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Graduate School of Frontier Sciences, The University of Tokyo

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Work/Overseas Experience

Oct., 2025 – Now	JSPS Postdoctoral Fellow in The University of Tokyo Host: Prof. Naoto Yokoya
Nov., 2025 – Now	Visiting Scientist in Geoinformatics Team, RIKEN AIP Host: Prof. Naoto Yokoya
Oct., 2024 – Sept., 2025	Research Part-timer in Geoinformatics Team, RIKEN AIP Host: Prof. Naoto Yokoya
Jan., 2024 – July, 2024	Academic Visitor in Photogrammetry and Remote Sensing, ETH Zürich Host: Prof. Konrad Schindler
May, 2023 – Jan., 2024	Research Part-timer in Geoinformatics Team, RIKEN AIP Host: Prof. Naoto Yokoya
Oct., 2022 – Apr., 2023	Research Assistant in Beyond AI Project, The University of Tokyo Host: Prof. Masashi Sugiyama
May, 2021 – Apr., 2022	Trainee in The United Nations Satellite Centre (UNOSAT) Host: Mr. Edoardo Nemni, Mr. Lars Bromley, Dr. Sofia Vallecorsa

Education

Oct., 2022 – Spet., 2025	**Ph.D.** in Complexity Science and Engineering, The University of Tokyo Supervisor: Prof. Naoto Yokoya
Sept., 2019 – June, 2022	**M.E.** in Photogrammetry and Remote Sensing, Wuhan University Supervisor: Prof. Chen Wu, Prof. Bo Du, Prof. Liangpei Zhang IELTS: 7.5, TOEFL: 101, GRE: 333.5
Sept., 2015 – June, 2019	**B.E** in Geomatics Engineering, Anhui University GPA: 94.4/100 (ranking: 1/230)

Publications

G Google Scholar

Journal Articles

[J1]   **H. Chen**, J. Song, O. Dietrich, C. W. Xuan, J. Wang, X. Shao, Y. Wei, J. Xia, C. Lan, K. Schindler, and N. Yokoya, "BRIGHT: A Globally Distributed Multimodal Building Damage Assessment Dataset with Very-high-resolution for All-weather Disaster Response," *Earth System Science Data*, vol. 17, no. 11, pp. 6217–6253, 2025, (Official dataset of 2025 IEEE Data Fusion Contest Track II) [paper] [dataset] [code][challenge].

[J2] J. Xia, **H. Chen**, C. Broni-Bediako, Y. Wei, J. Song, and N. Yokoya, "OpenEarthMap-SAR: A Benchmark Synthetic Aperture Radar Dataset for Global High-Resolution Land Cover Mapping," *IEEE Geoscience and Remote Sensing Magazine*, 2025, (Official dataset of 2025 IEEE Data Fusion Contest Track I) [paper] [dataset] [code][challenge].

[J3] Z. Zhao, C. Wu, D. Wang, **H. Chen**, C. Chen, Z. Zheng, B. Du, and L. Zhang, "Advancing Weakly-Supervised Change Detection in Satellite Images via Adversarial Class Prompting," *IEEE Transactions on Image Processing*, vol. 34, pp. 7065–7078, 2025, [paper] [code].

[J4] J. Xu, T. Liu, T. Lei, **H. Chen**, N. Yokoya, Z. Lv, and M. Gong, "CGSL: Commonality Graph Structure Learning for Unsupervised Multimodal Change Detection," *ISPRS Journal of Photogrammetry and Remote Sensing*, vol. 229, pp. 92–106, 2025, [paper] [code].

[J5] C. Persello, S. Prasad, U. Verma, G. Vivone, **H. Chen**, J. Xia, J. Song, C. Broni-Bediako, O. Dietrich, K. Schindler, and N. Yokoya, "2025 IEEE GRSS Data Fusion Contest: All-Weather Land Cover and Building Damage Mapping," *IEEE Geoscience and Remote Sensing Magazine*, vol. 13, no. 2, pp. 388–392, 2025, [paper].

[J6] L. Ding, D. Hong, M. Zhao, **H. Chen**, C. Li, J. Deng, N. Yokoya, L. Bruzzone, and J. Chanussot, "A Survey of Sample-Efficient Deep Learning for Change Detection in Remote Sensing: Tasks, strategies, and challenges," *IEEE Geoscience and Remote Sensing Magazine*, vol. 13, no. 3, pp. 164–189, 2025, [paper].

