full diurnal cycle of the SUHI variations for Chinese 354 cities.
  - Identified five typical diurnal patterns of the SUHI intensity.
  - Investigated the controls from urban-rural NDVI differences on the diurnal SUHI patterns.
  - Achieved a first insight on the climatology, taxonomy, and variety of the diurnal SUHIs.
- Satellite-based attribution analysis and prediction of surface urban heat islands (**Papers #1 and #2**), funded by National Key R&D Program of China 2018-present

- Quantified the SUHI variations on the day-to-day scale for 59 Chinese cities.
- Examined the impacts from meteorological conditions on the day-to-day SUHI variations.
- Identified a larger meteorological control on the SUHI intensity in temperate than in subtropical zones.
- Proposed a simple but efficient approach to statistically simulating the next-day nighttime SUHIs.

- Integrated geological investigation of Mountain Lu 2015
  - Interdisciplinary field practice with professors in climatology, geology, ecology, hydrology, and soil science.

Invited Talks

- "Experience Sharing in Learning and Research"*. *Special Seminar of Ten-thousand Student Program of Academic Winter Camp in Jiangsu Province*, Nanjing University, China, 2019.
- "Meteorological Controls on Daily Variations of Nighttime Surface Urban Heat Islands under Clear-sky". *University of Electronic Science and Technology of China*, China, 2018.
- "Experience Sharing in Writing of Scientific and Technological Papers". *Nanjing University*, China, 2018.

* I was selected as the only student to give this speech on behalf of Nanjing University.

Conference Presentations

- *Joint Urban Remote Sensing Event*, Vannes, France (poster & oral) 2019
- *3rd Seminar on Thermal Infrared Quantitative Remote Sensing*, Qingdao, China (oral) 2019
- *AGU Fall Meeting*, Washington, D.C., America (poster) 2018
- *5th Youth Scientist Forum of Earth Science*, Nanjing, China (oral) 2018
- *1st International Conference on Urban Informatics*, Hong Kong, China (oral) 2017
- *ISPRS Geospatial week*, Wuhan, China (oral) 2017

Selected Awards

- National Scholarship, Nanjing University (Ranking: **1/300**)* 2018
- First Prize of Graduate School Scholarship, Nanjing University (Ranking: **1/300**) 2018
- First Grade Award, 5th Youth Scientist Forum of Earth Science (only **1** student in the Geography field) 2018
- Pacemaker to Excellent Postgraduate Student, Nanjing University (**1 out of 100**) 2018
- Excellent Student, Nanjing University (**3 out of 66)** 2015

* I am the only student from Grade 2 rather than Grade 3 to receive this scholarship.

Journal Reviewer

- Sustainable Cities and Society; Science of the Total Environment; International Journal of Digital Earth.

Skills

- Computer: Skilled in C, C++, python, MATLAB, GitHub, ArcGIS, Origin Pro, Excel, and ENVI.