Huiping Lin

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Contact Address

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Research Interests

SAR image understanding and interpretation, polarimetric SAR target detection and recognition, polarimetry, machine learning and computer vision

Education

Tsinghua University Beijing, China

B.E. in Electronic Engineering *Aug 2011 – Jul 2015*

Ph.D. in Information and Communication Engineering *Aug 2015 – Jun 2020*

Experience

Chongqing University Chongqing, China

Professor *Dec 2024 – Present, Full-time*

- Engaged in the field of polarimetric SAR image understanding and interpretation for a long time, focusing on the field of polarimetric SAR target detection and recognition.
- Combined SAR imaging geometry, target electromagnetic scattering processes, and deep learning techniques represented by neural networks.
- Proposed a series of polarimetric SAR filtering methods and target recognition approaches based on the understanding of polarimetric scattering mechanisms, which broke through the bottleneck of difficult interpretation and low efficiency in SAR image intelligence collection.

Fudan University Shanghai, China

Assistant Researcher *Jul 2022 – Nov 2024, Full-time*

- Worked on the "Intelligent Target Recognition in Polarimetric SAR Images" project at the Key Laboratory for Information Science of Electromagnetic Waves (MoE).

Publication List

1. **H. Lin**, J. Yin, and J. Yang, "Learning quaternion convolutional neural networks for PolSAR target recognition," *IEEE Transactions on Aerospace and Electronic Systems*, 2025
2. **H. Lin**, X. Su, Z. Zeng, C. Xing, and J. Yin, "Speckle2self: Learning self-supervised despeckling with attention mechanism for SAR images," *Remote Sensing*, vol. 17, no. 23, p. 3840, 2025
3. Z. Zeng, Z. Chen, J. Yin, and **H. Lin***, "Ship detection in SAR images using sparse R-CNN with wavelet deformable convolution and attention mechanism," *Remote Sensing*, vol. 17, no. 23, p. 3794, 2025
4. **H. Lin**, Z. Xie, L. Zeng, and J. Yin, "Multi-scale time-frequency representation fusion network for target recognition in SAR imagery," *Remote Sensing*, vol. 17, no. 16, p. 2786, 2025
5. **H. Lin**, J. Yin, J. Yang, and F. Xu, "Interpreting neural network pattern with pruning for PolSAR target recognition," *IEEE Transactions on Geoscience and Remote Sensing*, 2024.
6. Y. Wang, H. Jia, S. Fu, H., **H. Lin***, and F. Xu, inforcement learning for SAR target orientation inference with the differentiable SAR renderer," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 62, pp. 1–13, 2024.
7. **H. Lin**, J. Yang, and F. Xu, "PolSAR target recognition with CNNs optimizing discrete polarimetric correlation pattern," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 62, pp. 1–14, 2024.
8. **H. Lin**, H. Wang, J. Yin, and J. Yang, "Local climate zone classification via semi-supervised multimodal multiscale transformer," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 62, pp. 1–17, 2024.

9. **H. Lin**, H. Wang, F. Xu, and Y.-Q. Jin, "Target recognition for SAR images enhanced by polarimetric information," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 62, pp. 1–16, 2024.
10. **H. Lin**, K. Jin, J. Yin, J. Yang, T. Zhang, F. Xu, and Y.-Q. Jin, "Residual in residual scaling networks for polarimetric SAR image despeckling," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 61, pp. 1–17, 2023.
11. **H. Lin**, H. Wang, J. Wang, J. Yin, and J. Yang, "A novel ship detection method via generalized polarization relative entropy for PolSAR images," *IEEE Geoscience and Remote Sensing Letters*, vol. 19, pp. 1–5, 2020.
12. **H. Lin**, F. Yuan, C. Xing, and J. Yang, "An edge attention-based geodesic distance for PolSAR image superpixel segmentation," *Electronics Letters*, vol. 56, no. 10, pp. 510–512, 2020.
13. **H. Lin**, H. Chen, K. Jin, L. Zeng, and J. Yang, "Ship detection with superpixel-level Fisher vector in high-resolution SAR images," *IEEE Geoscience and Remote Sensing Letters*, vol. 17, no. 2, pp. 247–251, 2019.
14. **H. Lin**, H. Chen, H. Wang, J. Yin, and J. Yang, "Ship detection for PolSAR images via task-driven discriminative dictionary learning," *Remote Sensing*, vol. 11, no. 7, p. 769, 2019.
15. **H. Lin**, S. Song, and J. Yang, "Ship classification based on MSHOG feature and task-driven dictionary learning with structured incoherent constraints in SAR images," *Remote Sensing*, vol. 10, no. 2, p. 190, 2018.
16. Y. Xing, **H. Lin**, F. Wang, F. Xue, and F. Xu, "SAR2Canopy: A framework integrating scattering model with neural networks for canopy height estimation from airborne p-band SAR data," *IEEE Transactions on Geoscience and Remote Sensing*, 2025.
17. R. Li, J. Wei, H., **H. Lin** and F. Xu, "Learning terrain scattering models from massive multi-source earth observation data," *IEEE Transactions on Geoscience and Remote Sensing*, 2025.
18. L. Zeng, Y. Du, **H. Lin**, J. Wang, J. Yin, and J. Yang, "A novel region-based image registration method for multisource remote sensing images via CNN," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 14, pp. 1821–1831, 2020.

Awards & Achievements

- **Young Scientists of the 5th National Radar Earth Observation Conference 2025**
- **Outstanding Postdoctoral Fellows of Fudan University 2024**
- **Shanghai Super Postdoctoral Incentive Program 2022**

Skills

Programming Languages: C/C++, Python, MATLAB

Technologies: Qt, MySQL, Git, Docker, OpenCV, PyTorch, TensorFlow