[J7] Z. Zhao, C. Wu, L. Ru, D. Wang, **H. Chen**, and C. Chen, "Plug-and-play disep: Separating dense instances for scene-to-pixel weakly-supervised change detection in high-resolution remote sensing images," *ISPRS Journal of Photogrammetry and Remote Sensing*, vol. 220, pp. 770–782, 2025, [paper] [code].

[J8] D. Wang, M. Hu, Y. Jin, Y. Miao, J. Yang, Y. Xu, X. Qin, J. Ma, L. Sun, C. Li, C. Fu, **H. Chen**, C. Han, N. Yokoya, J. Zhang, M. Xu, L. Liu, L. Zhang, C. Wu, B. Du, D. Tao, and L. Zhang, "HyperSIGMA: Hyperspectral Intelligence Comprehension Foundation Model," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 8, pp. 6427–6444, 2025, (ESI highly cited paper) [paper] [code].

[J9] **H. Chen***, J. Song*, C. Han, J. Xia, and N. Yokoya, "ChangeMamba: Remote Sensing Change Detection With Spatiotemporal State Space Model," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 62, pp. 1–20, 2024, (ESI hot paper & ESI highly cited paper) [paper] [code].

[J10] **H. Chen**, C. Lan, J. Song, C. Broni-Bediako, J. Xia, and N. Yokoya, "ObjFormer: Learning land-cover changes from paired OSM data and optical high-resolution imagery via object-guided Transformer," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 62, pp. 1–22, 2024, [paper] [code] [dataset].

[J11] C. Wu, L. Zhang, B. Du, **H. Chen**, J. Wang, and H. Zhong, "UNet-Like Remote Sensing Change Detection: A review of current models and research directions," *IEEE Geoscience and Remote Sensing Magazine*, vol. 12, no. 4, pp. 2–31, 2024, [paper].

[J12] C. Han, C. Wu, M. Hu, J. Li, and **H. Chen**, "C2F-SemiCD: A Coarse-to-Fine Semi-Supervised Change Detection Method Based on Consistency Regularization in High-Resolution Remote Sensing Images," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 62, pp. 1–21, 2024, (ESI highly cited paper)[paper] [code].

[J13] C. Broni-Bediako, J. Xia, J. Song, **H. Chen**, and N. Yokoya, "Generalized Few-Shot Semantic Segmentation in Remote Sensing: Challenge and Benchmark," *IEEE Geoscience and Remote Sensing Letters*, vol. 21, pp. 1–5, 2024, [paper] [code] [dataset] [challenge].

[J14] X. Shao, **H. Chen**, K. Magson, J. Wang, J. Song, J. Chen, and J. Sasaki, "Deep learning for multilabel classification of coral reef conditions in the indo-pacific using underwater photo transect method," *Aquatic Conservation: Marine and Freshwater Ecosystems*, vol. 34, no. 9, e4241, 2024, (Front cover paper) [paper] [dataset].

[J15] **H. Chen**, J. Song, C. Wu, B. Du, and N. Yokoya, "Exchange means change: An unsupervised single-temporal change detection framework based on intra- and inter-image patch exchange," *ISPRS Journal of Photogrammetry and Remote Sensing*, vol. 206, pp. 87–206, 2023, [paper] [code].

[J16] **H. Chen**, M. Chini, and N. Yokoya, "Fourier Domain Structural Relationship Analysis for Unsupervised Multimodal Change Detection," *ISPRS Journal of Photogrammetry and Remote Sensing*, vol. 198, pp. 99–114, 2023, (ESI highly cited paper) [paper].

[J17] C. Han, C. Wu, H. Guo, M. Hu, J. Li, and **H. Chen**, "Change Guiding Network: Incorporating Change Prior to Guide Change Detection in Remote Sensing Imagery," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 16, pp. 8395–8407, 2023, (ESI highly cited paper) [paper] [code].

[J18] C. Han, C. Wu, H. Guo, M. Hu, and **H. Chen**, "HANet: A Hierarchical Attention Network for Change Detection with Bitemporal Very-High-Resolution Remote Sensing Images," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 16, pp. 3867–3878, 2023, (ESI highly cited paper) [paper] [code].

