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EDUCATION

2017 - 2022 Ph.D. in Earth Sciences, Florida International University, USA, GPA 3.93.

2012 - 2013 M.S. in Geomatics (GIS), Hong Kong Polytechnic University, Hong Kong.

2007 - 2011 B.S. in Geographical Information System, Capital Normal University, China.

WORK EXPERIENCE

- **Oct. 2024** – Present Postdoctoral Associate at School of the Environment and Center for Natural Carbon Capture, Yale University.
- **Sep. 2022 – Sep. 2024** Postdoctoral Scholar in the Valley Institute for Sustainability, Technology & Agriculture (VISTA), School of Engineering at the University of California, Merced.
- **Dec. 2019 – May 2021, May 2022 – Aug. 2022.** Instruction Lecturer at FIU on two classes: “Introduction of Earth Science Lab” and “Physical Geology Labs” with in-person, remote, and online modes.
- **Aug. 2014 - Aug. 2017** Research Assistant in the Department of Land Surveying and Geo-Informatics, Hong Kong Polytechnic University
Developed a real-time kinematic positioning software system for Hong Kong using C# and MATLAB, integrating GPS, Compass, and GLONASS satellite observations.
- **Jan. 2014 – Jul. 2014** Assistant Land Surveyor, Land Marker (1980) HK. Co. Ltd.
Field work using GPS Trimble rover, map point measurements with AutoCAD.
- **Aug. 2013 – Dec. 2013** Geo-spatial data analyst intern in Aon Benfield Hong Kong Limited
Natural hazards analyses using GIS software, SQL and Excel VBA to estimate economic loss.

REFEREED PUBLICATIONS

Publications

- **Zhang, B.**, Gann D., Wdowinski., Lin C., Hestir E., Lamb-Wotton L., Khandker I., Smith K., Li Y. 2024. Space-Based Mapping of Pre-and Post-Hurricane Mangrove Canopy Heights Using Machine Learning with Multi-Sensor Observations. Remote Sensing, 16(21), p.3992. <https://doi.org/10.3390/rs16213992>
- **Zhang, B.**, Hestir, E., Yunjun, Z., Reiter, M.E., Viers, J.H., Schaffer-Smith, D., Sesser, K. and Oliver-Cabrera, T., 2024. Automated Reference Points Selection for InSAR Time Series Analysis on Segmented Wetlands. IEEE Geoscience and Remote Sensing Letters, vol. 21, pp. 1-5, 2024, Art no. 4008705, doi: 10.1109/LGRS.2024.3390568

- **Zhang, B.**, Hestir E., Zhang, Y., Reiter M., Viers J., Schaffer-Smith D., Sesser K. Multi-temporal Analysis of InSAR Coherence, In-situ Water Depths, and NDVI for Managed Wetlands in Sacramento. 2023. *GARSS 2023 - 2023 IEEE International Geoscience and Remote Sensing Symposium*, Pasadena, CA, USA, 2023, pp. 8186-8189, doi: 10.1109/IGARSS52108.2023.10281703.
- **Zhang, B.**, Smith, K., Wdowinski, S., Lin, C., Gann, D., Chavez, S. and Zhang, J., 2022, July. Space-Based Mapping of Mangrove Canopy Height with Multi-Sensor Observations and Deep Learning Techniques. *IGARSS 2022 - 2022 IEEE International Geoscience and Remote Sensing Symposium*, Kuala Lumpur, Malaysia, 2022, pp. 3389-3392, doi: 10.1109/IGARSS46834.2022.9883700.
- **Zhang, B.**, Wdowinski, S. and Gann, D., 2022. Space-Based Detection of Significant Water-Depth Increase Induced by Hurricane Irma in the Everglades Wetlands Using Sentinel-1 SAR Backscatter Observations. *Remote Sensing*, 14(6), 1415; <https://doi.org/10.3390/rs14061415>
- **Zhang, B.**, Wdowinski, S., Gann, D., Hong, S., Sah J.P., Spatiotemporal variations of wetland backscatter: The role of water depth and vegetation characteristics in Sentinel-1 dual-polarization SAR observations. *Remote Sensing of Environment*. 2022, 270, 112864. <https://doi.org/10.1016/j.rse.2021.112864>
- Robinson, T., Rodgers, B., Oliver-Cabrera, T., Downs, C., Kruse, S., Wdowinski, S., **Zhang, B.**, Jazayeri, S., Esmaeili, S. and Kiflu, H., 2021. Complex relationships between surface topography, ground motion, and cover sediments in covered karst, west-central Florida, USA. *Geomorphology*, 392, p.107927. <https://doi.org/10.1016/j.geomorph.2021.107927>
- Yu, W., Ding, X., Chen, W., Dai, W., Yi, Z. and **Zhang, B.**, 2019. Precise point positioning with mixed use of time-differenced and undifferenced carrier phase from multiple GNSS. *Journal of Geodesy*, 93(6), pp.809-818. <https://doi.org/10.1007/s00190-018-1201-8>
- **Zhang, B.**, Wdowinski, S., Oliver-Cabrera, T., Koirala, R., Jo, M.J. and Osmanoglu, B., 2018. Mapping the Extent and Magnitude of Sever Flooding Induced by Hurricane IRMA with Multi-Temporal SENTINEL-1 SAR and Insar Observations. *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, pp.2237-2244. <https://doi.org/10.5194/isprs-archives-XLII-3-2237-2018>
- Jo, M.J., Osmanoglu, **B.**, **Zhang, B.** and Wdowinski, S., 2018. Flood extent mapping using dual-polarimetric Sentinel-1 synthetic aperture radar imagery. *Int. Arch. Photogramm. Remote Sens. Spat. Inf. Sci.*, 42(3), pp.711-713. 10.5194/isprs-archives-XLII-3-711-2018

