

Curriculum Vitae



Hyun-Woo Jo

Date of Birth : 1993.12.14

Academic Degree: Ph.D. of Environmental Planning and Landscape Architecture

Status : **Postdoctoral fellowship**

International Institute for Applied Systems Analysis (IIASA)

Research Professor

OJEong Resilience Institute, Korea University (OJERI@KU)

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<Educations>

Integrated Master & Ph.D. Degree

August 2018 – August 2023

Department of Environmental Science & Ecological Engineering, Korea University, Seoul, Republic of Korea.

Major: Environmental Planning and Landscape Architecture (Under supervision of Prof. Woo-Kyun Lee).

B.S. and B.A. Degree (Double Majored)

March 2012 – February 2018

Department of Environmental Science & Ecological Engineering, Korea University, Seoul, Republic of Korea.

Department of English Language & Literature, Korea University, Seoul, Republic of Korea.

<Research Areas>

- Forest disturbances
- Remote sensing and Geographic information systems
- Machine learning and Deep learning
- Climate change impact and Disaster Risk assessments
- Land cover and land use changes

<Activities>

- Research Professor, OJEong Resilience Institute (OJERI), Korea University, Seoul, Republic of Korea (September 2024 – Present)
- Postdoctoral Fellowship, International Institute for Applied System Analysis (IIASA), Laxenburg International Institute for Applied System Analysis (IIASA), Laxenburg (October 2023 – Present)
- Postdoctoral Fellowship, OJEong Resilience Institute (OJERI), Korea University, Seoul, Republic of Korea (September 2023 – August 2024)
- Young Scientists Summer Program 2022, International Institute for Applied System Analysis (IIASA), Laxenburg, Austria (June 2022 – August 2022)
- Trainer and PIC of Consultative Workshop on Drought Monitoring and Early Warning in Kyrgyzstan Organized by eGIS/RS Center of OJERI at KOREA University and UNESCAP, Bishkek, Kyrgyzstan (27-31, January 2020)
- Researching Assistant of Agroforestry Systems and Ecology Lab., Korea University, Seoul, Republic of Korea

(August 2019 – December 2019)

- Staff of Asia Conference on Remote Sensing (ACRS) 2019 EOPEN Special Session on Interoperable Platform Using Earth Observation Data, Horizon 2020- EOPEN, Daejeon, Republic of Korea (October 2019)
- Teaching Assistant of Environmental GIS/RS and Practice and Environmental Remote Sensing and Practice, +Korea University, Seoul, Republic of Korea (August 2018 – December 2019 & March 2019 – December 2019).
- 67th Captain of Tae-Kwon-Do Club, Korea University, Seoul, Republic of Korea (December 2016 – November 2017)

<Awards, Honors, and Certificates>

- Honorable Mention of Young Scientists Summer Program 2022, International Institute for Applied System Analysis (IIASA), Laxenburg, Austria (January 2023)
- Software Development: “DRYAD: Deep-learning and Remote sensing analyses for Agroforestry and Drought”, Python, Korea Copyright Commission (SW Registration No. C- C-2021-037042)
- Software Development: “ArcGIS based MODIS vegetation product quality masking toolbox”, Python, Korea Copyright Commission (SW Registration No. C-2021-023086)
- Software Development: “LiKU (Pre-processing and Analysis of LiDAR Remote Sensing Data)”, Python, Korea Copyright Commission (SW Registration No. C-2019-012458)
- The grand prize award from 2021 Agriculture & Forest Satellite Application Idea Contest by Korea Forest Service (November 2021).
- BK21PLUS Eco leader training Scholarship by Ministry of Education Korea (March 2020 – August 2020)
- Weather and climate big data open lecture (Intensive course) completion, Korea Meteorological Institute, Seoul, South Korea (23-25, November, 2020)
- The grand prize award from 2019 Forestry ICT Contest by Korea Forest Service (September 2019).
- Introducing New Graphics in IDL course completion, SELAB Korea, Seoul, Republic of Korea (Jun 2019).
- Fourth Industrial Revolution Academy: Big Data Platform Technology Course, Seoul National University, Seoul, Republic of Korea (June 2017 – February 2018)
- Weather Management Consultant Introduction Course, Korea Meteorological Institute, Seoul, Republic of Korea (July 2016)
- Craftsman Environmental, Human Resources Development Service of Korea, Ulsan, Republic of Korea (April 2015)
- Special Scholarship for Freshmen by Korea University (March 2012)

