Opportunity Title: USDA-ARS SCINet Postdoctoral Fellowship in Floral Resources Mapping Using Robots, UAVs, and Satellites
Opportunity Reference Code: USDA-ARS-SCINet-2026-0436

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-SCINet-2026-0436

How to Apply ***To submit your application, scroll to the bottom of this opportunity and click APPLY.***

A complete application consists of:

- An application
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. 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.

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Application Deadline 5/21/2027 3:00:00 PM Eastern Time Zone

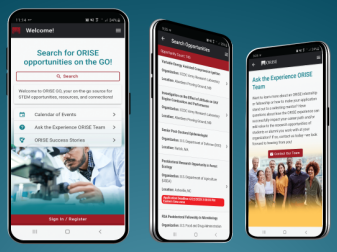
Description ***Applications are reviewed on a rolling-basis and applications may close before the deadline.**

ARS Office/Lab and Location: A postdoctoral research opportunity is available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), Forage and Range Research in Logan, Utah.

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.

ARS's SCINet Research Participation Program offers research opportunities to motivated postdoctoral fellows interested in solving agriculture-related problems at a range of spatial and temporal scales, from the genome to the continent, and sub-daily to evolutionary time scales. One of the goals of the SCINet Initiative is to facilitate the use of research computing methods to help solve complex agricultural problems that also depend on collaboration across scientific disciplines and geographic locations. In particular, these fellowships focus on research projects that can benefit from high-performance computing (HPC) resources. Fellows will have access to training resources to help build computational literacy, such as in data science, machine

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learning, bioinformatics, and geospatial analyses on SCINet's supercomputers. Additional funds are available for supplies and travel essential for the fellow's research.

Research Project: You will have the opportunity to gain experience in the development of an advanced platform for monitoring, analyzing, and reporting floral resource dynamics across large landscapes with a pilot area in western rangelands. This platform will leverage geotagged field images collected using smartphones and robotic platforms, high-resolution data from unoccupied aerial vehicles (UAVs), and multispectral satellite imagery (PlanetScope and Sentinel-2) to produce near-real-time, pixel-level maps of floral blooms important for pollinator health and agricultural sustainability. Under the guidance of a mentor, you will use high-performance computing resources to address key challenges such as data shift across spatial and temporal scales. In this particular project, you will learn how to:

1. Employ deep learning architectures and advanced multivariate regression models to integrate heterogeneous datasets to identify species-specific floral coverage, track bloom dynamics, and analyze trends over time;
2. Participate in the development of an interactive web-based interface for real-time visualization of floral resource maps, a centralized repository for UAV and satellite imagery, and tools for generating retrospective analyses of historical bloom patterns, and;
3. Research to addresses gaps in the monitoring of floral resources by researching scalable deep-learning methods that will translate multiple data streams into sound information for guiding pollinator conservation, habitat restoration, and sustainable agriculture, ensuring measurable impacts on biodiversity and food security.

This project will help in laying the foundations of a pilot smartphone app that will streamline community-contributed field data to build an ever-expanding library of images that clearly document the timing of blooms so that phenological correlations with the satellite imagery are transparent and unbiased.

Learning Objectives: Under the guidance of a mentor, you will be exposed to multiple training opportunities as well as topic-specific workshops related to high-throughput phenotyping of floral resources that are being implemented at the Forage and Range Research (FRR). You will have the opportunity to take in-person and online courses in topics such as planning UAV flights, conducting autonomous missions with a modular and autonomy-ready field robot, extraction of feature of interest from UAV imagery, and using cloud-based archives and geoprocessing platforms. Active exposure to statistical learning algorithms and data analytics using R, Python, and SQL will benefit you as well. You will also learn collaboration skills through active interaction with scientists and technical staff at the FRR as well as workshop and group experiences.

Mentor(s): The mentor for this opportunity is Alexander Hernandez, alexander.hernandez@usda.gov. If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: 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 for a second year upon recommendation of the mentor and ARS.

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Level of Participation: The appointment is full-time.

Participant Stipend: The participant(s) will receive a monthly stipend commensurate with educational level and experience. **The current stipend range for this opportunity is $100,000 - $110,000/year plus a supplement to offset health insurance costs.** Funding is also available to help offset relocation costs, if applicable.

Citizenship Requirements: This opportunity is available to U.S. citizens only.

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 ORISE.ARS.SCINet@orau.org and include the reference code for this opportunity.

Qualifications The qualified candidate should be currently pursuing or have received a doctoral degree in the one of the relevant fields.

Preferred skills:

- Experience creating, modifying, and analyzing geospatial datasets in both vector and raster formats.
- Experience with satellite remote sensing time (passive and/or active) series such as Landsat, MODIS, or Sentinel.
- Experience developing, testing, and refining machine learning models.
- Experience developing geospatial data analytics workflows using R, Python, or SQL.
- Excellent written and oral communication skills.
- Experience in team and collaborative scientific environments.
- Experience developing HPC workflows.

Stipend $100,000.00 – $110,000.00 Yearly

Point of Contact Janeen

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (5 👁)
  - **Earth and Geosciences** (3 👁)
  - **Engineering** (1 👁)

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- **Environmental and Marine Sciences** (6 👁)
- **Life Health and Medical Sciences** (10 👁)
- **Mathematics and Statistics** (3 👁)
- **Social and Behavioral Sciences** (1 👁)