# Dr. Rui Li

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## SUMMARY

My research focuses on the trans-disciplinary applications of deep learning, particularly in **offshore renewable energy**, **remote sensing and computer vision**. I have authored more than **20** peer-reviewed articles in international scientific journals such as ISPRS *Journal of Photogrammetry and Remote Sensing* (IF=**12.7**), IEEE *Transactions on Geoscience and Remote Sensing* (IF=**8.2**), *Pattern Recognition* (IF=**8.0**), *Applied Energy* (IF=**11.2**), *Energy Conversion and Management* (IF=**10.4**) and *Energy* (IF=**9.0**), which have been cited **1700+** times indexed by the  Web of Science with the *h*-index of **15** and **2500+** times indexed by the  Google Scholar with the *h*-index of **17**. **Nine** of my papers have been selected as the 🏆 **ESI Highly Cited Paper** (Top 1%) and **two** as the 🔥 **ESI Hot Paper** (Top 0.1%). I was one of the recipients of the **U.V. Helava Award Best Paper 2022** from the International Society for Photogrammetry and Remote Sensing for a paper on Vision-Transformer-based for UAV and remote sensing image processing.

## EDUCATIONS

**Ph.D. in Offshore Renewable Energy**: School of Engineering, University of Warwick

**M.Sc. in Remote Sensing**: School of Remote Sensing and Information Engineering, Wuhan University

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

## PUBLICATIONS

† Equal Contribution   * Corresponding Author   🏆 ESI Highly Cited Paper   🔥 ESI Hot Paper

○ **Super-Resolution for UAV applications**:

[1] <u>R. Li</u>, X. Zhao. LSwinSR: UAV Imagery Super-Resolution Based on Linear Swin Transformer. IEEE *Transactions on Geoscience and Remote Sensing*, 2024. (JCR Q1, IF=**8.2**). [Link] [PDF] [Code]

○ **Deep Learning for Wind Farm Wake Modeling**:

[2] <u>R. Li</u>, J. Zhang, X. Zhao. Multi-Fidelity Modeling of Wind Farm Wakes Based on A Novel Super-Fidelity Network. *Energy Conversion and Management*, 2022. (JCR Q1, IF=**10.4**). [Link] [PDF] [Code]

[3] <u>R. Li</u>, J. Zhang, X. Zhao. Dynamic Wind Farm Wake Modeling Based on a Bilateral Convolutional Neural Network and High-Fidelity LES Data. *Energy*, 2022. (JCR Q1, IF=**9.0**). [Link] [PDF] [Video]

○ **Phase-resolved Wave Prediction using Machine Learning**:

[4] <u>R. Li</u>, J. Zhang, X. Zhao. Phase-resolved Real-time Forecasting of Three-Dimensional Ocean Waves via Machine Learning and Wave Tank Experiments. *Applied Energy*, 2023. (JCR Q1, IF=**11.2**). [Link] [PDF]

○ **Attention Mechanism and Semantic Segmentation**:

[5] <u>R. Li</u>, 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 Pho-*

*togrammetry and Remote Sensing*, 2021. (IF=**12.7**, 🏆🔥). [Link] [PDF] [Code]

[6] <u>R. Li</u>, 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*, 2022. (IF=**8.2**, 🏆). [Link] [PDF] [Code]

[7] <u>R. Li</u> *, 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*, 2022. (IF=**4.8**, 🏆). [Link] [PDF] [Code]

○ **Vision Transformer for Image Processing**:

[8] L. Wang, <u>R. Li</u>, 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*, 2022. (IF=**12.7**, ISPRS **U.V. Helava Award Best Paper 2022**, 🔥🏆). [Link] [PDF] [Code] [Certificate]

[9] L. Wang, S. Fang, X. Meng, <u>R. Li</u>. Building extraction with vision transformer. IEEE *Transactions on Geoscience and Remote Sensing*, 2022. (IF=**8.2**, 🏆). [Link] [PDF] [Code]