<Academic Publications>

Domestic (South Korea)

1. Cha, S. E., Chi, K. H., **Jo, H. W.**, Kim, E. J., & Lee, W. K. (2016). The Relationship Analysis between the Epicenter and Lineaments in the Odaesan Area using Satellite Images and Shaded Relief Maps. *Journal of the Korean Association of Geographic Information Studies*, 19(3), 61-74.
2. **Jo, H. W.**, Chi, K. H., Cha, S., Kim, E., & Lee, W. K. (2017). Relationship analysis between lineaments and epicenters using hotspot analysis: The case of Geochang region, South Korea. *Korean Journal of Remote Sensing*, 33(5_1), 469-480.
3. Cha, S., Lee, W. K., Kim, M., Lee, S. G., **Jo, H. W.**, & Choi, W. I. (2017). Characterizing the spatial distribution of oak wilt disease using remote sensing Data. *Journal of Korean Society of Forest Science*, 106(3), 310-319.

4. **Jo, H. W.**, Kim, J. W., Lim, C. H., Song, C. H., & Lee, W. K. (2018). Optimizing Image Size of Convolutional Neural Networks for Producing Remote Sensing-based Thematic Map. *Korean Journal of Remote Sensing*, 34(4), 661-670.
5. Cha, S., **Jo, H. W.**, Lim, C. H., Song, C., Lee, S. G., Kim, J., Park, C., Jeon, S. W., & Lee, W. K. (2020). Estimating the Stand Level Vegetation Structure Map Using Drone Optical Imageries and LiDAR Data based on an Artificial Neural Networks (ANNs). *Korean Journal of Remote Sensing*, 36(5-1), 653-666.
6. Kim, J., Kim, W., Lee, S., **Jo, H. W.**, & Lee, W. K. (2024) Analysis of spatio-temporal changes in greenhouse gas emissions from the domestic rice cultivation sector by according to Shared Socioeconomic Pathways (SSP) scenarios using the DeNitrification-DeComposition (DNDC) model. *Journal of Climate Change Research*, 15(6), 1039-1049.
7. Jeong, Y., Song, C., **Jo, H. W.**, Ko, Y. & Lee, W. K. (2024) Development and applicability assessment of local-scale carbon emission models to support carbon neutrality plans of local governments. *Journal of Climate Change Research*, 15(5-1), 691-712.

