Tucker Hindle

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Education

MS | Civil Engineering, Florida Atlantic University, Boca Raton, Florida, August 2021.

Co-Advisors: Fred Bloetscher, PhD, PE and Hongbo Su, PhD, PSM
Thesis: Downscaling a GIS-Based Flood Risk Screening Tool at the Subwatershed Level
GPA: 4.0/4.0

BS | Geomatics Engineering, Florida Atlantic University, Boca Raton, Florida, May 2020.

Capstone Project: City of Clewiston Floodplain Management Plan
GPA: 3.91/4.00 (*summa cum laude*)

Certifications

FAA Part 107 Remote Pilot (sUAS Rating), July 2022.

Academic and Industry Experience

Affiliate Faculty, Department of Educational Leadership and Research Methodology, College of Education, Florida Atlantic University (FAU), Boca Raton, Florida. August 2022 to present. Instructor for the *Multidisciplinary Research Methods* courses, focusing on undergraduate research and mentoring.

Coordinator of the Undergraduate Research Program, FAU Laboratory Schools, Boca Raton, Florida. March 2022 to present.

GIS and Field Data Specialist, AECOM, Fort Lauderdale, Florida. July 2021 to March 2022. Provided geospatial data creation, editing, management, analysis, and map production. Supported unmanned aircraft systems (UAS) and GPS/GNSS field data collection efforts. Utilized geographic information systems (GIS), Python and R programming to prepare deliverables for engineering projects in transportation, water resources, environmental management, energy and communications infrastructure:

Client	Project Title
Florida Department of Transportation	District 4 Crash Clustering Analysis
Virginia Department of Rail and Public Transportation	Railroad and I-95 Right-of-Way Delineation
City of Miami Beach	Star Island 16-inch Force Main Replacement
National Aeronautics and Space Administration (NASA)	Kennedy Space Center Per- and Polyfluoroalkyl Substances (PFAS) Monitoring
U.S. Air Force	Tyndall Air Force Base Remedial Investigation
Transmission Developers, Inc.	Champlain Hudson Power Express (CHPE) Renewable Power Transmission Line
Invenergy	New York Harbor Marine/Terrestrial HVDC Power Cable Route Landing Point Assessment
U.S. Navy	Marine Corps Base Camp Pendleton Asset Evaluations
Naval Facilities Engineering Command (NAVFAC) Southwest	Naval Weapons Station Seal Beach Communications Infrastructure Database

Research Assistant, Center for Water Resiliency and Risk Reduction (Dr. Bloetscher), Laboratory for Remote Sensing and Hydrometeorology (Dr. Su), Boca Raton, Florida. August 2019 to July 2021.

- Managed, analyzed, and modeled geospatial and hydrologic data using ArcGIS Pro.
- Implemented machine learning techniques to model groundwater elevations using regression analysis and map impervious surfaces using multispectral image classification.
- Integrated hydrologic-hydraulic (H&H) modeling with GIS to develop a screening tool capable of generating accurate probabilistic inundation maps quickly while still detecting localized nuisance-destructive flood potential.
- Prepared maps and technical reports to support the development of watershed-based flood protection plans across Florida.
- Assisted the City of Clewiston, FL with advanced modeling tools for assessing stormwater risk and solutions to design a NFIP Community Rating System plan for floodplain management.

Undergraduate Research Fellow, Harbor Branch Oceanographic Institute, Boca Raton, Florida. January 2018 to June 2018. Utilized GIS software to georeference scanned land surveys and digitize historical positions of Florida's coastline. Calculated change rate statistics using the USGS Digital Shoreline Analysis System to analyze movement over time and investigate possible driving factors.

Instructional Experience

University Teaching

Courses Taught at Florida Atlantic University:

Course #	Title	Sections	Students
EDF 2910	Multidisciplinary Introduction to Research	2	34

GIS Instructor (affiliated with AECOM employment), Utilities Department, Town of Lake Clarke Shores, Florida. January 2022 to March 2022. Designed curriculum and led instruction for the Town of Lake Clarke Shores' utility engineers on how to effectively leverage geographic information systems, specifically ESRI ArcGIS Pro, for water and wastewater utilities data.

Graduate Student Mentor, Center for Water Resiliency and Risk Reduction, Florida Atlantic University, Boca Raton, Florida. May 2020 to July 2021. Guided incoming staff in the preparation and presentation of research findings. Led and met regularly with the watershed modeling team consisting of eight (8) master's students, two (2) PhD students, and one (1) post-doc at Florida Atlantic University as well as two (2) master's students at the University of Central Florida.

Research Activity

Publications in Peer-Reviewed Journals

Bloetscher, F., Rojas, G., Abbate, A., **Hindle, T.**, Huber, J., Jones, R., Liu, W., Meeroff, D., Mitsova, D., Nagarajan, S., Oglesby, G., Polsky, C., Su, H., Suarez, E., Teegavarapu, R., Weaver, J., Xie, Z., Yong, Y., & Zhang, C. (2021). "A Framework for a Subwatershed-Scale Screening Tool to Support Development of Resiliency Solutions and Flood Protection Priority Areas in a Low-Lying Coastal Community." *Journal of Geoscience and Environment Protection*, 9(10), 180–205.

