Opportunity Title: USDA-FS Forest Operations for Connected Harvesting
Opportunity Reference Code: USDA-FS-SRS-2024-0320

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-FS-SRS-2024-0320

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. At least one recommendation must be submitted in order for the mentor to view your application.

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

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Application Deadline 11/8/2024 3:00:00 PM Eastern Time Zone

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

USDA Forest Service Office/Lab and Location: A fellowship opportunity is available with the US Department of Agriculture (USDA) Forest Service (FS) within the Forest Service Southern Research Station (SRS) located in Auburn, Alabama.

At the heart of the USDA Forest Service's mission is their purpose. Everything they do is intended to help sustain forests and grasslands for present and future generations. Why? Because their stewardship work supports nature in sustaining life. This is the purpose that drives the agency's mission and motivates their work across the agency. It's been there from the agency's very beginning, and it still drives them. To advance the mission and serve their purpose, the USDA Forest Service balances the short and long-term needs of people and nature by: working in collaboration with communities and our partners; providing access to resources and experiences that promote economic, ecological, and social vitality; connecting people to the land and one another; and delivering world-class science, technology and land management.

Research Project: The project is focused on conducting mechanical thinning and timber harvesting in an ecologically appropriate manner which will improve thinning, harvesting and wood transportation efficiency in the Sierra Nevada, with applications that extend far beyond the project boundary. The project includes applied research that will improve the

amount of material hauled off thinning operations. Mechanical thinning and timber harvesting are traditionally low-margin businesses, and productivity improvements would be transformative to the industry. Furthermore, machine tracking will ensure that operators stay within project boundaries, avoid restricted operating areas, and minimize soil compaction. Lastly, the Sierra Nevada region is the subject of a growing body of research that points to the need for increased ecological thinning. This has led to a significant number of USFS projects to meet forest resilience targets. This project will directly aid in these efforts by producing relevant research for the unique operating conditions of the region.

Learning Objectives: Under the guidance of a mentor, the three primary components of this project that the fellow will gain experience in are:

- Demonstration of the feasibility for low-earth orbit satellite to provide high-speed internet at log landings,
- Demonstration of the feasibility to communicate truck and machine locations to the loader operator in near real-time, and
- Develop production models and simulations utilizing machine and truck data and compare these models to real-world results.

However, the third component with be the focus of this opportunity.

Mentor: The mentor for this opportunity is Mathew Smidt (mathew.smidt@usda.gov). If you have questions about the nature of the research, please contact the mentor.

Anticipated Appointment Start Date: October 1, 2024. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for one year and a month but may be extended upon recommendation of USDA Forest Service 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, 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.

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 USDA Forest Service. Participants do not become employees of USDA, USDA Forest Service, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

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Questions: Please visit our Program Website. After reading, if you have additional questions about the application process please email ORISE.USFS.SRS@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate should be currently pursuing or have received a doctoral degree in the one of the relevant fields. Degree must have been received within the past five years, or anticipated to be received by 12/31/2024.

Preferred skills:

- Knowledge of and/or experience in evaluating forest harvesting or other forest operations using typical forest engineering or systems engineering methods.
- Experience manipulating and analyzing large data sets composed various data types (e.g. positional, acceleration, video, and audio data).
- Ability to traverse logging sites across steep slopes and uneven terrain and access the operator's station in logging equipment.

Eligibility Requirements

- **Degree:** Doctoral Degree received within the last 60 months or anticipated to be received by 12/31/2024 12:00:00 AM.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Communications and Graphics Design** (2 👁)
  - **Computer, Information, and Data Sciences** (17 👁)
  - **Earth and Geosciences** (21 👁)
  - **Engineering** (27 👁)
  - **Environmental and Marine Sciences** (14 👁)
  - **Life Health and Medical Sciences** (51 👁)
  - **Mathematics and Statistics** (11 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (2 👁)
  - **Social and Behavioral Sciences** (29 👁)