

Opportunity Title: USDA-ARS Postdoctoral Fellowship for AI, ML, and Big Data Management

Opportunity Reference Code: USDA-ARS-SE-2023-0109

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-SE-2023-0109

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A complete application consists of:

- An application
- Transcripts – [Click here for detailed information about acceptable transcripts](#)
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list.
- Two educational or professional recommendations

All documents must be in English or include an official English translation.

Application Deadline 6/21/2024 11:59:00 PM Eastern Time Zone

Description *Applications are reviewed on a rolling-basis.

ARS Office/Laboratory and Location: Two research opportunities are currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), within the Genetics and Sustainable Agriculture Research Unit located in Mississippi State, Mississippi.

The Agricultural Research Service (ARS) is the U.S. Department of Agriculture's chief scientific in-house research agency with a mission to find solutions to agricultural problems that affect Americans every day from field to table. ARS will deliver cutting-edge, scientific tools and innovative solutions for American farmers, producers, industry, and communities to support the nourishment and well-being of all people; sustain our nation's agroecosystems and natural resources; and ensure the economic competitiveness and excellence of our agriculture. The vision of the agency is to provide global leadership in agricultural discoveries through scientific excellence.

Research Project: The goal of the USDA-ARS Genetics and Sustainable Agriculture Research Unit is to expand knowledge of the genetics and molecular processes of crops, of the biology of selected crop pests, of sustainable agricultural crop production practices, and of sustainable management of swine effluent and poultry litter. This knowledge will be used to develop improved strategies and practices that will improve crop genetics and breeding, pest control, sustainable crop production, and safe and efficient use of waste from swine and poultry.

The selected participants will spend time at this research unit (<https://www.ars.usda.gov/southeast-area/mississippi-state-ms/crop-science-research-laboratory/genetics-and-sustainable-agriculture-research/>) or participate remotely, if necessary, for their training. The goal of this research opportunity is to develop a big data management system for in-field crop analytics using multisource remote sensing, machine



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learning and high-performance computing.

Develop big data management schemes for in-field crop analytics using multisource remote sensing images, especially UAV-based images, to process and analyze data and interpret the results using machine learning algorithms based on benchmark statistical analysis in conjunction with meteorological observations and in-situ data collected from crop science experiments. The research will include data integration to prototype a remote sensing big data management system through high-performance computing and algorithm integration to develop a crop science user-friendly modeling system using pattern recognition and machine learning algorithms.

Participants will focus on one of the following aspects of the project: data integration development OR algorithm integration development.

Learning Objectives: The selected participants will have the opportunity to learn diverse aspects of data and algorithm integrations for crop science research studies, and to develop speaking, writing, and networking skills through the research processes.

The participants will actively engage in the solving of crop science questions through agricultural information technologies that will lead to first author publications. They will have the opportunity to present their data and results at regional and national meetings involving researchers, regulatory officials, and stakeholders.

Mentor(s): The mentor for this opportunity is Dr. Yanbo Huang, Agricultural Engineer (yanbo.huang@usda.gov). If you have questions about the nature of the research, please contact the mentor.

Anticipated Appointment Start Date: 2023. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for one year, but can be renewed upon recommendation of the ARS mentor, and is contingent on the availability of funds.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant(s) will receive a monthly stipend commensurate with educational level and experience.

Citizenship Requirements: This opportunity is available to U.S. citizens, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen applicants should refer to the [Guidelines for Non-U.S. Citizens Details](#) page of the program website for information about the valid immigration statuses that are acceptable for program participation.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and ARS. Participants do

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not become employees of USDA, ARS, DOE or the program administrator, and there are no employment-related benefits. However, this position requires a pre-employment check and a full background investigation. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

This is an equal opportunity program open to all qualified individuals without regard to race, color, age, sex, religion, national origin, mental or physical disability, genetic information, sexual orientation, or covered veteran's status.

Questions: Please visit our [Program Website](#). After reading, if you have additional questions about the application process please email ORISE.ARS.Southeast@ornl.gov and include the reference code for this opportunity.

Qualifications The qualified candidate should have received a doctoral degree in one of the relevant fields of study, or be currently pursuing the degree with completion before start of appointment.

- Eligibility Requirements**

- **Degree:** Doctoral Degree.
 - **Discipline(s):**
 - **Computer, Information, and Data Sciences** ([7](#) 👁)
 - **Earth and Geosciences** ([1](#) 👁)
 - **Engineering** ([4](#) 👁)
 - **Life Health and Medical Sciences** ([2](#) 👁)