

Dr. Rui Li (李睿)

Research Fellow, School of Engineering, University of Warwick

rui.li.8@warwick.ac.uk | +44 (0)7421726001 | Homepage | Chinese | DOB: 06/04/1996

SUMMARY

Rui Li is a Research Fellow at the University of Warwick working at the intersection of **remote sensing**, **numerical simulation**, and **artificial intelligence** for multi-scale civil and environmental engineering systems. At the macro scale, he leverages satellite to monitor regional **infrastructure–environment interactions**, such as coastal systems and wind-energy interactions. At the meso scale, he integrates physics-based simulations with data-driven models to study **urban**, **coastal**, and **atmospheric processes** relevant to infrastructure performance. At the micro scale, his research advances UAV-based sensing and vision-language intelligence for **low altitude economy** and **resilient infrastructure management**. His work provides a unified framework for integrating observations, simulations, and AI to support **sustainable**, **resilient**, and **intelligent** infrastructure modeling and digital construction. He has published more than **20** academic papers in journals such as *ISPRS Journal of Photogrammetry and Remote Sensing* (IF=12.2), *IEEE Transactions on Geoscience and Remote Sensing* (IF=8.6), *International Journal of Applied Earth Observation and Geoinformation* (IF=8.6), *Pattern Recognition* (IF=7.6), *Applied Energy* (IF=11.0), *Energy Conversion and Management* (IF=10.9), and *Energy* (IF=9.4), which have been cited exceeding **5000** times with an *h*-index of **18** by  Google Scholar and a FWCI of **10.25** by  SciVal. **11** of his papers have been selected as  **ESI Highly Cited Papers** (Top 1%) and **2** papers as  **ESI Hot Papers** (Top 0.1%). His paper on semantic segmentation using Vision Transformers, published in *ISPRS P&RS*, received the **The U.V. Helava Award**, i.e. the 2022 Best Paper Award of the *ISPRS P&RS* journal. He is the first scholar in Warwick University's history to receive this prestigious honor. He has been invited to serve as the leading guest editors for *Remote Sensing, Drones* and *Frontiers in Remote Sensing*, and as reviewers for over **35** international journals, including *ISPRS P&RS*, *Applied Energy*, *Neural Networks*, *IEEE TMI*, *TGRS*, *TNNLS*, *TCSVT*, *TAE*, contributing more than **130** times.

EXPERIENCES

2024.04-present **Research Fellow**: School of Engineering, University of Warwick

2021.10-2024.05 **Ph.D.**: School of Engineering, University of Warwick

2019.09-2021.07 **M.Sc.**: School of Remote Sensing and Information Engineering, Wuhan University

2015.09-2019.07 **B.Eng.**: School of Automation Science and Engineering, South China University of Technology

PUBLICATIONS

[†] Equal Contribution * Corresponding Author  ESI Highly Cited Paper  ESI Hot Paper

○ AI for Urban Scene Analysis & Geospatial Intelligence:

- [1] R. Li, X. Zhao. AeroReformer: Aerial Referring Transformer for UAV-based Referring Image Segmentation, *International Journal of Applied Earth Observation and Geoinformation*, JCR Q1, 2025.   
- [2] R. Li, S. Zheng, C. Zhang, C. Duan, L. Wang, P. M. Atkinson. ABCNet: Attentive Bilateral Contextual Network for Efficient Semantic Segmentation of Fine-Resolution Remote Sensing Images. *ISPRS Journal of Photogrammetry and Remote Sensing*, JCR Q1, 2021.   (citation: 400+)   
- [3] L. Wang, R. Li, C. Zhang, S. Fang, C. Duan, X. Meng, P. M. Atkinson. UNetFormer: An UNet-like Transformer for Efficient Semantic Segmentation of Remote Sensing Urban Scene Imagery. *ISPRS Journal of Photogrammetry and Remote Sensing*, JCR Q1, 2022. **U.V. Helava Award Best Paper 2022**   (citation: 1100+)   

