

PhD Graduate Assistantship (Fall 2023): Develop and implement an Artificial Intelligence driven assessment framework for soil health indicators -Nikolaos Tziolas

The Southwest Florida Research and Education Center (SWFREC) in Immokalee is dedicated to interdisciplinary fundamental research in the field of agricultural sciences with a recent focus on Artificial Intelligence (AI) to build a tech-driven agricultural domain. <https://swfrec.ifas.ufl.edu>

Applicants are invited for a fully funded three-year PhD graduate assistantship at SWFREC, University of Florida Soil Science A.I. program, within the Institute of Food and Agricultural Sciences, Department of Soil, Water, and Ecosystems Sciences. The assistantship is available Fall 2023 semester and includes three years of full tuition, stipend, and health insurance.

Background information

To safeguard natural capital of soils, in a continuously volatile landscape of reduced resources and environmental changes and pave the way for the development of evidence-based conservation recommendations for policies and sustainable services for relevant economic operators, it is essential to improve capacities for soil health monitoring by adopting multidimensional and integrated approaches. In this context, a wide range of tools is becoming available that enable us to improve capacities for soil health monitoring. Novel and potentially low-cost in situ emerging technologies (photonics light-based systems, UAVs and IoT sensor networks) are rapidly maturing and becoming viable alternatives to costlier traditional solutions for soil monitoring and mapping. Equally, advanced Artificial Intelligence (AI) and processing techniques are required to fully exploit raw data and forge a path for a diverse spectrum of applications in soil science, such as real-time measurements and large-scale mapping. These novel approaches need to be tested in the field, along with the full chain of interconnected systems to lead the way for the development of tailored services aimed at farmers and cooperatives.

Position description

The successful candidate is expected to contribute to the collection and analysis of diverse in situ datasets (e.g., hyperspectral), the development of cutting-edge AI algorithms (e.g., deep learning, edge computing) and processing techniques to fully exploit raw data and forge a path for a diverse spectrum of applications in soil science, such as real-time measurements, mapping and informed decision making (e.g., variable rate fertilization). Moreover, the candidate is expected to disseminate the research findings at relevant scientific conferences and symposiums, as well as to peer-reviewed journal articles.

Required Qualifications

- Relevant Master's degree (e.g., agricultural sciences, computer science, remote sensing, agricultural and biological engineering, electrical engineering, mathematics, or closely related fields);
- Good programming skills in (e.g., R and/or Python);
- Good English verbal and written skills are required, (non-native English speakers please check for TOEFL/IELTS [requirements](#)).

Preferred Qualifications

- Prior experience in quantitative skills (data analytics and machine and/or learning) is highly desired, but candidates from other disciplines will be considered based on their merits and potential;
- Experience in cloud computing and analysing large data sources.

Application process information

Interested candidates are required to contact Dr. Nikolaos Tziolas at ntziolas@ufl.edu and provide a cover letter with their research interests and experiences (1 page), curriculum vitae as well as contact information for two references (email title "Inquiry about PhD Soil AI"). The review of applications starts immediately and will continue until the position is filled. The shortlisted candidates will be interviewed. The selected candidate is required to submit a formal application to the Department of Soil, Water, and Ecosystem Sciences graduate program <https://soils.ifas.ufl.edu/academics/graduate-studies/apply/> prior to April 16, 2023.

For facts about the University of Florida and its core values please see [here](#).