He ZHANG CURRICULUM VITAE

ACADEMIC ADDRESS

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RESEARCH PROFILE

I have amassed skills and interests in soil analysis, plant ecology and carbon cycle with several years of experience studying soil and water conservation. During the doctoral training, I used UAV-based remote sensing combined with machine learning approaches to retrieve earth surface attributes, such as soil organic carbon in croplands, canopy height and biomass in tropical forest. My current work involves the use of multi-temporal airborne-LiDAR data to assess vegetation restoration potential in Hongkong. I am interested in integrating machine learning approaches with various remote sensing data sources to develop efficient pipelines for supporting agricultural and ecological applications.

Core Skills: UAV-based photogrammetry; Spectroscopy; Geoscience; Soil analysis; Ecology.

EDUCATION

- **2022** PhD. Geography. Earth & Life Institute (ELI), Georges Lemaître Centre for Earth and Climate Research (TECLIM), Université Catholique de Louvain, Belgium. Supervisor: Dr. Kristof Van Oost.
- **2017** Master in Soil and Water Conservation. Institute of Soil and Water Conservation, Chinese Academy of Sciences, Northwest A&F University (NWSUAF), China. Supervisor: Dr. Bingcheng Xu.
- **2014** BSc in Soil and Water Conservation. College of Natural Resources and Environment, Northwest A&F University (NWSUAF), China.

PROFESSIONAL EXPERIENCE

2022 – Present Postdoctoral researcher: School of Biological Sciences, The University of Hong Kong, Hong Kong. Mentor: Dr. Jin Wu

PUBLICATIONS

Total: 18 (17 peer-reviewed papers, w. 1 additional paper in revision). Total citations: 499; H-index: 12. All publications are in international peer-reviewed journals.

MANUSCRIPTS IN REVIEW

---- **Zhang, H**., Chan, A.H.Y., Law, Y.K., & Wu, J. A multi-source remote sensing approach to identify and predict delayed succession in human-dominated tropical landscapes, (minor revision in *Journal of Applied Ecology*).

REFEREED JOURNAL ARTICLES

- 2025 Mak, N. P. L., Siu, T. Y., Law, Y. K., Zhang, H., ... & Wu, J. (2025). Mapping Individual Tree-and Plot-Level Biomass Using Handheld Mobile Laser Scanning in Complex Subtropical Secondary and Old-Growth Forests. *Remote Sensing*, 17(8), 1354.
- 2025 Zhao, Y., Wu, B., Kong, G., Zhang, H., ... & Fan, H. (2025). Generating high-resolution DEMs in mountainous regions using ICESat-2/ATLAS photons. *International Journal of Applied Earth Observation and Geoinformation*, *138*, 104461.
- **2024 Zhang, H**., Lee, C.K.F, Law, Y.K., ..., & Wu, J. Integrating both restoration and regeneration potentials into real-world forest restoration planning: A case study of Hong Kong. *Journal of Environmental Management*. 369, 122306.
- **2023** Gu, Y., Zhao, Y., ..., **Zhang, H**., ... & Wu, J. The underappreciated importance of solar radiation in constraining spring phenology of temperate ecosystems in the Northern and Eastern United States. *Remote Sensing of Environment*, 294, 113617.
- 2023 Liu, S., Yan, Z., ..., Zhang, H., ... & Wu, J. Mapping foliar photosynthetic capacity in subtropical and tropical forests with UAS-based imaging spectroscopy: Scaling from leaf to canopy. *Remote Sensing of Environment*, 293, 113612.
- **2022** Crucil, G., **Zhang, H**., Pauly, K., & Van Oost, K. (2022). A Semi-Empirical Anisotropy Correction Model for UAS-Based Multispectral Images of Bare Soil. *Remote Sensing*, 14(3), 537.
- **2021** Zhang, H., Bauters, M., Boeckx, P., & Van Oost, K. (2021). Mapping Canopy Heights in Dense Tropical Forests Using Low-Cost UAV-Derived Photogrammetric Point Clouds and Machine Learning Approaches. *Remote Sensing*, 13(18), 3777.
- **2021 Zhang, H**., Shi, P., Crucil, G., van Wesemael, B., Limbourg, Q., & Van Oost, K. (2021). Evaluating the capability of a UAV-borne spectrometer for soil organic carbon mapping in bare croplands. *Land Degradation & Development*, 32(15), 4375-4389.
- **2021 Zhang, H**., Xiong, P., Jia, Z., Zhou, J., Niu, F., & Xu, B. (2021). Responses of soil respiration to rainfall depth and frequency in semiarid grassland communities. *Ecohydrology*, e2326.
- 2020 Cucchiaro, S., Fallu, D. J., Zhang, H., Walsh, K., Van Oost, K., Brown, A. G., & Tarolli, P. (2020). Multiplatform-SfM and TLS data fusion for monitoring agricultural terraces in complex topographic and landcover conditions. *Remote Sensing*, 12(12), 1946.
- Zhang, H., Aldana-Jague, E., Clapuyt, F., Wilken, F., Vanacker, V., & Oost, K. V. (2019). Evaluating the potential of post-processing kinematic (PPK) georeferencing for UAVbased structure-from-motion (SfM) photogrammetry and surface change detection. *Earth Surface Dynamics*, 7(3), 807-827.

