Yu Wei

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Ecosystem Science & Management
Pennsylvania State University
University Park, PA, 16802, USA

RESEARCH INTERESTS

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

EDUCATION

Pennsylvania State University, Doctor of Philosophy — **09/2023 – present**, 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

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 (I am the one who wrote the paper, first author is my master's thesis advisor)

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 (I am the one who wrote the paper, first author is my master's thesis advisor)

RESEARCH EXPERIENCE

Forest biodiversity modeling through the synthesis of hyperspectral, LiDAR, and tree inventories — **09/2023 – present**, University Park, PA
- 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, GEDI).
- 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 pro, 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)

CONFERENCE

Yu Wei, Hanshi Chen, Xiaolu Li, Tong Qiu. 2024. Plant phylogenetic diversity can be better captured by hyperspectral remote sensing than taxonomic diversity across biomes. *2024 Ecological Society of America (ESA) Annual Meeting, abstract submitted.*

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)