Yu Wei

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Nicholas School of the Environment
Duke University
Durham, NC 27708, USA

RESEARCH INTERESTS

Forest biodiversity; ecological remote sensing; structural diversity; hyperspectral remote sensing, LiDAR remote sensing; deep learning

EDUCATION

Duke University, Doctor of Philosophy — **08/2024 – present**, NC, USA
- *Major: Environment*
- Advisor: Dr. Tong Qiu

Pennsylvania State University — **08/2023 – 07/2024**, PA, USA
- *Major: Ecosystem Science and Management*
- Advisor: Dr. Tong Qiu

Wuhan University, Master of Engineering — **09/2020 – 05/2023**, Wuhan, China
- *Major: Photogrammetry and Remote Sensing*
- Advisor: Dr. Mi Wang
- Average score: 90.69/100, Outstanding Graduates Award (2023)

Wuhan University, Bachelor of Engineering — **09/2016 – 05/2020**, Wuhan, China
- *Major: Remote Sensing Science and Technology*
- Average score: 87.70/100, Outstanding Graduates Award (2020)

PUBLICATIONS

Yu Wei, Hanshi Chen, Xiaolu Li, Tong Qiu. "Which Metrics Best Capture Plant Biodiversity from Hyperspectral Remote Sensing? A Guide for Ecologists in Macrosystem Biology Research". *[Manuscript in preparation]*.

Yu Wei, Hanshi Chen, Xiaolu Li, Tong Qiu. 2024. "Climate mediate the spectral-biodiversity relationship across biomes in the United states". *[draft available upon request]*.

Mi Wang, **Yu Wei**, Yingdong Pi. 2023. "Geometric positioning integrating optical satellite stereo imagery and a global database of ICESat-2 laser control points: A framework and key technologies." *Geo-spatial Information Science*, 26(2): 206-217, DOI: 10.1080/10095020.2022.2159885 (first author is my master's thesis advisor)

Mi Wang, **Yu Wei**, Bo Yang, Xiao Zhou. 2021. "Extraction and Analysis of Global Elevation Control Points from ICESat-2/ATLAS Data." *Geomatics and Information Science of Wuhan University*, 46(2):184-192 (first author is my master's thesis advisor)

RESEARCH EXPERIENCE

Forest Regeneration Sampling Fieldwork **05/2024 – 08/2024**

PA, USA

- Collect tree seedlings density, sapling growth, and seed production data to understand the forest regeneration in Pennsylvania

Forest biodiversity modeling through the synthesis of hyperspectral, LiDAR, and tree inventories **12/2023 – 07/2024**

PA, USA

- Utilize hyperspectral remote sensing data with ecological ground samplings to understand the relationships between plant biodiversity and spectral diversity.
- Delineate individual tree crowns from dense forest canopies based on LiDAR and classify tree species at individual level based on hyperspectral imagery.

Natural Resource Management Project: applications of stereo photogrammetry integrating high-resolution satellite imagery and spaceborne LiDAR data **03/2022 – 05/2023**

Wuhan, China

- Synthesize optical imagery and satellite-based laser altimetry data to derive high-resolution elevation product; analyze distribution of forest biomass based on the product to facilitate decision-making process in biodiversity conservation.

Software Function Development: constructing a global database of spaceborne LiDAR point cloud data **05/2021 – 02/2022**

Wuhan, China

- Download, analyze, and filter space-borne LiDAR data (e.g., ICESat-2).
- Construct a database for global elevation reference products from spaceborne LiDAR (e.g., ICESat-2).

PROFESSIONAL SKILLS

Programming and software

- Programming languages: R, Python, JavaScript, C, C++, MATLAB, Google Earth Engine, etc.
- Professional software: ArcGIS, ENVI, EDARS, SAS studio, SPSS, etc.

Language skills

- Fluent in Chinese (native) and English (IELTS score: 7.5)

SELECTED AWARDS & HONORS

- INSECT Net Travel Award (NSF Award #2243979, Pennsylvania State University) (2023)
- First-class Scholarship (2018), Second-class Scholarship (2019, 2021, 2022)
- Merit Student (2018, 2019, 2021)
- Outstanding Graduates Award (2020, 2023)
- Excellent Leadership Award (2020)
- Advanced Individual in Social Work (2019)

TEACHING EXPERIENCE

Teaching Assistant - *Spatial Statistics & Analysis (an English-taught course in WHU)* **05/2022 - 07/2022**

Wuhan, China

- Geospatial data statistics and modeling (using R programming)