Opportunity Title: Postdoctoral Research Opportunity in Bioinformatics Analyses
Opportunity Reference Code: USDA-ARS-2020-0004

Organization U.S. Department of Agriculture (USDA)

ORISE

Reference Code USDA-ARS-2020-0004

How to 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. All transcripts must be in English or include an official English translation. 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.

If you have questions, send an email to USDA-ARS@orau.org. Please include the reference code for this opportunity in your email.

Description

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

Multiple postdoctoral research opportunities are currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), Genome Informatics Facility located at Iowa State University in Ames, Iowa.

This research opportunity is part of the SCINet Fellowship program at ARS. All postdocs will spend time at headquarters for some of their training, but will be based at ARS regional laboratories for more specific training. One of the goals of this research opportunity is to encourage cross-disciplinary, cross-location research; this will be done by placing postdocs in different regional labs based on their skillset and interests in regional locations. The strength of this fellowship program is the collection of postdocs and ARS' collection of regional labs.

The SCINet/Big Data Program at ARS offers research opportunities to motivated postdoctoral participants interested in solving agricultural- and natural resource-related problems at a range of spatial and temporal scales, from the genome to the continent, and sub-daily to evolutionary time scales. One of the goals of the SCINet Initiative is to develop and apply new technologies, including artificial intelligence (AI) and machine learning, to help solve complex agricultural problems that also depend on collaboration across scientific disciplines and geographic locations. In addition, many of these technologies rely on the synthesis, integration, and analysis of large, diverse datasets that benefit from high performance computers (HPC). The objective of these opportunities is to facilitate cross-disciplinary, cross-location research through collaborative research on problems of interest to each participant and amenable to or required by the HPC environment. Training will be provided in specific AI, machine learning, deep learning, and statistical software needed for the HPC.

High throughput sequencing technology has become increasingly affordable. An increasing number of USDA ARS research units are developing genomic resources (genomes, transcriptomes, SNPs, etc.) for organisms of significant economic importance in agriculture, and for the pests that hinder the full potential of crops, livestock, and aquaculture. This kind of genomic resource development is important for the continued yield performance and for development of pest management strategies. While the acquisition of sufficient sequencing data is now possible, the analysis of these data is not always straight forward as there are assumptions and limitations to the biology, sequencing technology, and software used in each project.

The selected participant will have the opportunity to learn a diverse array of bioinformatic analyses, to develop speaking, writing, and networking skills through workshop development, and to actively engage in the solving of biological questions that will lead to first author publications. The participant will have the opportunity to present their data at national/international meetings involving researchers, regulatory officials, and stakeholders.

The participant will be trained in the following research activities:

- Contribute to and improve tutorials in the bioinformatics workbook (https://bioinformaticsworkbook.org/)
- Participate in the development of and co-lead workshops on data analysis for USDA scientists
- Collaborate with USDA scientists to analyze high-throughput sequencing datasets that lead to publication of collaborative, peer-reviewed publications

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For more information about the Genome Informatics Facility, visit: https://gif.biotech.iastate.edu/.

Anticipated Appointment Start Date: After October 15, 2019

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. The initial appointment is for one year, but may be renewed upon recommendation of ARS and is contingent on the availability of funds. The participant will receive a monthly stipend commensurate with educational level and experience. Proof of health insurance is required for participation in this program. The appointment is full-time at ARS in the Ames, Iowa, area. Participants do not become employees of USDA, ARS, DOE or the program administrator, and there are no employment-related benefits.

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.

For more information about the ARS Research Participation Program, please visit the **Program Website**.

Qualifications

The qualified candidate must have received a doctoral degree in one of the relevant fields before the start date of their appointment.

Preferred skills:

- Experience with Unix and HPC using SLURM submission scheduling
- Experience with GitHub
- Experience with high throughput sequencing data analysis
- Strong computational and analytical skills
- Strong communication skills in speaking and documented writing ability

Eligibility Requirements

- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (4 👁)
  - **Earth and Geosciences** (1 👁)
  - **Environmental and Marine Sciences** (5 👁)
  - **Life Health and Medical Sciences** (10 👁)
  - **Mathematics and Statistics** (1 👁)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).