Hanyi Wu

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EDUCATION

9/2022–	M.Sc., Cartography and Geographical Information System Beijing Normal University • GPA: 3.7/4.0; Supervisor: Yaozhong Pan
9/2018–6/2022	B.Eng., Remote Sensing Science and Technology Nanjing University of Information Science and Technology • GPA: 4.247/5.0; Rank:1/103; Supervisor: Yongming Xu

FIELDS OF SPECIALIZATION

- Remote sensing of urban land-use and land-cover change
- RS & GIS application in health risk assessment, human exposure, environmental justice etc.
- Remote sensing of application in crop mapping, soil erosion and agricultural sustainability

PUBLICATIONS

1. **Wu H**, Xu Y, Zhang M, et al. Spatially explicit assessment of the heat-related health risk in the Yangtze River Delta, China, using multisource remote sensing and socioeconomic data[J]. Sustainable Cities and Society, 2024, 104: 105300. https://doi.org/10.1016/j.scs.2024.105300. (JCR-Q1; Citations: 2)
2. **Wu H**, Zhao C, Zhu Y, et al. A multiscale examination of heat health risk inequality and its drivers in mega-urban agglomeration: A case study in the Yangtze River Delta, China[J]. Journal of Cleaner Production, 2024, 458: 142528. https://doi.org/10.1016/j.jclepro.2024.142528. (JCR-Q1)
3. Xiong J, **Wu H**, Wang X, et al. Response of soil fertility to soil erosion on a regional scale: A case study of Northeast China[J]. Journal of Cleaner Production, 2024, 434: 140360. https://doi.org/10.1016/j.jclepro.2023.140360. (JCR-Q1; Citations: 3)
4. Zhao C, Pan Y, **Wu H**, et al. A Novel Spectral Index for Vegetation Destruction Event Detection Based on Multispectral Remote Sensing Imagery[J]. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 2024. https://doi.org/10.1109/JSTARS.2024.3412737. (JCR-Q1)
5. Zhao C, Pan Y, **Wu H**, et al. Quantifying the contribution of industrial zones to urban heat islands: Relevance and direct impact[J]. Environmental Research, 2024, 240: 117594. https://doi.org/10.1016/j.envres.2023.117594. (JCR-Q1)
6. Zhu Y, Pan Y, Zhang D, **Wu H**, et al. A deep learning method for cultivated land parcels (CLPs) delineation from high-resolution remote sensing images with high-generalization capability[J]. IEEE Transactions on Geoscience and Remote Sensing, 2024. https://doi.org/10.1109/TGRS.2024.3425673. (JCR-Q1)
7. Zhao C, Pan Y, Ren S, Gao Y, **Wu H**, et al. Accurate vegetation destruction detection using remote sensing imagery based on the three-band difference vegetation index (TBDVI) and

dual-temporal detection method[J]. International Journal of Applied Earth Observation and Geoinformation, 2024, 127: 103669. https://doi.org/10.1016/j.jag.2024.103669. (JCR-Q1)

8. **Wu H**, Xiong J, Hou X, et al. A dataset of soil water erosion of Northeast China from 2001 to 2020[J]. China Scientific Data, 2023, 8(4):290-304. https://doi.org/10.11922/11-6035.csd.2023.0096.zh.
9. Shao Q, Xu Y, **Wu H**. Spatial Prediction of COVID-19 in China Based on Machine Learning Algorithms and Geographically Weighted Regression[J]. Computational and Mathematical Methods in Medicine, 2021, 2021(1): 7196492. https://doi.org/10.1155/2021/7196492. (JCR-Q2; Citations: 12)
10. Wang Y, Xu Y, Xu X, Jiang X, Mo Y, Cui H, Zhu S, **Wu H**. Evaluation of six global high-resolution global land cover products over China[J]. International Journal of Digital Earth, 2024, 17(1): 2301673.https://doi.org/10.1080/17538947.2023.2301673. (JCR-Q1)

THESES

1. **Near Real-time Reconstruction of Sentinel 2 Multispectral Images for Early Crop Mapping** (M.Sc., 09/2022–)

- A near real-time Sentinel 2 multispectral images reconstruction method was developed, assimilating time series remote sensing data and crop growth models.

2. **Heat Health Risk Assessment in Yangtze River Delta (YRD) using Multi-source Remote Sensing Data** (B.Eng., 09/2018–06/2022)

- A quantitative method for assessing heat-related health risks at the grid scale has been proposed, combining multi-source remote sensing and socio-economic data.

