

# FDA-ORISE Research Fellow in Regulatory Science for Continual Learning Machine Learning Systems

**HELP ADVANCE PUBLIC HEALTH BY ACCELERATING ACCESS TO INNOVATIVE IMAGING** The FDA, an agency within the U.S. Department of Health and Human Services, promotes public health by assuring the safety and effectiveness of drugs, vaccines and medical devices. The Office of Science and Engineering Laboratories (CDRH/OSEL) accelerates patient access to innovative, safe and effective devices through best-in-the-world regulatory science.

**JOIN A TEAM LEADING INNOVATION IN IMAGE SCIENCE FOR REGULATORY EVALUATION** The Division of Imaging, Diagnostics, and Software Reliability (DIDSR) develops methods for evaluating emerging medical imaging systems. Our research programs directly impact FDA's regulatory assessments in areas including **\* AI/ML \* WSI and digital pathology \* Extended-reality (AR/VR) devices \* Clinical trial design \* In silico trials \* Imaging physics**. More information: <https://www.fda.gov/about-fda/cdrh-offices/office-science-and-engineering-laboratories>.

## ASSIGNMENT

Continual learning in machine learning is poised to bring changes to the speed at which the healthcare industry will adapt to the changes in patient management. Research in this area is still at a nascent stage with several recent research publications aiming towards solving the Plasticity-Stability dilemma. This is a critical time for the agency to develop performance assessment strategies to evaluate the safety and effectiveness of these continual learning algorithms. In this project, our goal is to develop an evaluation framework for continual learning algorithms specifically for segmentation and classification tasks. The research fellow will play a key role in developing and evaluating AI/ML algorithms.

## JOB RESPONSIBILITIES

- Conduct research to answer emerging evaluation challenges in medical imaging and diagnostics systems. • Contribute to the Agency's regulatory efforts by providing technical expertise.
- Work collaboratively with team members and stakeholders to complete and report widely. • Disseminate findings and regulatory science tools in conferences and peer-reviewed journal publications.

## CANDIDATE QUALIFICATIONS

- Ideal candidates have a strong background in the fundamentals and an eagerness to solve technical challenges systematically with experimental and/or computational approaches.
- A PhD or master's degree (or degree in progress) in engineering, physics, computer science, mathematics, or a similar quantitative field.
- Studies in Engineering, Physics, Optics, Mathematics, Computer Science, Statistics or similar •

Developing and analyzing AI/ML methods (CNN, RNN, GAN, etc.)

- Programming with Python (including scientific stack: NumPy, SciPy, scikit-learn, etc.), and deep learning frameworks (TensorFlow, PyTorch, etc.)
- Experience with image segmentation, processing and data management

**PERKS** Multiple opportunities to form collaborative efforts to tackle big questions in regulatory science. Extensive opportunities for training and teaching in the metro DC area. Competitive salary and telework flexibility.

## HOW TO APPLY

- The position is available immediately and located in the White Oak campus in Silver Spring (metro DC region). • US citizenship/permanent residency not required. Must meet security requirements including a minimum of 3 out of the past 5 years with residency status in the US.
- Send applications to [CDRH-OSEL-DIDSR-VMAIL@fda.hhs.gov](mailto:CDRH-OSEL-DIDSR-VMAIL@fda.hhs.gov) with CV, cover letter and 3 references.

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