Yiming Zhang

(She/Her)

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EDUCATION

Ph.D. in Geographical Sciences	***Anticipated: December* 2024**
Department of Geographical Science	Cumulative GPA: 4.0/4.0
University of Maryland, College Park, USA	
Thesis: *"Monitoring Urban Dynamics Using High-spatial and High-temporal Resolution Satellite Images"*	
Master of Photogrammetry and Remote Sensing	**September 2016 – May 2019**
State Key Laboratory of Information Engineering in Survey Mapping and Remote Sensing, Wuhan University, China	Cumulative GPA: 89.07/100
Thesis: *"Target Detection Based on Sparse Representation in Hyperspectral Images"*	
Bachelor of Geodesy and Geomatics Engineering	**September 2012 – May 2016**
School of Geodesy and Geomatics, Wuhan University, China	Cumulative GPA: 3.64/4.0

PROJECTS AND RESEARCH EXPERIENCE

Principal Investigator (University of Maryland)

Fieldwork in Puerto Rico to Understand House Recovery after Hurricane Maria — June 2023 – June. 2024

- ° **Secured** competitive research funding from the International Center for Innovation in Geospatial Analytics and Earth Observation (GEOG, UMD) and Dean's Research Initiative (BSOS, UMD).
- ° **Led** the Institutional Review Board (IRB) application process for a human-related in-situ survey.
- ° **Conducted all fieldwork and data analysis**, and **collaborated** with local stakeholders to assess the impact of Hurricane Maria on temporary roof installations and their duration.

Graduate Research Assistant (University of Maryland)

FAI: Advancing Deep Learning Towards Spatial Fairness (NSF Program on Fairness in Artificial Intelligence in Collaboration with Amazon, PI: Dr. Yuqin Xie — 2022 – 2025

- ° **Developed** a **deep learning** model to integrate **multi-source** data from **GEDI Lidar** and **Sentinel-2** imagery to estimate building height

High-Impact Hot Spots of Land Cover Land Use Change: Ukraine and Neighboring Countries (Funded within NASA Land Cover Land Use Change Program, PI: Dr. Sergii Skakun) — 2021 – 2023

- ° **Developed** a **deep learning** model for detecting urban land use changes in **Sentinel-2** satellite images.
- ° Analyzed and quantified the impact of urban area changes in major cities in Ukraine (2016-2021).

WATCH: Wide Area Terrestrial Change Hypercube (Intelligence Advanced 2021 – 2022 Research Projects Activity (IARPA)/NGA project, UMD PI: Dr. Sergii Skakun)

° Developed and validated algorithms for cloud masking in Landsat and Sentinel 2 satellite images.

Graduate Research Assistant (Wuhan University)

Data-driven feature representation and transfer learning in   Nov. 2015 – Dec. 2017
hyperspectral remote sensing images and its application in urban
geographic information extraction

° **Conducted** research on **transfer learning** in **hyperspectral** urban geographic information extraction.

Sub-pixel target detection based on sparse representation and cross-   June 2016 – Mar. 2017
disciplinary learning in hyperspectral target detection

° **Developed algorithms** based on sparse representation to improve **target detection** performance in **hyperspectral images** utilizing **Matlab**.

Spatial-spectral multi-feature extraction and selection based on   Feb. 2016 – Oct. 2016
manifold learning in hyperspectral remote sensing images

° **Executed manifold learning**-based **feature extraction** algorithms in **hyperspectral images**.

PUBLICATIONS AND PRESENTATIONS

Journal papers:

1. **Y. Zhang**, S. Skakun, J. Caraballo, I. Garcia. "Temporary becomes permanent: satellite data shows temporary roofs remained for years in Puerto Rico after Hurricane Maria in 2017," *Nature Cities*, 2024, first-round revisions.
2. **Y. Zhang**, S. Skakun, M. Adegbenro, "Leveraging the use of labeled benchmark datasets for urban area change mapping and area estimation: a case -study of the Washington DC-Baltimore region", *Int. J. Digit. Earth,* vol. 15, no. 1, pp. 1169-1186, 2022.
3. Y. Zhang, **Y. Zhang**, B. Du, C. Zhang, X. Guo, and W. Tu, "Parallel discriminative subspace for city target detection from high dimension images," *GeoInformatica 2020*, pp.1-24.
4. **Y. Zhang**, B. Du, Y. Zhang, and L. Zhang, "Spatially Adaptive Sparse Representation for Target Detection in Hyperspectral Images," *IEEE Geosci. Remote Sens. Lett.*, vol. 14, no. 11, pp. 1923–1927, Nov. 2017.

Conference Proceeding:

1. **Y. Zhang**, S. Skakun and V. Prudente, "Detection of Changes in Impervious Surface Using Sentinel-2 Imagery," *Int. Geosci. Remote Sens. Symp.*, 2020, pp. 4787-4790.

Abstracts:

1. **Y. Zhang**, S. Skakun. "Refining Urban Building Height Estimation through Integrated GEDI Data," *AGU Fall Meeting Abstracts*, 2023, pp: B22A-06.
2. **Y. Zhang**, S. Skakun. "Mapping of Temporary Roofs in Puerto Rico after Hurricane Maria Using PlanetScope Data," *AGU Fall Meeting Abstracts*, 2022, pp: IN42A-06.
3. **Y. Zhang**, S. Skakun, "Detection of construction objects using time series of Sentinel-2 data and neural networks," *AGU Fall Meeting Abstracts*, 2020, pp: EP051-05.

AWARDS AND HONORS

Graduate Travel Fellowships for International Collaboration, *UMD*	2024
Dean's Research Initiative award, *UMD*	2023
Outstanding Student Presentation Awards (OSPA), *American Geophysical Union (AGU)*	2022
Dean's fellowship, *UMD*	2019
The Second-class Graduate Academic Scholarship, *Wuhan University*	2018
Outstanding Graduate Student, *Wuhan University*	2017
The 2nd Graduate Academic Scholarship, *Wuhan University*	2017
Excellent Bachelor's Degree Thesis in *Hubei Province*	2016
The Merit Student, the 1st scholarship, *Wuhan University*	2015
The Merit Student, Zhonghaida Scholarship, *Wuhan Unversity*	2014
The Merit Student, the 2nd scholarship, *Wuhan University*	2013

SKILLS

Remote Sensing Data: Optical (Sentinel2/PlanetScope), Lidar (GEDI), Hyperspectral (AVIRIS/HYDICE)

Data Analysis: Traditional Machine Learning, Deep Learning

Technical Proficiency: Python, MATLAB, RStudio, ENVI, QGIS, ArcGIS, Google Earth Engine, AutoCAD

Leadership and Project Management: Fieldwork Planning and Execution

Languages:

Chinese/Mandarin - Native Proficiency   English - Full Professional Proficiency