[J19] **H. Chen**, N. Yokoya, C. Wu, and B. Du, "Unsupervised Multimodal Change Detection Based on Structural Relationship Graph Representational Learning," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 60, pp. 1–18, 2022, [paper] [code].

[J20] C. Wu, **H. Chen**, B. Du, and L. Zhang, "Unsupervised Change Detection in Multitemporal VHR Images Based on Deep Kernel PCA Convolutional Mapping Network," *IEEE Transactions on Cybernetics*, vol. 52, no. 11, pp. 12 084–12 098, 2022, [paper] [code].

[J21] C. Wu, Y. Guo, H. Guo, J. Yuan, L. Ru, **H. Chen**, B. Du, and L. Zhang, "An Investigation of Traffic Density Changes inside Wuhan during the COVID-19 Epidemic with GF-2 Time-Series Images," *International Journal of Applied Earth Observation and Geoinformation*, vol. 103, p. 102 503, 2021, [paper].

[J22] **H. Chen**, C. Wu, B. Du, L. Zhang, and L. Wang, "Change Detection in Multisource VHR Images via Deep Siamese Convolutional Multiple-Layers Recurrent Neural Network," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 58, no. 4, pp. 2848–2864, 2020, (ESI highly cited paper) [paper] [code].

Conference Proceedings

[C1] J. Wang, W. Xuan, H. Qi, Z. Liu, K. Liu, Y. Wu, **H. Chen**, J. Song, J. Xia, Z. Zheng, and N. Yokoya, "DisasterM3: A remote sensing vision-language dataset for disaster damage assessment and response," in *Thirty-Ninth Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2025, [paper] [code] [dataset].

[C2] J. Song, **H. Chen**, W. Xuan, J. Xia, and N. Yokoya, "SynRS3D: A Synthetic Dataset for Global 3D Semantic Understanding from Monocular Remote Sensing Imagery," in *Thirty-Eighth Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2024, (Spotlight) [paper] [code] [dataset].

[C3]   **H. Chen**, J. Song, and N. Yokoya, "Change Detection Between Optical Remote Sensing Imagery and Map Data via Segment Anything Model (SAM)," in *Proceeding of the IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2024, pp. 8509–8512, (Oral) [paper].

[C4]   N. Yokoya, J. Xia, J. Song, C. Broni-Bedaiko, and **H. Chen**, "OpenEarthMap Benchmark Suite and Its Applications," in *Proceeding of the IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2024, pp. 959–962, (Oral) [paper].

[C5]   J. Song, **H. Chen**, and N. Yokoya, "SyntheWorld: A Large-Scale Synthetic Dataset for Land Cover Mapping and Building Change Detection," in *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, 2024, pp. 8287–8296, (Poster) [paper] [dataset].

[C6]   **H. Chen**, E. Nemni, S. Vallecorsa, X. Li, C. Wu, and L. Bromley, "Dual-Tasks Siamese Transformer Framework for Building Damage Assessment," in *Proceeding of the IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2022, pp. 1600–1603, (Oral) [paper].

[C7]   **H. Chen**, C. Wu, B. Du, and L. Zhang, "Deep Siamese Multi-scale Convolutional Network for Change Detection in Multi-Temporal VHR Images," in *10th International Workshop on the Analysis of Multitemporal Remote Sensing Images*, 2019, pp. 1–4, (Oral) [paper].

Preprints / Peer-Reviewing Papers

[W1]   J. Song, **H. Chen**, and N. Yokoya, *Enhancing Monocular Height Estimation via Sparse LiDAR-Guided Correction*, Submitted @ ISPRS Journal of Photogrammetry and Remote Sensing, 2025, [paper].

[W2]   X. Shao*, **H. Chen***, F. Zhao, K. Magson, J. Chen, P. Li, J. Wang, and J. Sasaki, *Multi-label classification for multi-temporal, multi-spatial coral reef condition monitoring using vision foundation model with adapter learning*, Submitted @ Marine Pollution Bulletin, 2025, [paper].

[W3]   Y. Wei, A. Xiao, Y. Ren, Y. Zhu, **H. Chen**, J. Xia, and N. Yokoya, *SARLANG-1M: A Benchmark for Vision-Language Modeling in SAR Image Understanding*, Submitted @ IEEE Transactions on Geoscience and Remote Sensing, 2025, [paper] [dataset].

