

**UF/IFAS AI AND DATA
SCIENCE SEMINAR
SERIES**

**WEDNESDAY, APRIL 25, 2025
12:00P.M. - 01:00P.M.**

**ZOOM:
<https://go.ufl.edu/5g8w7ep>**

**AI-Driven Approaches for
Hydrological Forecasting and
Flood Susceptibility Analysis in
Florida**

This research explores the potential of artificial intelligence to enhance the forecasting of water resource variables at both field and regional scales. Accurate prediction of hydrological and water quality parameters is critical for effective water resource management, particularly in regions like Florida, where water systems are integral to the environment and economy. Florida's hydrology characterized by an extensive surface water network and the highly productive Floridan Aquifer offers a complex but essential setting for such studies. In one study, a statewide analysis was conducted to evaluate the performance of four advanced deep learning models using 23 years (2001–2023) of data from 45 surface water stations and 45 groundwater observation wells. The findings offer key insights into the application of deep learning for hydrological forecasting, with broad implications for water resource planning in Florida and comparable regions. In another study, flood susceptibility mapping was improved through hybrid machine learning and deep learning approaches. This work employed an explainable AI framework using SHapley Additive exPlanations (SHAP) to interpret model outputs and assess variable contributions to flood risk. Collectively, this research demonstrates the promise of advanced AI methodologies in addressing complex water resource challenges and presents Florida-based case studies as illustrative examples.



**DR. GOLMAR
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BIO

Dr. Golmar Golmohammadi is an Assistant Professor leading the Hydrology and Water Quality Lab at RCREC since 2022. Her integrated research and extension program focuses on the application of hydrologic modeling and developing sustainable water resources, by adopting appropriate water management methods and implementing best management practices to sustain water resources and production while protecting water quality.