Jiameng Lai

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Education

M.S. of Cartography and Geographic Information Science, Nanjing University 2017.09-2020.06 (expected)
Overall GPA: 4.48/5.0 Major GPA: 4.57/5.0

B.S. of Geographic Information Science, Nanjing University 2013.09-2017.06

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

Research Interests

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

Grants

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

Publications

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., 2019. Synoptic controls on daily variations of nighttime surface urban heat islands under clear-sky. *Remote Sensing of Environment*. [Under 2nd 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., 2019. Statistical simulation of next-day nighttime surface urban heat islands. *ISPRS Journal of Photogrammetry and Remote Sensing*. [Under review]
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.**, 2019. The first satellite-based identification of vertical profile of urban heat island from boundary layer to subsurface under clear skies. [Manuscript finished and in submission to *Remote Sensing of Environment*]

Journal articles, Published

5. **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.

6. **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.
7. 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.
8. 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.
9. 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.
10. 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.
11. 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).

Research Experiences

- Estimating the impacts of the quality of satellite land surface temperature (LST) product on the quantifications of surface urban heat islands (SUHIs) (**Paper #6**), funded by National Key R&D Program of China 2016-2018
  - The possible biases in the satellite-based SUHI quantification induced by data quality were emphasized.
  - Significant north-south contrast in the SUHI variations caused by LST quality were found in Chinese cities.
- Satellite-based investigation on the typical diurnal pattern of surface urban heat islands (**Paper #5**), funded by National Natural Science Foundation of China 2017-2018
  - The SUHI variations over a full diurnal cycle were re-constructed for Chinese 354 cities.
  - Diurnal climatology of SUHI was estimated, and five typical SUHI diurnal patterns were identified.
  - Diurnal SUHI patterns were found to be controlled partly by urban-rural NDVI differences.
- Satellite-based attribution analysis and simulation of surface urban heat island (**Papers #1 and #2**), funded by National Key R&D Program of China 2018-present
  - Vast SUHI variations on the day-to-day scale were quantified and emphasized.
  - Significant impact from meteorological conditions on the day-to-day variations in the SUHI were examined.

- Larger meteorological controls on the SUHI intensity are found in temperate zones than in subtropical zones.
- A statistical approach to simulating the next-day nighttime SUHI was proposed.

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

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, DC, 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

Invited Talk

- "Experience Sharing in Learning and Research". *Special Seminar of Ten-thousand Student Program of Academic Winter Camp in Jiangsu Province*, Nanjing University, China, 2019.
- "Synoptic 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.

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 Geography field) 2018
- Pacemaker to Excellent Postgraduate Student, Nanjing University (**1 out of 100**) 2018
- Excellent Student, Nanjing University (**3 out of 66)** 2015
- First Grade Award, University Students' Innovation Competition in Surveying and Mapping Using Geographic Information Software in Jiangsu Province 2015

Journal Reviewer

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

Skills

- Language: Fluent in English; TOEFL: 104 (R30 L27 S22 W25), GRE general: 161 (V) + 170 (Q) + 4.5 (AW).
- Computer: Skilled in C, C++, python, MATLAB, GitHub, ArcGIS, Origin Pro, Excel, and ENVI.