[W4]   Z. Gong, Z. Wei, D. Wang, X. Ma, **H. Chen**, Y. Jia, Y. Deng, Z. Ji, X. Zhu, N. Yokoya, J. Zhang, B. Du, and L. Zhang, *CrossEarth: Geospatial Vision Foundation Model for Domain Generalizable Remote Sensing Semantic Segmentation*, Submitted @ IEEE Transactions on Pattern Analysis and Machine Intelligence, 2024, [paper] [code].

Fundings

Awards & Honors

Apr., 2024	JSPS Research Fellowships for Young Scientists DC2 (Selection ratio: 17.1%) [link]
Dec., 2023	Japanese-Swiss Young Researchers' Special Exchange Grant [link]
Oct., 2022	The University of Tokyo Fellowship (one of 21 Ph.D. students selected) [link]
June, 2022	Outstanding Graduates of Wuhan University
Dec., 2021	Wang Zhizhuo Innovation Talent Scholarship (Top 1‰) [link]
Oct., 2021	National Scholarship for Postgraduates (Top 1%) [link]
Oct., 2020	National Scholarship for Postgraduates (Top 1%) [link]
Oct., 2020	First Prize of Wuhan University Scholarship for Excellent Postgraduate (Top 5%)
Sept., 2019	LIESMARS Scholarship for Excellent First-Year Postgraduates (Top 9 in 169)
May, 2019	Excellent Graduate of Anhui Province, China (Top 1%)
Nov., 2018	Second Prize of Esri Cup GIS Software Development Contest in China (Top 5%)
Oct., 2018	First Prizes of Academic Scholarship of Anhui University (Top 3%)
July, 2018	Outstanding Prize of National Geomatics Contest in Programming (Top 2%)
Apr., 2018	Meritorious Winner of the U.S. Mathematical Contest in Modeling
Nov., 2017	Second Prize of China National Mathematical Contest in Modeling (Top 5%)
Oct., 2017	National Scholarship for Undergraduates (Top 1%)

Academic Service

Community Service

2025 – Now	Co-lead of Machine/Deep Learning for Image Analysis (MIA) working group in IEEE GRSS Image Analysis and Data Fusion Technical Committee (IADF TC)
2025	IEEE GRSS Data Fusion Contest 2025 – All-Weather Land-Cover Mapping & Disaster Response
2024	OpenEarthMap Land Cover Mapping Few-Shot Challenge in CVPR Workshop 2024

Editorial Activity

2024	Special Issue on Recent Advances in Deep Learning-based High-Resolution Image Processing and Analysis in *Remote Sensing*

Reviewer

Journal	*IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), International Journal of Computer Vision (IJCV), ISPRS Journal of Photogrammetry and Remote Sensing, IEEE Transactions on Image Processing (TIP), Medical Image Analysis (MIA), IEEE Transactions on Neural Networks and Learning Systems (TNNLS), IEEE Transactions on Circuits and Systems for Video Technology (TCSVG), IEEE Transactions on Geoscience and Remote Sensing (TGRS), IEEE Geoscience and Remote Sensing Letters (GRSL), IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS), Pattern Recognition (PR), International Journal of Applied Earth Observation and Geoinformation (JAG), GIScience & Remote Sensing, Artificial Intelligence Review, Engineering Applications of Artificial Intelligence (EAAI), Geo-spatial Information Science (GSIS), International Journal of Digital Earth, Expert Systems with Applications, Advanced Engineering Informatics, Neurocomputing, Ecological Indicators, Ecological Informatics, Remote Sensing, Remote Sensing Applications: Society and Environment, Geocarto International, European Journal of Remote Sensing, Transactions on Emerging Telecommunications Technologies, Scientific Reports, IEEE Access, Computers, Information, Discover Artificial Intelligence, International Journal of Data Science and Analytics, CMC-Computers Materials & Continua, Forest, Sustainability, Journal of Mass Spectrometry, All Earth, Sensors, Transactions in GIS, Earth Science Informatics, Developments in the Built Environment, Multimedia Systems, Digital Signal Processing, Data in Brief, Image and Vision Computing, Big Earth Data*
Conference	IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2024 Workshops; International Conference on Computer Vision (ICCV) 2025 Workshops; The International Conference on Machine Learning (ICML) 2025 Workshops; IEEE International Geoscience and Remote Sensing Symposium (IGARSS) 2025; IEEE International Conference on Robotics & Automation (ICRA) 2026

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