Bloetscher, F., Abbate, A., Huber, J., Liu, W., Meeroff, D., Mitsova, D., Nagarajan, S., Polsky, C., Su, H., Teegavarapu, R., Xie, Z., Yong, Y., Zhang, C., Jones, R., Oglesby, G., Suarez, E., Weaver, J., Hoque, S. M. M., & **Hindle, T.** (2021). "Establishing a Framework of a Watershed-Wide Screening Tool to Support the Development of Watershed-Based Flood Protection Plans for Low-Lying Coastal Communities." *Journal of Infrastructure, Policy and Development*, 5(1): 1273.

Hindle, T., Su, H., Su, T., & Hindle, T. K. (2019). "Mapping Historical Changes in Florida's Coastline from 1875 to 2000." *Florida Atlantic Undergraduate Research Journal*, 8(Spring), 19–24.

Other Publications

Hindle, T. (2021). "An Examination of Downscaling a Flood Risk Screening Tool at the Watershed, Subwatershed, and Municipal Levels." M.Sc. thesis. Florida Atlantic University, Boca Raton, FL.

Hindle, T., Rodriguez, J., & Hamm, J. (2018). "Learning to Scan." *xyHt Magazine*, 5(August), 43–47.

Technical Reports

Contributed to several technical reports for the Watershed Master Planning Initiative Pilot Program funded by a $1.7 million grant (PI: Fred Bloetscher) from the Florida Division of Emergency Management (FDEM) and Federal Emergency Management Agency (FEMA). URL: cwr3.fau.edu/clearinghouse

- Watershed Master Planning Template
- Example Inland Watershed Master Plan: Caloosahatchee East/Clewiston Subwatershed
- Example Coastal Watershed Master Plan: Davie/Dania Beach Subwatershed
- Case Study: Caloosahatchee Watershed
- Case Study: Charlotte Harbor Watershed
- Case Study: Everglades Watershed

Presentations

Meeroff, D., Bloetscher, F., Su, H., Suarez, E., Yong, Y., **Hindle, T.**, & Weaver, J. "Watershed Master Planning Tools to Support National Flood Insurance Program and Community Rating System Goals for Lowering Insurance Premiums for At-Risk Communities." Presented at the Water Environment Federation (WEF) Stormwater Summit. Minneapolis, Minnesota. June 29th, 2022

Hindle, T. "A GIS-Based Approach to Flood Inundation Modeling in the Caloosahatchee Watershed." Presented at the University of Florida/Florida Region of the American Society for Photogrammetry and Remote Sensing (ASPRS) LiDAR Workshop, Virtual, October 22nd, 2020.

Bloetscher, F., Meeroff, D., Yong, Y., Su, H., **Hindle, T.**, & Oglesby, O. "Watershed Master Planning Initiative and Its State/National Impact." Presented to the Florida Division of Emergency Management, Bureau of Mitigation, February 18th, 2020.

Coursework, Projects, and Involvement

Coursework

Geomatics Engineering: Surveying, Geodesy, Geodetic Positioning, Terrestrial Laser Scanning, Photogrammetry, Remote Sensing, UAS, and GIS.

Spatial Data Science: Python (NumPy, Pandas, Matplotlib, and Scikit-Learn), Geospatial Databases (SQL/PostGIS), GIS Programming (Python/ArcPy), and Surveying Data Analysis (MATLAB).

Academic Projects

Utilized supervised object-based multispectral image classification to map impervious surfaces, 2021.

Modeled water table elevations from sparse groundwater monitoring wells and LiDAR-derived digital elevation model (DEM) data using regression analysis, 2021.

Developed several Jupyter Notebooks using the Python Data Science Stack, covering topics in exploratory data analysis (EDA), statistics and probability distributions, machine learning (regression analysis and classification), and deep learning, 2020.

Developed a spatial database in PostgreSQL to support freeway bottleneck analysis, 2021.

Created a digital elevation model using drone imagery and Metashape photogrammetry software for volumetric calculations of a reservoir, 2020.

Projected operability levels at Port Everglades over time during potential sea level rise scenarios using ArcGIS Pro, 2020.

Mapped land surface temperature from Landsat 8 thermal bands and Normalized Difference Vegetation Index (NDVI) using ArcGIS Desktop, 2020.

FAU Student Organizations

Member, Data Science and Machine Learning Club, 2021.

President, American Society for Photogrammetry and Remote Sensing (ASPRS) Student Chapter, 2018 – 2021.

Member, Florida Surveying and Mapping Society (FSMS) Student Chapter, 2018 – 2021.

Collegiate Athletics

NCAA Division I Florida Atlantic University Cross Country, 2018.

NCAA Division II Lee University Cross Country and Track & Field, 2016 – 2017.

Honors and Awards

Faculty Award for Outstanding Academic Achievement, FAU Department of Civil, Environmental and Geomatics Engineering, 2020.

Faculty Award for Outstanding Leadership, FAU Department of Civil, Environmental and Geomatics Engineering, 2020.

Undergraduate Researcher of the Year (College of Engineering & Computer Science Awardee), FAU Office of Undergraduate Research and Inquiry, 2019.

Indian River Chapter of the Florida Surveying and Mapping Society Scholarship, 2019.

Outstanding Student (College of Engineering), FAU Northern Campus Achievement Award, 2019.

FAU Kelly Family Foundation Undergraduate Research Fellowship in Coastal Affairs, 2018.

Florida Surveying and Mapping Society [State-Level] Scholarship, 2018.

Palm Beach Chapter of the Florida Surveying and Mapping Society Carl Miller Memorial Scholarship, 2018.

Keith and Schnars, P.A. [Civil/Geomatics Engineering] Scholarship Endowment, 2018.