PATENT

1. **Wu H**, Xiong J, Cheng H, et al. A large -scale soil water erosion evaluation method based on hydrological site data, Chinese invention patent, CN116702939A.
2. Xiong J, **Wu H**, Hou X, et al. A method for estimating soil water erosion in different geographical regions based on factor algorithm combination optimization, Chinese invention patent, CN116703195A.

RESEARCH PROJECTS

12/2023– Global accurate multi-source remote sensing mapping and monitoring of major crops (Participate)

Contributions:

- A near real-time remote sensing images reconstruction algorithm was developed to produce the primary cloud-free data for the major crops mapping with high temporal resolution.

9/2022–9/2023 Remote sensing response characteristics and semantic representation of surface anomalies (Participate)

Contributions:

- Vegetation anomalies: Vegetation anomaly detection spectral index was developed for large-scale tree felling, diseases and insect pests and other vegetation anomalies.

- Thermal anomaly: Spectral indexes were constructed to detect the roof of the industrial zone, identify the industrial zone, and analyze the urban thermal anomaly.

6/2020–6/2021 Comprehensive assessment of heat health risk in the Yangtze River Delta based on multi-source remote sensing data **(Lead)**

Contributions:

- The near-surface temperature and the gridded population were retrieved based on multi-source data.
- A heat health risk assessment framework and index system were developed, using reanalysis and remote sensing data.
- The driving factors and spatiotemporal pattern of heat health risk were analyzed at multiple scales, and the coping strategies were proposed.

AWARDS

2021	Second Prize of Sharing Cup National Innovation Competition of Science and Technology Resources Sharing Service
2021	Honorable Mention of Mathematical Contest in Modeling (MCM/ICM)
2020	Second Prize of Asia and Pacific Mathematical Contest in Modeling (APMCM)
2020	Third Prize of China Undergraduate Mathematical Contest in Modeling (CUMCM)
2020	Third Prize of Lan Qiao Cup National Software and information technology professional competition (Python Programming)
2020	Third Prize of Chinese Mathematics Competitions (CMC)

HONOURS

2023	School Merit Student (*BNU*)
2022	Outstanding Graduate Student of Jiangsu Province
2021	Merit Student of Jiangsu Province
2021, 2020, 2019	School Merit Student (*NUIST*)
2020, 2019	School Excellent Student Cadre (*NUIST*)
2018	School Outstanding Student (*NUIST*)

INTERNSHIP EXPERIENCES

2/2022–8/2022 **Research assistant**

Laboratory of remote sensing and geographic information science, Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences

Main duties performed:

- Quantitative soil erosion potential mapping for China using the Google Earth Engine platform
- Soil erosion modeling & Spatiotemporal analysis

EXTRACURRICULAR ACTIVITIES

CONFERENCES

7/2024 IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2024), Athens, Greece

- Poster: Improving sample applicability for early-season mapping of winter wheat using geoclimatic zoning

4/2024 General Assembly of the European Geosciences Union (EGU2024), Vienna, Austria

- Oral presentation: Spatially explicit assessment of the heat-related health risk in the Yangtze River Delta, China, using multisource remote sensing and socioeconomic data

6/2023 National Quantitative Remote Sensing Academic Forum, Chengdu, China

- Poster: Early mapping of winter wheat in complex areas

TEACHING ASSISTANT EXPERIENCE

2023 Spring **Course:** Geographic Information Science and Remote Sensing Technology (C- Remote Sensing Science and Technology)

Main duties performed:

- Preparing class registers and updating learners' records
- Support the Teacher with marking students' assignments
- Support the Teacher with teaching GIS software (ArcGIS) and python programming

2022 Fall **Course:** Remote sensing of resources and environment

Main duties performed:

- Preparing class registers and updating learners' records
- Support the Teacher with marking students' assignments
- Support the Teacher with teaching remote sensing software (ENVI) and IDL programming

JOURNAL REVIEWER

- *Sustainable Cities and Society*

ADDITIONAL INFOMATIONS

- Skills: Remote sensing image process and analysis; GIS spatiotemporal analysis; Machine learning; Geographical statistic modeling
- Proficient software: ENVI, ArcGIS, QGIS, GeoDa, SPSS
- Proficient programming languages: Python, R, MATLAB, IDL, C#, C, java script (GEE)
- Languages: English (CET-6: 530), Mandarin (Native), Hokkien (Native)
- Hobbies: Violin, Calligraphy