Under Review:

- **Zhang, B.** and Malone, S., When salt meets restoration: shifts in salinity levels reshape coastal wetlands under rising seas
- Li, L., Wang Z., Nesslage, J.; **Zhang, B.** 2026. Mitigating Bias in Biodiversity Patterns using Deep Learning.

In Preparation:

- **Zhang, B.** et al. Evaluation of economic and hydrologic impacts of atmospheric river induced flooding for agricultural land in the California Central Valley.
- Burmistrova J., Hestir E., Khanna S., **Zhang, B.** Mapping floodplain inundation & calculating performance measures using multi-source satellite remote sensing.

SELECTED PRESENTATIONS

- **Zhang, B.**, Malone S 2025. AI-based mapping expansion of low-productivity zones in the southeastern saline Florida Everglades using satellite remote sensing observations. Symposium of Yale Center for Natural Carbon Capture.
- **Zhang, B.**, Josué Medellín-Azuara, Erin Hestir, Nick Santos, Helen Dahlke, Joshua H. Viers, Andres Morande, Clara Medina, Zeke Moses 2023. Regional Estimation of Groundwater Recharge from Atmospheric River-Induced Flooding for Agricultural Areas in 2023 Across California, American Geophysical Union 2023 San Francisco (accepted)
- **Zhang, B.**, Erin Hestir, Zhang Yunjun, Matthew E. Reiter, Joshua H. Viers, Danica Schaffer-Smith, Kristin Sesser. Space-based estimation of surface water depths for regional California managed wetlands using InSAR and machine learning techniques with multi-sensor observations. AGU 2023, San Francisco (accepted)
- **Zhang, B.**, Erin Hestir, Zhang Yunjun, Matthew E. Reiter, Joshua H. Viers, Danica Schaffer-Smith, Kristin Sesser. 2023. From 2D-3D: Leveraging space-based sensors to track water depth and volume in wetlands of the Central Valley of California. NASA Applied Science Water Resources Meeting in Huntsville, Alabama.
- **Zhang, B.**, Wdowinski S., Gann D, 2021, December. A multi-sensor monitoring system of surface water level changes in wetlands. AGU Fall Meeting 2021 New Orleans, US. Oral presentation.
- **Zhang, B.**, Wdowinski. S., Lin C., Smith., K., Zhang J., Chavez S., Narasimhan G., 2021, December. Space-based mapping of mangrove canopy height with multi-sensor observations fusion by machine learning technique. AGU Fall Meeting 2021 New Orleans, US. Poster presentation.
- **Zhang, B.**, Lamb-Wotton, L., Ishtiaq, K.S., Gann, D., Wdowinski, S., Troxler, T. and Swain, E.D., 2020, December. Space-based monitoring of water depth and soil salinity over collapsing peat marshes using Sentinel-1 SAR amplitude observations. AGU Fall Meeting 2020. Virtual presentation.
- **Zhang, B.** and Wdowinski, S., 2019, December. Space-based monitoring of wetland surface water levels using Sentinel-1 SAR backscattering observations. AGU Fall Meeting Abstracts (Vol. 2019, pp. H33O-2225). San Francisco, US. Poster presentation.
- **Zhang, B.**, Wdowinski, S., Oliver-Cabrera, T., Robinson, T., Kruse, S. and Perissin, D., 2018, December. Monitoring Surface Stability of Remediated Sinkholes in Western Central Florida using PSInSAR Technique and Sentinel-1 Observations. AGU Fall Meeting Abstracts (Vol. 2018, pp. G21C-0574). Washington D.C., US. Poster presentation.
- **Zhang, B.**, Koirala, R., Oliver-Cabrera, T., Wdowinski, S. and Osmanoglu, B., 2017, December. Mapping the Extent and Magnitude of Severe Flooding Induced by Hurricanes Harvey Irma and Maria with Sentinel-1 SAR and InSAR Observations. AGU 2017. New Orleans, US. Enlightening oral presentation.

