Opportunity Title: FDA Artificial Intelligence and Machine Learning Fellowship
Opportunity Reference Code: FDA-CDRH-2024-0020

Organization U.S. Food and Drug Administration (FDA)

Reference Code FDA-CDRH-2024-0020

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

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
- One educational or professional recommendation

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

If you have questions, send an email to ORISE.FDA.CDRH@orau.org. Please include the reference code for this opportunity in your email.

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Description ***Applications will be reviewed on a rolling-basis.**

FDA Office and Location: A research opportunity is available within the Center for Devices and Radiological Health (CDRH), Office of Science and Engineering Laboratories (OSEL), Food and Drug Administration (FDA), located at Silver Spring, Maryland, **and is a hybrid opportunity.**

Research Project: Evaluating artificial intelligence applications in medical devices: Fellows will participate in research led by prominent OSEL scientists to learn how to develop regulatory science tools (https://www.fda.gov/medical-devices/science-and-research-medical-devices/catalog-regulatory-science-tools-help-assess-new-medical-devices).

Areas of interest include the following: Whole-slide image quality evaluation | Synthetic imaging data for training and testing algorithms | Evaluation of AI-enabled devices for image segmentation, multimodal ML, and multi-class classification | Bias, reproducibility, robustness, and generalizability of AI techniques| Assessment of multimodal biomarkers and uncertainty quantification for adaptive trials | Large language model (language and vision) assessment.

Learning Objectives:

1. Learn large scale software development (e.g., Python including scientific libraries: NumPy, SciPy, Scikit-learn, etc.) for traditional and deep-learning-based ML methods (CNN, GAN, etc.).
2. Learn to develop test methods for assessing AI/ML model performance

using large-scale data sets.
3. Learn the ability to conduct high-impact research and present findings to the scientific community, as well as gain skills in scientific writing and documentation of research processes and outcomes.

Anticipated Appointment Start Date: 2024. 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 FDA and is contingent on the availability of funds.

Level of Participation: The appointment is full time.

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.

This program, administered by ORAU through its contract with the U.S. Department of Energy to manage the Oak Ridge Institute for Science and Education, was established through an interagency agreement between DOE and FDA. The participant will receive a monthly stipend commensurate with educational level and experience. Proof of health insurance is required for participation in this program. Participants do not become employees of FDA, DOE or the program administrator, and there are no employment-related benefits.

Completion of a successful background investigation by the Office of Personnel Management is required for an applicant to be on-boarded at FDA. OPM can complete a background investigation only for individuals, including non-US Citizens, who have resided in the US for a total of three of the past five years.

FDA Ethics Requirements

If an ORISE Fellow, to include their spouse and minor children, reports what is identified as a Significantly Regulated Organization (SRO) or prohibited investment fund financial interest in any amount, or a relationship with an SRO, except for spousal employment with an SRO, and the individual will not voluntarily divest the financial interest or terminate the relationship, then the individual is not placed at FDA. For additional requirements, see FDA Ethics for Nonemployee Scientists.

FDA requires ORISE participants to read and sign their FDA Education and Training Agreement within 30 days of his/her start date, setting forth the conditions and expectations for his/her educational appointment at the agency. This agreement covers such topics as the following:

- Non-employee nature of the ORISE appointment;
- Prohibition on ORISE Fellows performing inherently governmental functions;

- Obligation of ORISE Fellows to convey all necessary rights to the FDA regarding intellectual property conceived or first reduced to practice during their fellowship;
- The fact that research materials and laboratory notebooks are the property of the FDA;
- ORISE fellow's obligation to protect and not to further disclose or use non-public information.

Qualifications

The qualified candidate should be pursuing or have received a master's or doctoral degree in one of the relevant fields (Engineering, Physics, Mathematics, Statistics, Computer Science or similar). Degree must have been received within the past five years or be currently pursuing.

Preferred skills:

- An eagerness to solve technical challenges systematically with experimental and computational approaches.

Eligibility Requirements

- **Degree:** Master's Degree or Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (7 👁)
  - **Engineering** (6 👁)
  - **Mathematics and Statistics** (5 👁)
  - **Physics** (1 👁)

Affirmation

I am a U.S. citizen, or I have lived in the United States for at least 36 out of the past 60 months. (36 months do not have to be consecutive.)
and
I have read the FDA Ethics Requirements.