

# Hongruixuan Chen

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## EDUCATION & GPA

<b>Graduate School of Frontier Sciences, The University of Tokyo</b>   Chiba, Japan	<i>Oct., 2022-Spet., 2025</i>
● <b>Ph.D.</b> in <i>Complexity Science and Engineering</i> <b>Supervisor:</b> Prof. Naoto Yokoya	
<b>State Key Laboratory of Information Engineering in Survey, Mapping and Remote Sensing, Wuhan University</b>   Wuhan, China	<i>Sept., 2019-June, 2022</i>
● <b>M.E</b> in <i>Photogrammetry and Remote Sensing</i> <b>Supervisor:</b> Prof. Chen Wu	
<b>School of Resources and Environmental Engineering, Anhui University</b>   Hefei, China	<i>Sept., 2015-June, 2019</i>
● <b>B.E</b> in <i>Geomatics Engineering</i> <b>GPA:</b> 94.4/100 (ranking: 1/230)	

## WORK/OVERSEAS EXPERIENCE

<b>Photogrammetry and Remote Sensing, ETH Zürich</b>   Zürich, Switzerland	<i>Jan., 2024-July., 2024</i>
● <b>Academic Visitor</b> <b>Host:</b> Prof. Konrad Schindler	
<b>Geoinformatics Team, RIKEN AIP</b>   Chiba, Japan	<i>May, 2023-Apr., 2024</i>
● <b>Research Part-timer</b> <b>Host:</b> Prof. Naoto Yokoya	
<b>Beyond AI Project, The University of Tokyo</b>   Chiba, Japan	<i>Oct., 2022-Apr., 2023</i>
● <b>Research Assistant</b> <b>Host:</b> Prof. Masashi Sugiyama	
<b>The United Nations Satellite Centre (UNOSAT)</b>   Geneva, Switzerland	<i>May, 2021-May, 2022</i>
● <b>Trainee</b> <b>Host:</b> Mr. Lars Bromley, Dr. Sofia Vallecorsa	

## RESEARCH INTERESTS

Remote Sensing Image Interpretation and Analysis; Image Processing; Change Detection; Damage Assessment; Deep Learning; Machine Learning; Transfer Learning; Domain Adaptation; Weakly Supervised Learning

## PUBLICATIONS

- [1] **H. Chen**, J. Song, C. Han, J. Xia, and N. Yokoya, “ChangeMamba: Remote Sensing Change Detection with Spatio-Temporal State Space Model,” *IEEE Transactions on Geoscience and Remote Sensing*, vol. 62, pp. 1–20, 2024. [\[link\]](#)
- [2] **H. Chen**, C. Lan, J. Song, C. Broni-Bedaiko, 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. [\[link\]](#)
- [3] **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. 87–105, 2023. [\[link\]](#)
- [4] **H. Chen**, N. Yokoya, and M. Chini, “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) [\[link\]](#)
- [5] **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. [\[link\]](#)
- [6] 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. 12084–12098, 2022. [\[link\]](#)
- [7] **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) [\[link\]](#)
- [8] 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. [\[link\]](#)
- [9] 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. [\[link\]](#)
- [10] 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**) [[link](#)]

- [11] 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, pp. 102503, 2021. [[link](#)]
- [12] **H. Chen**, J. Song, N. Yokoya, “Change Detection Between Optical Remote Sensing Imagery and Map Data via Segment Anything Model (SAM),” *Proceeding of the IEEE International Geoscience and Remote Sensing Symposium 2024*, Athens, Greece, pp. 1–4, 2024. (Oral) [[link](#)]
- [13] N. Yokoya, J. Xia, J. Song, and, C. Broni-Bediako, **H. Chen**, “OpenEarthMap Benchmark Suite and Its Applications,” *Proceeding of the IEEE International Geoscience and Remote Sensing Symposium 2024*, Athens, Greece, pp. 1–4, 2024. (Oral)
- [14] J. Song, **H. Chen**, N. Yokoya, “SyntheWorld: A Large-Scale Synthetic Dataset for Land Cover Mapping and Building Change Detection,” *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2024*, pp. 8287-8296, 2024. (Poster) [[link](#)]
- [15] **H. Chen**, E. Nemni, S. Vallecorsa, X. Li, C. Wu, L. Bromley, “Dual-Tasks Siamese Transformer Framework for Building Damage Assessment,” *Proceeding of the IEEE International Geoscience and Remote Sensing Symposium 2022*, Kuala Lumpur, Malaysia, pp. 1–4, 2022. (Oral) [[link](#)]
- [16] **H. Chen**, C. Wu, B. Du, and L. Zhang, “Deep Siamese Multi-scale Convolutional Network for Change Detection in Multi-Temporal VHR Images,” *2019 10th International Workshop on the Analysis of Multitemporal Remote Sensing Images*, Shanghai, China, pp. 1–4, 2019. (Oral) [[link](#)]

## RESEARCH FUNDINGS

- Grant-in-Aid for JSPS Research Fellows (**PI**, 1,500,000 JPY) [[link](#)] Apr., 2024
- AI Center Fusion Research Promotion Fund (**PI**, 2,000,000 JPY) [[link](#)] July, 2023
- GSFS Challenging New Area Doctoral Research Grant (**PI**, 600,000 JPY) [[link](#)] June, 2023
- GSFS Challenging New Area Doctoral Research Grant (600,000 JPY) [[link](#)] June, 2023
- Microsoft Research Asia Collaborative Research Grant (**PI**, 10,000 USD) [[link](#)] Mar., 2023
- China National Innovative Research Project for Undergraduates (**PI**, 10,000 CNY) Nov., 2016

## AWARDS & HONORS

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

## SKILLS, ACTIVITIES & INTERESTS

- **Reviewer:** *IEEE Transactions on Pattern Analysis and Machine Intelligence*, *IEEE Transactions on Image Processing*, *IEEE Transactions on Neural Networks and Learning Systems*, *IEEE Transactions on Geoscience and Remote Sensing*, *IEEE Geoscience and Remote Sensing Letters*, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, *ISPRS Journal of Photogrammetry and Remote Sensing*, *Pattern Recognition*, *International Journal of Applied Earth Observation and Geoinformation*, *Artificial Intelligence Review*, *Geo-spatial Information Science*, *International Journal of Digital Earth*, *Neurocomputing*, *Geocarto International*, *European Journal of Remote Sensing*, *Transactions on Emerging Telecommunications Technologies*, *Scientific Reports*, *IEEE Access*, 2024 *IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*
- **Organizer:** [OpenEarthMap Land Cover Mapping Few-Shot Challenge](#) in CVPR Workshop 2024

- **Language Test:** *IELTS* (R/L/S/W: 9.0/7.5/6.0/6.5, Overall: 7.5), *TOEFL* (R/L/S/W: 30/23/19/29, Overall: 101), *GRE* (160/170/3.5, Overall: 333.5)
- **Programming:** Python, Java, Android, VB.Net, C#, C/C++, R, SQL (PostgreSQL+PostGIS), Latex
- **Deep Learning Framework:** Pytorch, Tensorflow, Keras
- **Software:** MATLAB, ENVI, ArcGIS, eCognition, GoogleEarth, SPSS, Lingo, Geoda, AutoCAD, Photoshop, CityEngine, SketchUp, proficient in PowerPoint