

**Opportunity Title:** USDA-ARS Research Opportunity in AI and Machine Learning for Agricultural Science

**Opportunity Reference Code:** USDA-ARS-2022-0013

**Organization** U.S. Department of Agriculture (USDA)

**Reference Code** USDA-ARS-2022-0013

**How to Apply** *Connect with ORISE...on the GO!* Download the new ORISE GO mobile app in the [Apple App Store](#) or [Google Play Store](#) to help you stay engaged, connected, and informed during your ORISE experience and beyond!

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** 9/30/2022 3:00:00 PM Eastern Time Zone

**Description** **\*Applications are reviewed on a rolling basis and this posting could close before the deadline.**

**ARS Office/Lab and Location:** Multiple bachelor's level research opportunities are currently available with research laboratories located across the US with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS).

This research opportunity is part of the SCINet and Artificial Intelligence (AI) Center of Excellence (CoE) Fellowship program at ARS. All fellows will spend time at headquarters in Beltsville, MD for some of their training, but will be based in other USDA ARS research labs for more specific training. These fellowships offer research opportunities for motivated participants interested in solving agricultural- and natural resource-related problems at a range of spatial and temporal scales, from the genome to the continent, and sub-daily to evolutionary time scales, as well as metadata enhancement for data discovery. One of the goals of the AI CoE initiative is to develop and apply new technologies, including artificial intelligence and machine learning (ML), to help solve complex agricultural problems that also depend on collaboration across scientific disciplines and geographic locations. In addition, many of these technologies rely on the synthesis, integration, linkage, and analysis of large, diverse datasets that benefit from the high-performance computing (HPC) capabilities provided by the USDA ARS SCINet Program. The objective of these opportunities is to facilitate high-impact agricultural research and the participants' professional growth via collaborative research, professional mentoring, and training in specific AI, ML, statistical, and/or software development techniques required for successful completion of the research goals for the fellowship.

**Research Project:** Scientific research in the USDA ARS encompasses a broad range of exciting, high-impact research areas, including human nutrition, food safety and quality, animal and crop production and protection, natural resource management, and sustainable agricultural systems. In all of these research areas, there is increasing need to



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leverage large datasets, high-performance computing hardware and algorithms, and cutting-edge methods from artificial intelligence and machine learning. Fellowship participants will work closely with a mentor to contribute to a major research project within one or more of ARS's main research areas, with a focus on applying modern computational tools to help answer key research questions.

**Learning Objectives:** Selected participants will have the opportunity to learn a range of computational skills needed for modern agricultural research and data analyses in an HPC or cloud computing environment. Under the guidance of their mentor, each participant will also have opportunities to contribute to AI CoE initiatives and projects. Participants will gain perspective, experience, and guidance to help them plan for the next stage of their careers.

**Mentor(s):** The mentor will be selected based on the Fellow's specific research interest and geographic location. If you have questions about the nature of the research, please contact Dr. Brian Stucky, AI Computational Biologist with the USDA ARS AI-COE ([brian.stucky@usda.gov](mailto:brian.stucky@usda.gov)).

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

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

**Level of Participation:** The appointment is full time, but arrangement for reduced hours to accommodate coursework, etc., is possible if agreed to and supported by the participant's mentor.

**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 not become employees of USDA, ARS, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

**Questions:** Please visit our [Program Website](#). After reading, if you have additional questions about the application process please email [USDA-ARS@orau.org](mailto:USDA-ARS@orau.org) and include the reference code for this opportunity.

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**Qualifications** The qualified candidate must have received a bachelor's degree in a relevant field before the start date of their appointment.

Preferred skills:

- Proficiency in at least one programming language (Python and/or R preferred)
- Basic knowledge of applied statistics
- Experience working with databases and large datasets
- Knowledge of a relevant scientific discipline
- Ability to effectively collaborate and work with others
- Strong oral and written communication skills

- Eligibility Requirements**
- **Degree:** Bachelor's Degree.
  - **Discipline(s):**
    - **Computer, Information, and Data Sciences** ([8](#) 👁)
    - **Earth and Geosciences** ([1](#) 👁)
    - **Environmental and Marine Sciences** ([5](#) 👁)
    - **Life Health and Medical Sciences** ([16](#) 👁)
    - **Mathematics and Statistics** ([5](#) 👁)