ZHIQING HUANG

University of Michigan – Ann Arbor, School for Environment and Sustainability

Address: 440 Church St, Ann Arbor, MI 48109

Email: zhiqingh@umich.edu

PROFILE

A graduate student pursuing a second Master's degree in Geospatial Data Science at School for Environment and Sustainability, University of Michigan, USA, **expected to graduate in May 2026**. Specializing in **disaster risk assessment**, **remote sensing applications, and vegetation coverage**. Academic achievements include HD average. Proficient in GIS and remote sensing data processing & analysis through diverse researches.

EDUCATION

University of Michigan – Ann Arbor — Ann Arbor, USA
Master in Geospatial Data Science — Sep 2024 – Present
GPA: 4.0/4.0
Courses: Ecology, Principles of GIS, Science & Practice of Social Change, Nature Resource Statistics, etc.

Beijing Normal University (Project 985 & 211 University) — Beijing, China
Master in Photogrammetry and Remote Sensing — Sep 2021 – July 2024
GPA: 3.7/4.0
Courses: Project of Geographical Information System, Pattern Recognition of Remote Sensing Images, The Theory and Practice of Spatial Analysis Modeling, ENVI/IDL Programming, Remote Sensing Image Processing and Practice, Deep Learning & Remote Sensing Automatic Information Extraction.

Harbin Normal University — Harbin, China
B.S. in Geographic Information Science (Outstanding Graduate) — Sep 2017 – July 2021
GPA: 4.06/5.00 **Rank: 2/149**
Courses: Advanced Mathematics, Structured Query Language, Data Structure, Java, C#, C++, GIS Geographic Mapping, ArcGIS, ArcGIS Engine, Introduction to Remote Sensing, Remote Sensing Digital Image Processing, SPSS, Human Geography.

PUBLICATIONS

* indicates corresponding author

[Sustainability]
Spatial-Temporal Pattern and Driving Forces of Fractional Vegetation Coverage in Xiong'an New Area of China from 2005 to 2019
Zhiqing Huang, Haitao Qiu, Yonggang Cao, Adu Gong, Jiaxiang Wang
Q2, IF: 3.9, 2023. https://doi.org/10.3390/su151511985.

[Remote Sensing]
Development of an Index for Forest Fire Risk Assessment Considering Hazard Factors and the Hazard-Formative Environment
Adu Gong, **Zhiqing Huang***, Longfei Liu, Yuqing Yang, Wanru Ba, Haihan Wang
Q1, IF: 5.0, 2023. https://doi.org/10.3390/rs15215077.

[Journal of Hebei Agricultural University]
The Temporal and Spatial Changes of Fractional Vegetation Coverage in Yan'an City from 1999 to 2019
Zhiqing Huang, Adu Gong
Chinese Core Journals, IF: 1.214, 2022. DOI: 10.13320/j.cnki.jauh.2022.0049. (In Chinese)

[Technology Innovation and Application]
Thinking of Sponge City Construction Based on Analysis of Water Cycle Characteristics
Zhiqing Huang, Chun Zeng
JST, IF: 0.385. Article No.2095-2945(2019)27-0126-02. (In Chinese)

RESEARCH EXPERIENCE

- *Mapping Rice Phenology for Planting Date and Variety Identification Using Sentinel-2 Data in Google Earth Engine* — *Michigan, United States*

  ***Major investigator**, supervised by Prof. Meha Jain* Jan 2025 – Present

  - Processed in a field scale.
  - To smooth time-series remote sensing data to extract valuable insights into crop phenology.

- *Forest Fire Risk Assessment Model Based on Convolutional Neural Network (CNN) — A Case Study of Southwest Sichuan Province of China* — *Beijing, China*

  ***Major investigator**, supervised by Prof. Adu Gong* May 2023 – May 2024

  - Based on MODIS (MCD64A1) product and earth observation data (26 indicators).
  - Constructed a forest fire risk indicator system (11 indicators) based on RDST.
  - Mitigated imbalance of burned and unburned samples by combining over-sampling and under-sampling strategies.
  - Built up a forest fire risk assessment model based on ResNet-18 CNN and achieved an improvement of accuracy over One-dimensional CNN, BPNN, and Random Forest.
  - Generated monthly 500-meter grid forest fire risk maps for the study area from 2010 to 2020.
  - Performed simulation experiments to analyze the changes in the critical factor contributing to forest fire risk.

