Soil, Water, and Ecosystem Sciences Department (SWESD) – University of Florida (UF) - Modeling of Soil and Environmental Systems Award

This award is given annually to an outstanding candidate, a graduate student in the Soil, Water, and Ecosystem Sciences Department (SWESD) UF; or student enrolled in the graduate program in the School of Natural Resources and Environment (SNRE) w/ Major Advisor or Co-Advisor in SWESD) in recognition of cutting-edge research in modeling of soil and environmental systems and pedometrics. The awardee will be recognized with an award certificate and $250 award.

We invite research applications in soil and environmental sciences focused on:

- Artificial Intelligence, AI (machine learning, ML, and deep learning, DL algorithms)
- Development of new modeling approaches
- Digital soil mapping and modeling
- Digital twins
- Pedometrics-econometrics approaches (e.g., Stochastic Frontiers Analysis, Data Envelopment Analysis)
- Ensemble modeling
- Mechanistic, process-based simulation modeling
- Hybrid modeling (Bayesian, geostatistics, statistics, AI, and other methods)
- Meta-analysis

- BIGDATA analysis using massive geospatial environmental datasets
- Proximal soil sensing (visible, near-infrared or mid-infrared spectroscopy), remote sensing, soil moisture sensors, UAV and other sensing systems applied in soil and environmental sciences.

The award is open to graduate students in SWESD or SNRE, UF. Self-nominations and nominations by faculty members are invited. To be considered for the award please submit the following:

- Contact address of candidate (incl. email and phone)
- Curriculum vitae of candidate
- Essay of the candidate describing the implemented and completed research in soil and environmental modeling / pedometrics approach (maximum of 1 page)
- Two letters of nomination/recommendation (e.g., Major Advisor, faculty co-advisors)
- Provide pdfs of peer-reviewed published journal articles, book chapters that demonstrate the completion of the research; and or pdf of completed dissertation.

Each candidate will be evaluated on the following criteria:

- *Innovation* to apply quantitative methods (AI, statistical, geostatistical, geospatial, temporal, or spatio-temporal modeling techniques) in soil-environmental sciences
- *Novelty* of research to investigate a soil-environmental problem of high significance
- *Cutting edge modeling* using Artificial Intelligence (machine learning and deep learning algorithms)
- *Application* of digital methods including GIS, remote sensing, proximal soil sensing, remote sensing; and/or development of new quantitative methods
- *Complexity and difficulty level* of applied methods
- *Clarity* of documentation of research
- *Quantification of* uncertainty and quality to assess/predict soil-environmental properties; ecosystem processes, functions, and/or services
- *Interpretation* of results and novel conclusions.

Sponsor: Pedometrics, Landscape Analysis and GIS Laboratory, SWED, UF; Dr. Sabine Grunwald

Nomination submission deadline: October 2, 2023.

Award funds: $250 award.