

**Opportunity Title:** USDA-ARS Environmental Microbial and Food Safety Laboratory Internship  
**Opportunity Reference Code:** USDA-ARS-NEA-2025-0011

**Organization** U.S. Department of Agriculture (USDA)

**Reference Code** USDA-ARS-NEA-2025-0011

**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** 2/28/2025 3:00:00 PM Eastern Time Zone

**Description ARS Office/Laboratory and Location:** A research opportunity is available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), within the Environmental Microbial and Food Safety Laboratory (EMFSL) at the Beltsville Agricultural Research Center, Northeast Area, in Beltsville, Maryland.

**Research Project:** The overall goal of this engineering project is to develop nondestructive sensing-based tools and techniques to reduce food safety risks in preharvest and post-harvest production and processing. This project will focus primarily on safety and quality inspection using spectral imaging techniques such as fluorescence, reflectance, and Raman, for authentication of food ingredients and detection of food contaminants, improvement of cleaning and sanitation efficacies in food processing facilities, and preharvest in-field detection of animal fecal contamination.

**Mentors:** [Moon S. Kim](#), [Insuck Baek](#), [Jianwei \(Tony\) Qin](#), [Kuanglin \(Kevin\) Chao](#)

#### **Learning Objectives:**

- Learn and apply hyperspectral fluorescence, reflectance, and Raman imaging technologies for safety and quality evaluation of agricultural products
- Learn Machine Learning/Artificial Intelligence methods to evaluate hyperspectral image data to assess safety and quality attributes of agricultural products
- Contribute to the development of sensing and instrumentation methods and technologies for rapid safety and quality inspection of agricultural products
- Participate in the design and development of image-based food safety and quality inspection system for applications in bulk-processing environments



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- Present these results at scientific conferences and publish the results of these projects in peer-reviewed scientific journals

**Mentor(s):** The mentors for this opportunity are Insuck Baek ([insuck.baek@usda.gov](mailto:insuck.baek@usda.gov)) and Jianwei Qin ([jianwei.qin@usda.gov](mailto:jianwei.qin@usda.gov)). If you have questions about the nature of the research, please contact the mentors.

**Anticipated Appointment Start Date:** Spring 2025 (flexible; other start dates can also be considered).

**Appointment Length:** The appointment can be for 2-3 months (8-12 weeks), can be renewed upon recommendation of the ARS mentor, and is contingent on the availability of funds.

**Level of Participation:** The appointment is part-time during the academic year. Selection of participants is on a rolling basis, so participants are encouraged to apply as early as possible.

**Participant Stipend:** The participant(s) 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. Foreign national candidates may have a mandatory in-person requirement depending on visa status.

**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. However, this position requires a pre-employment check and a full background investigation. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

This is an equal opportunity program open to all qualified individuals without regard to race, color, age, sex, religion, national origin, mental or physical disability, genetic information, sexual orientation, or covered veteran's status.

**Questions:** Please visit our [Program Website](#). After reading, if you have additional questions about the application process, please email [ORISE.ARS.Northeast@ornl.gov](mailto:ORISE.ARS.Northeast@ornl.gov) and include the reference code for this opportunity.

**Qualifications** The qualified candidate should have received or be currently pursuing an Associate's, Bachelor's, Master's, or Ph.D. degree in one of the relevant fields of study.

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**Preferred skills:**

Scientific disciplines represented at EMFSL include: parasitology, microbiology, molecular biology, bacteriology, food technology, plant science, animal science, soil science, hydrology, environmental science, spectroscopy, spectral imaging, and engineering.

**Point of Contact** [Janeen](#)

- Eligibility Requirements**
- **Degree:** Associate's Degree, Bachelor's Degree, Master's Degree, or Doctoral Degree received within the last 60 months or currently pursuing.
  - **Discipline(s):**
    - **Chemistry and Materials Sciences** ([12](#) 👁)
    - **Communications and Graphics Design** ([1](#) 👁)
    - **Computer, Information, and Data Sciences** ([17](#) 👁)
    - **Earth and Geosciences** ([21](#) 👁)
    - **Engineering** ([7](#) 👁)
    - **Environmental and Marine Sciences** ([14](#) 👁)
    - **Life Health and Medical Sciences** ([48](#) 👁)
    - **Mathematics and Statistics** ([3](#) 👁)
    - **Other Non-Science & Engineering** ([1](#) 👁)
    - **Physics** ([1](#) 👁)

**Affirmation** I affirm that:

I am a US Citizen, OR;  
I am a non-US citizen currently living in the United States