- [4] R. Li, X. Zhao. LSwinSR: UAV Imagery Super-Resolution Based on Linear Swin Transformer. *IEEE Transactions on Geoscience and Remote Sensing*, JCR Q1, 2024.    
- [5] L. Wang, S. Fang, X. Meng, R. Li. Building Extraction with Vision Transformer. *IEEE Transactions on Geoscience and Remote Sensing*, JCR Q1, 2022.  (citation: 250+)   
- [6] L. Wang [†], R. Li [†], D. Wang, C. Duan, T. Wang, X. Meng. Transformer Meets Convolution: A Bilateral Awareness Network for Semantic Segmentation of Very Fine Resolution Urban Scene Images. *Remote Sensing*, JCR Q1, 2021.  (citation: 250+)   
- Intelligent Image Interpretation & Land Cover Classification:
- [7] R. Li, S. Zheng, C. Zhang, C. Duan, J. Su, L. Wang, P. M. Atkinson. Multiattention-Network for Semantic Segmentation of Fine-Resolution Remote Sensing Images. *IEEE Transactions on Geoscience and Remote Sensing*, JCR Q1, 2021.  (citation: 550+)   
- [8] R. Li ^{*}, S. Zheng, C. Duan, J. Su, L. Wang, C. Zhang. Multistage Attention ResU-Net for Semantic Segmentation of Fine-Resolution Remote Sensing Images. *IEEE Geoscience and Remote Sensing Letters*, JCR Q1, 2021.  (citation: 450+)   
- [9] R. Li, L. Wang, C. Zhang, C. Duan, S. Zheng. A²-FPN for Semantic Segmentation of Fine-Resolution Remotely Sensed Images. *International Journal of Remote Sensing*, JCR Q3, 2022.  (citation: 150+)   
- [10] R. Li, S. Zheng, C. Duan, L. Wang, C. Zhang. Land Cover Classification from Remote Sensing Images Based on Multi-Scale Fully Convolutional Network. *Geo-spatial Information Science*, JCR Q1, 2022.  (citation: 150+)   
- [11] R. Li ^{†*}, C. Duan [†], S. Zheng, C. Zhang, P. M. Atkinson. MACU-Net for Semantic Segmentation of Fine-Resolution Remotely Sensed Images. *IEEE Geoscience and Remote Sensing Letters*, JCR Q1, 2021.  (citation: 100+)   
- [12] R. Li ^{*}, S. Zheng, C. Duan, Y. Yang, X. Wang. Classification of Hyperspectral Image based on Double-Branch Dual-Attention Mechanism Network. *Remote Sensing*, JCR Q1, 2020.  (citation: 500+)   
- [13] L. Wang, R. Li, C. Duan, C. Zhang, X. Meng, S. Fang. A Novel Transformer based Semantic Segmentation Scheme for Fine-Resolution Remote Sensing Images. *IEEE Geoscience and Remote Sensing Letters*, JCR Q1, 2022.  (citation: 450+)   
- [14] X. Meng, Y. Yang, L. Wang, T. Wang, R. Li, C. Zhang. Class-Guided Swin Transformer for Semantic Segmentation of Remote Sensing Imagery. *IEEE Geoscience and Remote Sensing Letters*, JCR Q1, 2022.  
- [15] L. Wang, C. Zhang, R. Li, C. Duan, X. Meng, P. M. Atkinson. Scale-aware Neural Network for Semantic Segmentation of Multi-resolution Remote Sensing Images. *Remote Sensing*, JCR Q1, 2021.  
- Urban 3D Mapping & Localization:
- [16] Q. Zhang, S. Zheng ^{*}, C. Zhang, X. Wang, R. Li ^{*}. Efficient Large-Scale Oblique Image Matching Based on Cascade Hashing and Match Data Scheduling. *Pattern Recognition*, JCR Q1, 2023.  
- [17] Q. Zhang, S. Zheng, R. Li, X. Wang, Y. He, X. Wang. RLS-LCD: An Efficient Loop Closure Detection for Rotary-LiDAR Scans. *IEEE Sensors Journal*, JCR Q1, 2024.   
- Data-driven Offshore Energy Modeling & Prediction:
- [18] R. Li, J. Zhang, X. Zhao. Multi-Fidelity Modeling of Wind Farm Wakes Based on A Novel Super-Fidelity Network. *Energy Conversion and Management*, JCR Q1, 2022.   
- [19] R. Li, J. Zhang, X. Zhao. Dynamic Wind Farm Wake Modeling Based on a Bilateral Convolutional Neural Network and High-Fidelity LES Data. *Energy*, JCR Q1, 2022.   
- [20] R. Li, J. Zhang, X. Zhao. Phase-resolved Real-time Forecasting of Three-Dimensional Ocean Waves via Machine Learning and Wave Tank Experiments. *Applied Energy*, JCR Q1, 2023.  
- [21] R. Li, J. Zhang, Y. Huang, X. Zhao. FlowFormer: Toward a foundation model for full-flow-field wind farm wake