PROSPOALS AND GRANTS

- **Proposal Lead - Long-Term Estimation of Gross Primary Production (GPP) in Everglades National Park and Driver Analysis Using Remote Sensing and Climate Data.**
(Funding agency: Everglades Foundation)
- PI; Awarded \$26,247; Offer declined (accepted for funding, not implemented)
- **External Collaborator – Assessing Datums Using Height Comparison Software and a Novel Airborne Gravity System: Towards a Unified Global Height System** (Funding agency: National Geospatial-Intelligence Agency)
Role: External Collaborator supporting software.
Period: August 2023 – September 2025 Budget: US\$980,341
- **Proposal Contributor – A Multi-Sensor Monitoring System for Surface Water Changes in Wetlands** (Funding agency: NASA Terrestrial Hydrology Program)
Contributed significantly to proposal development; successfully funded.
Role: Key Contributor

PROFESSIONAL SERVICES

Editorial Responsibilities:

Remote Sensing: Special Issue "Remote Sensing of Wetlands: Conditions and Dynamics of Water, Vegetation, and Soil" October 2022 - July 2023

Reviewer Service

NASA panel and online review for proposals, Remote Sensing of Environment, ISPRS Journal of Photogrammetry and Remote Sensing, International Journal of Applied Earth Observation and Geoinformation, iScience, Journal of Hydrology, AGU Earth's Future, AGU Journal of Geophysical Research: Earth Surface, Water Resources Research, Geo-Spatial Information Science, Remote Sensing Applications: Society and Environment, Geography and Sustainability, Journal of Arid Environment, Journal of Mountain Science, International Journal of Digital Earth, Sensors, Soil and Tillage Research.

Conference Convener Service

Convenor for the 2023 American Geophysical Union (AGU) conference session: B056-I. Multitemporal Remote Sensing for Wetland Dynamics Monitoring.

Convener for the 2022 American Geophysical Union (AGU) conference session: Remote Sensing of Wetlands Dynamics.

Mentorship

Certificate of appreciation for the mentorship in the 2023 San Joaquin Valley Food and Agriculture Cyberinformatics Tools and Science (FACTS) Bridge Program.

Member of Hurricane Ecosystem Response Synthesis working group.

FELLOWSHIPS & SELECTED FUNDING

- **2023 October** Graduate Division's 2023 Adelante Hispanic Serving Institutions (HSI) Future Faculty Bootcamp, \$1,000 fellowship.
- **2021 Fall and 2022 Spring semesters** - Dissertation Year Fellowship (DYF) from Florida International University (\$16,600 stipend, covering tuition fee)
- **2021 Summer semester** - Doctoral Evidence Acquisition (DEA) Fellowship from Florida International University (\$8,300 stipend, covering tuition fee)
- **2021 Travel Award** from the Coastlines and Oceans Division of the Institute of Environment (\$500)
- **2021 Graduate and Professional Student Committee Travel funding** (\$640)

CERTIFICATES

- Certificate of College Teaching Preparation (CCTP), Yale University (in progress)
- **Oct. 2025.** UAV's + UAV Lidar Collection & Processing Workshop, Yale Center for Geospatial Solution
- **Aug. 2023.** Appreciation letter from the program manager of NASA applied science water

resource program, Dr. Bradley Doorn, for hard-working in the NASA project “From 2D to 3D: Leveraging space-based sensors to track water depths and volume in wetlands of the Central Valley California”.

