Opportunity Title: USDA-ARS Postdoctoral Fellowship for Understanding Pathogenesis of High Consequence Pathogens Using Advanced Machine Learning

Opportunity Reference Code: USDA-ARS-P-2023-0162C

Organization	U.S. Department of Agriculture (USDA)
Reference Code	USDA-ARS-P-2023-0162C
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	7/5/2024 3:00:00 PM Eastern Time Zone
Description	***Applications may be reviewed on a rolling-basis.**

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 Frederick, Maryland.

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: We are seeking doctoral-level (Ph.D., M.D., D.V.M.) scientists passionate about researching zoonotic and emerging diseases that impact human and animal health. Under the guidance of a mentor, the Postdoctoral fellows will conduct advanced machine learning-based research to analyze histopathology slides from high-consequence viral infections,
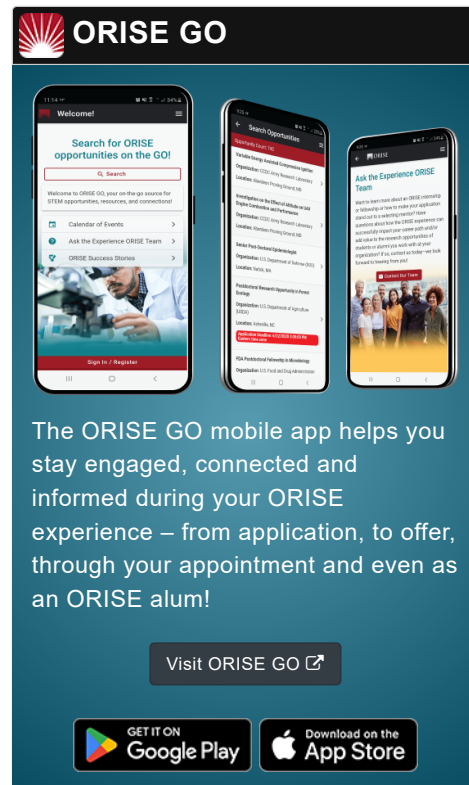
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such as Crimean Congo Hemorrhagic Fever, Nipah, Hendra, Ebola, and Marburg viruses, with the ultimate goal of understanding mechanisms of pathogenesis.

Learning Objectives: Fellows will learn to build pipelines for training machine learning models and slide analysis. Fellows will gain expertise in histopathology, and machine learning using TensorFlow, U-net, and QuPath. Under the guidance of a mentor, fellows will be expected to develop a scientific project and publish in peer-reviewed publications. As a result of participating in this fellowship, participants will enhance. thier:

1. Knowledge of artificial intelligence (AI) platforms: how AI works, limitations, and potential advantages and bias
2. Basic understanding of pathogenesis of filoviruses, henipahviruses and other high consequence pathogens
3. Ability to process samples for pathology.
4. Knowledge of special stains
5. Knowledge of the challenges of formalin fixation and strategies to recover epitopes following prolonged fixation
6. Ability to prepare data for scientific presentation (i.e., abstracts, posters, presentations and papers)

Projects will be jointly performed with Dr. C. Paul Morris at the Integrated Research Facility at Fort Detrick in Frederick Maryland. Fellows may be required to undergo background investigations to obtain access to facilities.

Mentor(s): The mentor(s) for this opportunity is Lisa Hensley (lisa.hensley@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 upon recommendation of ARS and is contingent on the availability of funds.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant 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

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(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.Plains@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate should have received a doctoral degree in one of the relevant fields or be currently pursuing the degree with completion before start of appointment. Degree must have been received within the past three years.

Preferred Skills:

- Coding experience and an interest in pathology, infectious diseases, and machine learning.

Eligibility Requirements

- **Degree:** Doctoral Degree received within the last 36 months or currently pursuing.
- **Discipline(s):**
  - **Communications and Graphics Design** (6 👁)
  - **Computer, Information, and Data Sciences** (17 👁)
  - **Life Health and Medical Sciences** (17 👁)
  - **Mathematics and Statistics** (11 👁)
- **Age:** Must be 18 years of age

Affirmation

I affirm that:

I am a US Citizen, OR

I am a non-US citizen currently living in the United States