

**Opportunity Title:** USDA-ARS Graduate Student Internship in Agricultural Engineering, Computer Science, and Biological Sciences, Summer 2024

**Opportunity Reference Code:** USDA-ARS-NE-2024-0120

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

**Reference Code** USDA-ARS-NE-2024-0120

**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
- Transcripts – [Click here for detailed information about acceptable transcripts](#)
- A current cover letter, 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** 5/24/2024 3:00:00 PM Eastern Time Zone

**Description** **\*Applications are 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 Kearneysville, West Virginia. **This opportunity is eligible for remote participation.**

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:** The Appalachian Fruit Research Station (AFRS) houses two scientific programs with a focus on supporting the domestic specialty crop industry: (i) the Integrated Production Systems unit; and (ii) the Genetic Improvement unit. The participant will be involved in the ongoing research activities of the Soils Laboratory within the Integrated Production Systems unit. The participant is expected to participate in aspects of the development of open-source systems for horticultural management of domestic specialty crops. Through this opportunity, the participant will expand upon their existing basic institutional knowledge in: (i) a programming language, familiarity with c++ or its derivatives are preferable; (ii) embedded systems and circuitry; and (iii) application of



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technology in the biological sciences. The participant will collaborate with the program mentor and other scientists to help further the development of embedded systems pertinent to the research mission through firmware testing and development. In doing so, the participant will learn about the applications of technology for improving agricultural production systems. The participant may also partake in greenhouse, laboratory, and field research activities pertinent to the research mission such as collection of data from common laboratory equipment, and performing simple repetitive tasks incidental to the research project such as soil and tissue sample collection.

**Learning Objectives:** The selected candidate is expected to succeed in the following learning objectives during the appointment:

- Refine programming knowledge in c++ for embedded agricultural systems.
- Obtain foundational knowledge in embedded system prototyping and contribute to implementing minor pre-planned changes in printed circuit board design tools.
- Develop or further knowledge of version control software, i.e., Github, for collaborative software development efforts.
- Develop proficiency in horticultural research activities related to data collection from common laboratory equipment and soil and plant tissue collection and processing.

**Mentor(s):** The mentor for this opportunity is Andrew Bierer ([andrew.bierer@usda.gov](mailto:andrew.bierer@usda.gov)). If you have questions about the nature of the research, please contact the mentor(s).

**Anticipated Appointment Start Date:** May 6, 2024. Start date is flexible and will depend on a variety of factors.

**Appointment Length:** The appointment will initially be for 4 months, 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 and Lawful Permanent Residents (LPR) 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

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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.Northeast@orau.org](mailto:ORISE.ARS.Northeast@orau.org) and include the reference code for this opportunity.

**Qualifications** The qualified candidate should have received an associate's, bachelor's, or master's degree in one of the relevant fields. Degree must have been received within the past one year.

**Preferred skills:**

- A well qualified applicant will possess basic institutional knowledge in:
  - a programming language, familiarity with c++ or its derivatives are preferable;
  - embedded systems and circuitry; and
  - application of technology in the biological sciences.
- An ideal applicant will possess prior experience with Arduino, Raspberry Pi, or ESP-32 embedded system use, and basic knowledge of biological sciences and applications of embedded systems for agricultural purposes.

**Eligibility Requirements**

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Associate's Degree, Bachelor's Degree, or Master's Degree received within the last 12 month(s).
- **Overall GPA:** 3.20
- **Academic Level(s):** Graduate Students, Post-Associate's, Post-Bachelor's, Post-Master's, or Undergraduate Students.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (2 )
  - **Computer, Information, and Data Sciences** (17 )
  - **Earth and Geosciences** (5 )
  - **Engineering** (7 )
  - **Environmental and Marine Sciences** (5 )
  - **Life Health and Medical Sciences** (7 )
  - **Mathematics and Statistics** (2 )
  - **Physics** (1 )
- **Age:** Must be 18 years of age