State Key Laboratory of Surveying, Mapping and Remote Sensing Information Engineering, Wuhan University

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I am seeking postdoctoral positions related to *Computer Vision, Multimodal Learning, and Intelligent Earth Vision*. Please feel free to contact me if you are interested.

## Education

LIESMARS, WHU, 2020.09-2024.06
- Ph.D. in Photogrammetry and Remote Sensing
- Advised by Prof. Kaimin Sun
- Research Focus on Land Use/Land Cover Classification Using Heterogeneous Imagery

School of Computer Science, WHU, 2018.09-2020.06
- M.Eng. in Computer Technology
- Advised by Prof. Hua Zou
- Research Focus on Intelligent Image Restoration

School of Science, NJUPT, 2014.09-2018.06
- B.S. in Information and Computing Science

## Research Interests

- Computer Vision: Semantic Segmentation, Image Generation, Domain Adaptation
- Machine Learning: Multimodal Learning, Transfer Learning
- Remote Sensing: Land Use and Land Cover (LULC), Multisensor Data

## Paper Published as The First Author

- **Wangbin Li,** Kaimin Sun, Li Wenzhuo*, Huang Xiao, Wei Jinjiang, Lv Xianwei. "Assisted learning for land use classification: The important role of semantic correlation between heterogeneous images", ISPRS Journal of Photogrammetry and Remote Sensing. (IF=12.7, JCR Q1)
- **Wangbin Li**, Kaimin Sun*, Li Wenzhuo, Wei Jinjiang, Miao shunxia, Gao Song, Zhou Qinhui. "Aligning semantic distribution in fusing optical and SAR images for land use classification", ISPRS Journal of Photogrammetry and Remote Sensing, 2023. (IF=12.7, JCR Q1)
- **Wangbin Li**, Kaimin Sun*, Zhao Hepeng, Li Wenzhuo, Wei Jinjiang, Gao Song. "Extracting buildings from high-resolution remote sensing images by deep ConvNets equipped with structural-cue-guided feature alignment", International Journal of Applied Earth Observation and Geoinformation, 2022. (IF=7.5, JCR Q1)
- **Wangbin Li**, Kaimin Sun*, Du Zhuotong, Hu Xiuqing, Li Wenzhuo, Wei Jinjiang, Gao Song. "PCNet: Cloud Detection in FY-3D True-Color Imagery Using Multi-Scale Pyramid Contextual Information", Remote Sensing, 2021. (IF=5.0, JCR Q1)
- Song Gao[1], **Wangbin Li[1]**, Kaimin Sun*, Chen Yepei, Wei Jinjiang, Wang Xuan. "Built-up area change detection using multi-task network with object-level refinement", Remote Sensing, 2022. (Equal, IF=5.0, JCR Q1)

## Collaborative Papers

• Jinjiang Wei, Kaimin Sun, Wenzhuo Li*, **Wangbin Li**, SongGao, Shunxia Miao, Junyi Liu. "CDNeXt: Remote Sensing Image Change Detection Based on Temporospatial Interactive Attention Module", International Journal of Applied Earth Observation and Geoinformation, 2024. (IF=7.5, JCR Q1)

• Shunxia Miao, Kaimin Sun, Wenzhuo Li*, Xiuqing Hu, Fangyi Lv, Zhiqiang Bian, **Wangbin Li**, JinjiangWei. "A comprehensive preprocessing algorithm for image spatial quality enhancement of FengYun-3/MERSI", IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING. (IF=8.2, JCR Q1)

• Song Gao, Kaimin Sun, Wenzhuo Li, Deren Li, Yingjiao Tan, Jinjiang Wei, **Wangbin Li**. "A building change detection framework with patch-pairing single-temporal supervised learning and metric guided attention mechanism", International Journal of Applied Earth Observation and Geoinformation, 2024. (IF=7.5, JCR Q1)

## Patents

• Kaimin Sun, **Wangbin Li**, Wenzhuo Li, "A Generative Adversarial Cloud Simulation Generation Method Considering Feature Redundancy", Application Number: CN202210304286.7