  Open fund project of the Beijing key laboratory of environmental remote sensing and digital city

- *The Influence of Climate Change on Archaeological Sites in China* — *Beijing, China*

  ***Major investigator**, supervised by Prof. Adu Gong* Sep 2022 – Dec 2022
  held by the National Centre for Archaeology of China

  - Based on weather station data and scenario data (SSP245 and SSP585), using the Entropy Method and Delphi Method.
  - Developed distinct indicator systems at the provincial and individual cultural heritage site scales.
  - Assessed annual climate risk of archaeological sites in China's northwestern arid region from 1961 to 2050.
  - Higher climate risks in more western regions due to more precipitation under higher emissions patterns and a stronger sensitivity to water availability in arid regions.

- *Spatial-Temporal Pattern and Driving Forces of FVC (Fractional Vegetation Coverage)* — *Beijing, China*

  ***Major investigator**, Supervised by Prof. Adu Gong* Jul 2022 – Jan 2024

  - Based on Landsat remote sensing imagery, using the transition matrix and Grey Relational Analysis.
  - Focused on a new planned area, Xiong' an New Area, China, and an ecologically vulnerable city in the Loess Plateau, Yan' an, China.
  - Natural factors exert a stronger influence on vegetation dynamics; mid-high FVC is the primary source of high FVC; FVC generally sees a 30% improvement over a 10-year period.

- *Forest Fire Assessment Considering Hazard Factors and the Hazard-Formative Environment* — *Beijing, China*

  ***Academic Writing and Visualization**, supervised by Prof. Adu Gong* Jul 2022 – Jan 2024

  - Based on MODIS (MCD64A1) product and earth observation data, using Analytic Hierarchy Process and Entropy Method, and Minimal Relative Entropy Theory.
  - Augmented the well-established FFDI (Forest Fire Danger Index) of China with RDST (Regional Disaster System Theory) to formulate a CFFRI (Composite Forest Fire Risk Index).
  - Quantitative trend of different factors with fire change robustly demonstrates the superior applicability of CFFRI over FFDI, as the CFFRI achieved an accuracy of 85% in results, compared to 76% for the FFDI.

  Open fund project of the state key laboratory of remote sensing science and Beijing engineering research center for global land remote sensing products (Grant No.202212)

SELECTED AWARDS AND HONORS

- First-class Academic Scholarship Annually 2018 – 2023
- First Prize in the Graduate Academic Ability Competition at the School of Geography, Faculty of Geographical Science, Beijing Normal University 2023
- Excellent undergraduate thesis (Top 1%), Harbin Normal University 2021
- Award of Outstanding Graduate (Top 10%), Harbin Normal University 2021
- National Scholarship (Top 5%), Harbin Normal University 2019

ACADEMIC CONFERENCE

- The 2022 Academic Annual Meeting of the Beijing Geographical Society, Beijing, China.
  - The new direction for the coordinated development of the Beijing-Tianjin-Hebei Region in the new era, 2022.11. (**Excellent Report**)
- The 2023 AGU (American Geophysical Union) Fall Meeting, San Francisco, California, USA.
  - Exploring Optimal Hyperspectral Remote Sensing Image Normalization Techniques in Deep Learning: A Case Study Using CNN (**Poster**)
  - Hazard Assessment Framework for Wildfires Built with Regional Hazard System Theory (**Poster**)

SOFTWARE COPYRIGHTS AND STANDARDS

- A Browse Platform for the Typhoon Meranti V1.0, 2023SR0485136, completed Oct 31, 2022.
  Zhiqing Huang, Adu Gong, Wenxuan Bao, Wanru Ba, Can Xu, Haihan Wang, Boyi Li
- A Fire Hazard Inquiry System V1.0, 2023SR0485117, completed Nov 12, 2022.
  Zhiqing Huang, Adu Gong, Can Xu, Haihan Wang, Wenxuan Bao, Wanru Ba, Boyi Li
- Natural disaster risk management of immovable cultural heritage – terminology. ICS 01. 040. 01, CCS A 22, T/CI 089-2023, released Jul 6, 2023. (In Chinese)
  Main writer

SERVICE

- Teaching assistant: Spatial Information Acquisition and Digital Earth Spring 2023
- Teaching assistant: Emergency management application of space technology (**Excellent TA**) Autumn 2022