[10] L. Wang, <u>R. Li</u>, 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*, 2022. (IF=**4.8**, 🏆). [Link] [PDF] [Code]

[11] L. Wang [†], <u>R. Li</u> [†], 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*, 2021. (JCR Q1, IF=**5.0**). [Link] [PDF] [Code]

[12] X. Meng, Y. Yang, L. Wang, T. Wang, <u>R. Li</u>, C. Zhang. Class-Guided Swin Transformer for Semantic Segmentation of Remote Sensing Imagery. IEEE *Geoscience and Remote Sensing Letters*, 2022. (JCR Q1, IF=**4.8**). [Link] [PDF]

○ **Land Cover Classification using Remote Sensing Images**:

[13] <u>R. Li</u>, L. Wang, C. Zhang, C. Duan, S. Zheng. $A^2$-FPN for semantic segmentation of fine-resolution remotely sensed images. *International Journal of Remote Sensing*, 2022. (JCR Q2, IF=**3.4**). [Link] [PDF] [Code]

[14] <u>R. Li</u>, 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*, 2022. (JCR Q1, IF=**6.0**, 🏆). [Link] [PDF] [Code]

[15] <u>R. Li</u> [†*], 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*, 2022. (JCR Q1, IF=**4.8**, 🏆). [Link] [PDF] [Code]

[16] L. Wang, C. Zhang, <u>R. Li</u>, C. Duan, X. Meng, P. M. Atkinson. Scale-aware Neural Network for Semantic Segmentation of Multi-resolution Remote Sensing Images. *Remote Sensing*, 2021. (JCR Q1, IF=**5.0**). [Link] [PDF]

[17] <u>R. Li</u> *, S. Zheng, C. Duan, Y. Yang, X. Wang. Classification of hyperspectral image based on double-branch

dual-attention mechanism network. *Remote Sensing*, 2020. (JCR Q1, IF=**5.0**, 🏆). [Link] [PDF] [Code]

○ **LiDAR-based and Photogrammetry-based 3D Reconstruction**:

[18] 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*, 2023. (JCR Q1, IF=**8.0**). [Link] [PDF]

[19] 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*, 2024. (JCR Q1, IF=**4.3**). [Link] [PDF]

○ **Cloud Removal for multi-temporal Remote Sensing Image**:

[20] C. Duan, J. Pan, R. Li.  Thick Cloud Removal of Remote Sensing Images Using Temporal Smoothness and Sparsity Regularized Tensor Optimization. *Remote Sensing*, 2020. (JCR Q1, IF=**5.0**). [Link] [PDF]

○ **Accurate and efficient text detection**:

[21] X. Wang, S. Zheng, C. Zhang, R. Li, L. Gui.  R-YOLO: A real-time text detector for natural scenes with arbitrary rotation. *Sensors*, 2021. (JCR Q2, IF=**3.9**). [Link] [PDF] [Code]

○ **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. Under Review by the *Remote Sensing of Environment.* [PDF]

[23] R. Li, X. Zhao. LSwinSR: UAV Imagery Super-Resolution based on Linear Swin Transformer. Under Revision by the IEEE *Transactions on Geoscience and Remote Sensing.* [PDF]

○ **Conference Works**:

[24] R. Li, J. Zhang, X. Zhao.  Deep learning-based wind farm power prediction using Transformer network. In *2022 European Control Conference (ECC).* [Link]

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

## JOURNAL REVIEWERS

I have contributed my expertise as a reviewer over **100** times for more than **25** reputable journals including ISPRS *Journal of Photogrammetry and Remote Sensing*, *Engineering Applications of Artificial Intelligence*, *Pattern Recognition Letters*, *Applied Energy*, *Energy*, *International Journal of Digital Earth* and IEEE Transactions on {*Medical Imaging, Circuits and Systems for Video Technology, 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