modeling, *Renewable Energy*, JCR Q1, 2025.   

◦ **Ongoing Works:**

[22] R. Li, J. Zhang, X. Zhao. Long-Distance and High-Impact Wind Farm Wake Effects Revealed by SAR: A Global-Scale Study, 2023, Under Revision by *Communications Engineering* (Nature Portfolio). 

[23] R. Li, J. Zhang, X. Zhao. Potential Impact of Large-Scale Wind Clusters on Local Weather Patterns, 2024. 

[24] R. Li, X. Zhao. CA-DETR: Context-Aware Detection Transformers for Wind Turbine Health Monitoring, 2026.

◦ **Conference Works:**

[25] R. Li, J. Zhang, X. Zhao. Deep Learning-based Wind Farm Power Prediction using Transformer Network, 2022. In *2022 European Control Conference (ECC, Oral)*. 

[26] R. Li, X. Zhao. A Transformer-based Motion Deblurring Network for UAV Images, 2024. In *2024 IEEE International Geoscience and Remote Sensing Symposium (IGARSS, Oral)*. 

SERVICES

- Leading Guest Editor of *Remote Sensing and Drones* Special Issue: ***Advancing UAV-Based Remote Sensing: Innovations, Techniques and Applications***
- Leading Guest Editor of *Remote Sensing* Special Issue: ***Advancing UAV-Based Remote Sensing: Innovations, Techniques and Applications (Second Edition)***
- Leading Guest Editor of *Frontiers in Remote Sensing* Special Issue: ***Machine Learning for Advanced Remote Sensing: From Theory to Applications and Societal Impact***
- Contributing my expertise as a reviewer over **130** times for more than **35** reputable journals including ISPRS *Journal of Photogrammetry and Remote Sensing*, *Geo-Spatial Information Science*, *Engineering Applications of Artificial Intelligence*, *Neural Networks*, *Aquaculture*, *Journal of Field Robotics*, *Waste Management*, *Ocean Engineering*, *Applied Energy*, *Energy*, *Energy and Buildings*, *International Journal of Digital Earth* and IEEE Transactions on {*Medical Imaging*, *Circuits and Systems for Video Technology*, *Aerospace and Electronic Systems*, *Neural Networks and Learning Systems*, *Geoscience and Remote Sensing*}.

AWARDS

- 2023, U.V. Helava Award Best Paper 2022, International Society for Photogrammetry and Remote Sensing, **1/281**
- 2020, National Scholarship for Postgraduate Student, Ministry of Education, **Top 0.2% Nationwide**
- 2021, Outstanding Postgraduates, Wuhan University
- 2020, First Class Postgraduate Scholarship, Wuhan University
- 2017 & 2018, National Encouragement Scholarship, Ministry of Education