- **Jan. 2022** Certificate of Machine Learning class an online non-credit course authorized by Stanford University and offered through Coursera with a grade achieved 94.85%.
- **Sep. 2021** NVIDIA Deep Learning Institute Certificate of Competency for demonstrating competence in the completion of fundamentals of deep learning.
- **Oct. 2021** Certificate of completion of short course training of GNSS Interferometric Reflectometry (GNSS-IR) by UNAVCO.
- **Aug. 2018** Certificate of InSAR Processing and Time-Series Analysis using the InSAR Scientific Computing Environment (ISCE) by UNAVCO.

AWARDS & HONORS

- **Mar. 2020** First prize for outstanding oral presentation (12 minutes) in the Symposium held by Earth & Environment Department, FIU. Space-Based Monitoring of Wetland Water-Depth Changes with Sentinel-1 SAR Amplitude Observations Using Independent Selected Reliable Scatterers.
- **Jan. 2019** Second place winner in Three Minutes Thesis (3MT) speech competition in Department of Earth & Environment, FIU. Monitoring Surface Stability of Remediated Sinkholes in Western Central Florida using PSInSAR Technique and Sentinel-1 Observations.
- **Feb. 2019** Third place winner prize in 3MT competition held by College of Arts, Sciences and Education. Monitoring Surface Stability of Remediated Sinkholes in Western Central Florida using PSInSAR Technique and Sentinel-1 Observations.
- **Feb. 2019** Second prize for outstanding oral presentation (12 minutes) in the Symposium held by Earth & Environment Department, FIU. Space-based monitoring of wetland surface water levels using Sentinel-1 SAR backscattering observations.

TEACHING

- 2021 Spring. ESC1000L: Introduction to Earth Science Lab, Online and Remote.
- 2020 Fall. ESC1000L: Introduction to Earth Science Lab, Online.
- GLY 1010L: Physical Geology Lab, Remote.
- 2020 Spring and Summer. ESC1000L: Introduction to Earth Science Lab. Online.
- 2019 Fall. ESC1000L: Introduction to Earth Science Lab. In-person.

GUEST SPEAKER

- **Jun. 2026** Invited Instructor, Synthetic Aperture Radar Principles and Google Earth Engine Workshop, Yale Center for Geospatial Solutions
- **Mar. 2026.** Guest Lecturer for Loyola University Chicago on the topic of “Raster Data Model”.
- **Dec. 2025.** Oral presentation for Yale Center for Geospatial Solution, title: “*Applications of Remote Sensing Observations on Coastal Wetlands Degradation by Hurricanes and Sea Level Rise*”.
- **Dec. 2025.** Oral presentation for Yale Confluence research group. title: “*Understanding Patterns of Coastal Degradation to Develop Effective Strategies to Stabilize Coastlines*”
- **Oct. 2025.** Oral presentation for Yale Center for Natural Carbon Capture Symposium. “*Understanding Patterns of Coastal Degradation to Develop Effective Strategies to Stabilize Coastlines*”

- **Jan. 2025.** Invited talk by Hurricane Ecosystem Response Synthesis working group. Title: *“Space-based mapping of mangrove canopy height using multi-sensor observations and machine learning techniques”*
- **Jan. 2025.** Invited talk by FIU Climate AI Journal Club. Title: *“Space-based mapping of mangrove canopy height using multi-sensor observations and machine learning techniques”*
- **Oct. 2024.** Guest Lecturer for a remote sensing class at UC Merced. Title: *“Application of machine/deep learning models with multiple types of remote-sensing observations for wetland and agricultural flooding”*.
- **Nov. 2023.** Invited guest lecturer for Merced College. The title of the seminar is *“Basic Principles of Radar Remote Sensing and Applications on Water Resources of the bicoastal areas in the U.S.”*
- **Oct. 2023.** Invited seminar by University of Florida. The title is *“Innovations in Remote Sensing for Wetland Hydrology and Resource Management”*.
- **Aug. 2023.** Guest Lecturer for Secure Water Future program in UC Merced. The title is *“Space-based mapping of mangrove canopy height using multi-sensor observations and machine/deep learning techniques”*
- **Oct. 2022,** Guest lecturer in the class ‘*Spatial Modeling and Analysis*’ in UC Merced.
- **Oct. 2022,** Brown bag oral presentation for the Florida Coastal Everglades (FCE) titled ‘*Applications of radar remote sensing time-series observations on water level variations for the Everglades wetlands*’
- **Sep. 2022,** Guest lecturer in the class ‘*Remote Sensing of the Environment*’ in UC Merced.
- **May 2022.** Delivered a seminar at FIU to undergraduate students on a “*Biological Life at a Research University*” class, introducing students to potential academic career paths and providing insights into the research environment.