International

8. Liang, X., Hyypää, J., Kaartinen, H., ... **Jo, H. W.**, ... & Huang, H. (2018). International benchmarking of terrestrial laser scanning approaches for forest inventories. *ISPRS journal of photogrammetry and remote sensing*, 144, 137-179.
9. **Jo, H. W.**, Lee, S., Park, E., Lim, C. H., Song, C., Lee, H., ... & Lee, W. K. (2020). Deep Learning Applications on Multitemporal SAR (Sentinel-1) Image Classification Using Confined Labeled Data: The Case of Detecting Rice Paddy in South Korea. *IEEE Transactions on Geoscience and Remote Sensing*, 58(11), 7589-7601.
10. Kim, J., Song, C., Lee, S., **Jo, H. W.**, Park, E., Yu, H., ... & Lee, W. K. (2020). Identifying potential vegetation establishment areas on the dried Aral Sea floor using satellite images. *Land Degradation & Development*, 31(18), 2749-2762.
11. Park, E., Kim, J., Song, C., **Jo, H. W.**, Lee, S., Kim, S. J., ... & Lee, W. K. (2020). Applicability Analysis of Vegetation Condition and Dryness for Sand and Dust Storm (SDS) Risk Reduction in SDS Source and Receptor Region. *Sustainability*, 12(18), 7256
12. Zhu, Y., Jeon, S., Sung, H., Kim, Y., Park, C., Cha, S., **Jo, H. W.**, & Lee, W. K. (2020). Developing UAV-Based Forest Spatial Information and Evaluation Technology for Efficient Forest Management. *Sustainability*, 12(23), 10150.
13. Kim, J., Lim, C. H., **Jo, H. W.**, & Lee, W. K. (2021). Phenological Classification Using Deep Learning and the Sentinel-2 Satellite to Identify Priority Afforestation Sites in North Korea. *Remote Sensing*, 13(15), 2946.
14. Cha, S., **Jo, H. W.**, Kim, M., Song, C., Lee, H., Park, E., ... & Lee, W. K. (2022). Application of deep learning algorithm for estimating stand volume in South Korea. *Journal of Applied Remote Sensing*, 16(2), 024503.
15. Park, E[‡], **Jo, H. W.**[‡], Lee, W. K., Lee, S., Song, C., Lee, H., ... & Kim, T. H. (2022). Development of earth observational diagnostic drought prediction model for regional error calibration: A case study on agricultural drought in Kyrgyzstan. *GIScience & Remote Sensing*, 59(1), 36-53.
16. Kim, W., Park, E., **Jo, H. W.**, Roh, M., Kim, J., Song, C., & Lee, W. K. (2022). A meta-analytic review on the spatial and climatic distribution of meteorological drought indices. *Environmental Reviews*, 31(1), 95-110.
17. Ganbat, G., Lee, H., **Jo, H. W.**, Jadamba, B., & Karthe, D. (2022). Assessment of COVID-19 Impacts on Air Quality in Ulaanbaatar, Mongolia, Based on Terrestrial and Sentinel-5P TROPOMI Data. *Aerosol and Air Quality Research*, 22, 220196.
18. Wang, S. W., Kim, W., Song, C., Park, E., **Jo, H. W.**, Kim, J., & Lee, W. K. (2022). Relationships among water, food, energy, and ecosystems in the Mid-Latitude Region in the context of sustainable

- development goals. *Environmental Reviews*, 31(1), 111-121.
19. Kim, J., Park, E., Song, C., Hong, M., **Jo, H. W.**, & Lee, W. K. (2022). How to manage land use conflict between ecosystem and sustainable energy for low carbon transition?: Net present value analysis for ecosystem service and energy supply. *Frontiers in Environmental Science*, 10, 1044928.
 20. **Jo, H. W.**, Krasovskiy, A., Hong, M., Corning, S., Kim, W., Kraxner, F., & Lee, W. K. (2023). Modeling Historical and Future Forest Fires in South Korea: The FLAM Optimization Approach. *Remote Sensing*, 15(5), 1446.
 21. **Jo, H. W.**, Park, E., Sitokonstantinou, V., Kim, J., Lee, S., Koukos, A., & Lee, W. K. (2023). Recurrent U-Net based dynamic paddy rice mapping in South Korea with enhanced data compatibility to support agricultural decision making. *GIScience & Remote Sensing*, 60(1), 2206539.
 22. Kim, J., **Jo, H. W.**, Kim, W., Jeong, Y., Park, E., Lee, S., ... & Lee, W. K. (2024). Application of the domain adaptation method using a phenological classification framework for the land-cover classification of North Korea. *Ecological Informatics*, 81, 102576.
 23. Roh, M., Lee, S., **Jo, H.-W.**, Lee, W.-K. (2024). Development of a Forest Fire Diagnostic Model Based on Machine Learning Techniques. *Forests*. 2024; 15(7):1103.
 24. Park, E., **Jo, H. W.**, Biging, G. S., Chun, J. A., Jeon, S. W., Son, Y., ... & Lee, W. K. (2024). Advancement of a diagnostic prediction model for spatiotemporal calibration of earth observation data: a case study on projecting forest net primary production in the mid-latitude region. *GIScience & Remote Sensing*, 61(1), 2401247.
 25. Lee, S., Roh, M., **Jo, H. W.**, Joon, K., & Lee, W. K. (2025). Machine learning-based rainfall-induced landslide susceptibility model and short-term early warning assessment in South Korea. *Landslides*, 1-19.
 26. **Jo, H. W.**, Won, M. S., Kraxner, F., Jeon, S., Son, Y., Krasovskiy, A., & Lee, W. K. (2025). Projecting Forest Fire Probability in South Korea under Climate Change, Population, and Forest Management Scenarios Using AI & Process-Based Hybrid Model (FLAM-Net). *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 18, 13003-13022,

‡ Equal Contribution