- 2019 Xiong, P., Chen, Z., ..., Zhang, H., Wang, Z., & Xu, B. Surface water storage characteristics of main herbaceous species in semiarid Loess Plateau of China. *Ecohydrology*, 12(8), e2145.
- Niu, F., Chen, J., ..., **Zhang, H**., & Xu, B. Responses of soil respiration to rainfall pulses in a natural grassland community on the semi-arid Loess Plateau of China. *Catena*, 178, 199-208.
- Zhang, H., et al., Soil respiration response to simulated rainfall pulses in natural grassland communities in loess hilly-gully region. *Acta Scientiae Circumstantiae*, 37(8): 3139-3148. (In Chinese with English abstract)
- 2017 Xiong, P., Shu, J., Zhang, H., Jia, Z., Song, J., Palta, J. A., & Xu, B. Small rainfall pulses affected leaf photosynthesis rather than biomass production of dominant species in semiarid grassland community on Loess Plateau of China. Functional Plant Biology, 44(12), 1229-1242.
- Huang, J., Gao, Z., Chen, J., **Zhang, H**., & Xu, B. Diurnal and seasonal variations of soil respiration rate under different row-spacing in a Panicum virgatum L. field on semiarid Loess Plateau of China. *Journal of Arid Land*, 8(3), 341-349.
- Niu, F., Duan, D., ..., Zhang, H., Wang, Z., & Xu, B. Eco-physiological responses of dominant species to watering in a natural grassland community on the semi-arid Loess Plateau of China. *Frontiers in Plant Science*, 7, 663.

RESEARCH COMMUNICATION, WORKSHOPS & INVITED TALKS

- eLightning presentation: "Integrating both active and passive recovery potentials into the real-world ecosystem restoration planning". Abstract (#1377145) presented at AGU Fall Meeting, San Francisco, USA, 2023.
- Invited presentation: "UAV-based remote sensing: Principles and Applications", College of Earth Sciences, Jilin University, China, 2022.
- Invited presentation: "Seeing the ground below dense trees: Mapping canopy heights and biomass in dense tropical forests using low-cost UAV-derived photogrammetric point clouds", CAVElab, Ghent University, Belgium, 2021.
- Poster presentation: "Evaluating the performance of UAV photogrammetry with PPK positioning in topographic reconstruction and change-detection", EGU General Assembly, Vienna, Austria, 2019.
- Workshop: RPAS training. Catholic University of Louvain, Louvain-la-Neuve, Belgium, 2018.
- Workshop: Copernicus and Unmanned Aerial Platforms. European Commission, Brussel, Belgium, 2018.