Opportunity Title: USDA-ARS Research Opportunity in Spatiotemporal Epidemiology to Forecast Flavivirus Transmission Dynamics
Opportunity Reference Code: USDA-ARS-P-2023-0087

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-P-2023-0087

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
- 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.

Application Deadline 7/21/2023 11:59:00 PM Eastern Time Zone

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

ARS Office/Lab and Location: A research opportunity is currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), located in Manhattan, Kansas. **This opportunity may be either at an ARS facility or remote.**

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: This research opportunity will support the ARS project "Integrating geospatial artificial intelligence (GeoAI) and spatiotemporal epidemiology to forecast flavivirus transmission risk across the Continental US". Insect-vectored flaviviruses cause some of the most dangerous and costly illnesses worldwide, including West Nile, dengue, yellow fever, and Zika. This fellowship offers an opportunity to help solve agricultural problems related to livestock and animal diseases through the analysis and visualization of genetic and environmental data across a range of spatial and temporal scales. In addition, the project will 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 (https://scinet.usda.gov/), including the Atlas supercomputer at Mississippi State University (https://www.hpc.msstate.edu/computing/atlas/). The objective of this opportunity is to facilitate high-impact agricultural science and the participants' professional growth via collaborative research, professional mentoring, and training in geospatial analysis, genomics, and GeoAI techniques. In addition to working with the SCINet Program, the participant will actively engage with the USDA National Bio- and Agro-Defense Facility (https://www.usda.gov/nbaf) and have the opportunity to be a part of the Mississippi State University Quantitative Ecology & Spatial Technologies (QuEST) Laboratory (https://www.quest.fwrc.msstate.edu/).

Scientific research for this fellowship will encompass a broad range of exciting, high-impact research areas, including genomics, epidemiology, and GeoAI. In all of these research areas, there is an increasing need to leverage large geospatial datasets, high-performance computing hardware and algorithms, and cutting-edge methods from artificial intelligence and machine learning. The selected fellowship participant will work closely with mentors to co-lead a major research project within the field of disease ecology with a focus on applying modern computational tools to help answer key agricultural research questions related to flavivirus distribution and transmission.

Learning Objectives: The selected participant 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 mentors, the participant will also have opportunities to contribute to other ARS initiatives and projects, including the SCINet program. The participant will gain perspective, experience, and guidance to help plan for the next stage of their career.

Mentor(s): Mentors for this opportunity are Dr. John Humphreys and Dr. Brian Stucky. Please contact Dr. John Humphreys (John.Humphreys@cdc.hhs.gov) if you have questions about this opportunity.

Anticipated Appointment Start Date: August 2023. 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 will receive a monthly stipend commensurate with educational level and experience.

Opportunity Title: USDA-ARS Research Opportunity in Spatiotemporal Epidemiology to Forecast Flavivirus Transmission Dynamics
Opportunity Reference Code: USDA-ARS-P-2023-0087

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.

The successful applicant(s) will be required to comply with Environmental, Safety and Health (ES&H) requirements of the hosting facility, including but not limited to, COVID-19 requirements (e.g., facial covering, physical distancing, testing, vaccination).

Questions: Please visit our Program Website. After reading, if you have additional questions about the application process, please email ORISE.ARS.Plains@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate does not require experience specific to viruses, disease, or biology but should have received a master's or doctoral degree in one of the relevant fields, or be currently pursuing one of the degrees with completion before the appointment start date.

Preferred Skills:

- Programming and modeling experience are highly desired
- Proficiency in geospatial analysis using at least one programming language (R and/or Python)
- Proficiency in phylogenetics, genetic analysis, genomics, or landscape genetics
- Proficiency in quantitative population ecology
- Knowledge of epidemiological analysis or disease modeling
- Ability to effectively collaborate and work with others
- Strong oral and written communication skills

Point of Contact

Janeen

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Master's Degree or Doctoral Degree.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (5 👁)
  - **Earth and Geosciences** (21 👁)
  - **Environmental and Marine Sciences** (14 👁)
  - **Life Health and Medical Sciences** (11 👁)
  - **Mathematics and Statistics** (11 👁)
  - **Other Non-Science & Engineering** (1 👁)

Opportunity Title: USDA-ARS Research Opportunity in Spatiotemporal Epidemiology to Forecast Flavivirus Transmission Dynamics
Opportunity Reference Code: USDA-ARS-P-2023-0087

- **Social and Behavioral Sciences** (1 👁)