• Kaimin Sun, **Wangbin Li**, Wenzhuo Li, "Static Cloud and Fog Simulation Generation Method Based on Perlin Noise", Application Number: CN202210304291.8

• Kaimin Sun, **Wangbin Li**, Wenzhuo Li, "A Land Cover Classification Method Integrating Visible Light and SAR Images with System and Equipment", Application Number: CN202311075744.5

## Other Honors

• Reviewer of ISPRS Journal of Photogrammetry and Remote Sensing, International Journal of Applied Earth Observation and Geoinformation, International journal of remote sensing, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, Remote Sensing.

• Awarded the Second-Class Scholarship at Wuhan University in 2022

• Recognized as an Outstanding Practitioner by Wuhan University in 2022

## Project Experience

**2020**

• **National Natural Space Information Network Basic Theory and Key Technology Major Research Program**: Participated in two subprojects focusing on large-scale remote sensing sample library construction and intelligent methods for remote sensing image analysis. Contributed to the organization and annotation of 15 sample sets and adapted models for change detection and scene classification tasks.

**2021**

• **National Meteorological Administration**: Developed algorithms for the "FY-3D Image Cloud Detection Assistance Product" using deep learning, improving the accuracy of FY-3D cloud detection products by 5% compared to traditional methods.

• **Digit China Summit ("Fuzhou Cangshan District Urban Illegal Construction Inspection System")**: Integrated AI technology with unmanned aerial vehicle inspections, enhancing the accuracy of illegal construction identification from 80% to 88% and ensuring comprehensive inspection coverage.

• **Wuhan University-Huawei Spatial Information Technology Innovation Laboratory**: Contributed to the LuojiaNet and LuojiaSet ecosystem community and model development, focusing on transferring models for

change detection and scene classification tasks.

**2022**

• **National Natural Science Foundation Major Project ("On-Orbit Real-Time Diagnosis of Surface Anomalies")**: Participated in the "On-Orbit Discovery and Diagnosis of Anomalies" sub-project, proposing a novel anomaly detection method combining prior knowledge and model assistance. This method was successfully applied to mountain fire detection in Beibei District, Chongqing City, earning recognition from local authorities.

• **Fengyun Satellite Application Advanced Plan (2022-2023) ("True Color Sub-Hundred-Meter Super-Resolution Imaging Algorithm for Medium-Resolution Spectral Imager")**: Led the development of a deep learning-based super-resolution algorithm for Fengyun satellite images, enhancing their resolution from 250 meters to 200 meters.

**2023**

• **Innovation Theory and Technology Group Fund of China Electronics Tianao Co., Ltd. ("Rapid Detection Technology for Image Change Regions and Small Weakly Disguised Targets")**: As a core team member, spearheaded the development of innovative algorithms for change detection and small target detection.

Change Detection: Developed a method integrating deep dense features with interactive attention and flow alignment, achieving a 4% accuracy improvement in target change detection compared to existing methods.

Small Target Detection: Proposed a dual-branch detection method utilizing prior information for coarse screening and an attention module for fine-grained detection, achieving over 80% accuracy in identifying 15×15 pixel weakly disguised targets.

**Others：**

• Draft application materials for the key project "Intelligent Processing Technology of High-Resolution Remote Sensing in Complex Natural Scenes" under the National Key Research and Development Program "Earth Observation and Navigation".

• Draft application materials for the National Key Research and Development Program "Space Radiation Measurement Benchmark Satellite Platform System Technology".

• Draft application materials for the World Bank loan DRM project "Comprehensive Emergency Management Project for Post-Earthquake Recovery and Reconstruction in Ya'an City after the Lushan Earthquake".

• Draft application materials for ZF's pre-research on "Rapid Update of Target Information Based on Change Detection Technology".

• Draft application materials for Suzhou Industry-Academia-Research Project "Research on Farmland Change Monitoring Based on Deep Learning Multi-Task Target Guidance and Coordinated Multi-Source Information".

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