Opportunity Title: Artificial Intelligence Identification of Auditory Hallucinations - Faculty
Opportunity Reference Code: ERDC-ITL-2023-0041-F

Organization U.S. Department of Defense (DOD)

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How to Apply Click on *Apply* now to start your application.

Description The Information Technology Laboratory (ITL) is a premier Department of Defense (DoD) center engaged in creating and applying advanced information technology to support the Warfighter and the nation. Its employees develop revolutionary products, processes, and methods to address a wide range of engineering and scientific challenges. ITL is committed to harnessing the power of cutting-edge technology to make the world safer and better. The majority of its workforce is organized into two divisions - the Computational Science and Engineering Division (CSED) and the Software Engineering and Informatics Division (SEID). Each division consists of four branches. CSED includes the following branches: the Computational Analysis Branch (CAB), the Institute for Systems Engineering Research (ISER), the Scientific Software Branch (SSB), and the Senior Integration Branch (SIB). SEID's four branches are as follows: Cybersecurity Engineering and Analysis Branch (CEAB), CAD/BIM Technology Branch (CAD/BIM), Information Science and Knowledge Management Branch (ISKMB), and the Software Engineering and Evaluation Branch (SEEB). This internship's participants will directly report to the ISER.

The ISER is a multi-disciplined institute within the CSED which is USACE's first choice for decision support and leader in development of solutions to tomorrow's complex systems challenges. Overall, its primary research domains include Systems Engineering, Modeling & Simulation, Operations Research, and Analytics - whereby the Analytics domain is the common component of the other research domains. At a more detailed level, the ISER has eight capabilities, which are the following: Modeling & Simulation, Operations Research, Data Analytics, System of Systems, Mission Engineering, M&S as a Service (MSaaS), Wargaming, and Decision Analytics.

To explore online information about the ERDC and ITL, please visit the following website links: the ERDC - https://www.erdc.usace.army.mil/ - and ITL - https://www.erdc.usace.army.mil/Locations/ITL/ .

What will I be doing?

Under the guidance of a mentor, you will be collaborating with U.S. Army Engineer Research and Development Center's (ERDC) Institute for Systems Engineering Research (ISER) researchers to leverage artificial intelligence for the differentiation of EEG signals between regular auditory stimuli and hallucinatory experiences. The study utilizes wearable EEG technology and machine learning algorithms to develop a system that could potentially assist individuals with schizophrenia and PTSD in managing their conditions.

Faculty Research activities:

- Participate in training the appropriate AI systems on existing EEG data.
- Participate in the development and testing of a smart device application.
- Participate in the testing and evaluation of different EEG wearables' hardware and software.

Why should I apply?

This summer faculty appointment provides the opportunity to independently utilize your skills and engage with experts in innovative ideas to move the proposed research forward.

Where will I be located? Jackson, Mississippi

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What is the anticipated start date? Summer 2023

Exact start dates will be determined at the time of selection and in coordination with the selected candidate.

What is the appointment length?

This appointment is a summer research appointment. Appointments may be extended depending on funding availability, project assignment, program rules, and availability of the participant.

What are the benefits?

You will receive a stipend to be determined by the sponsor. Stipends are typically based on a participant's academic standing, discipline, experience, and research facility location. Other benefits may include the following:

- Health Insurance Supplement (*Participants are eligible to purchase health insurance through ORISE)*
- Relocation Allowance
- Training and Travel Allowance

About ORISE

This program, administered by Oak Ridge Associated Universities (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 DoD. Participants do not enter into an employee/employer relationship with ORISE, ORAU, DoD or any other office or agency. Instead, you will be affiliated with ORISE for the administration of the appointment through the ORISE appointment letter and Terms of Appointment. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE. For more information, visit the ORISE Research Participation Program at the U.S. Department of Defense.

Qualifications

A highly qualified faculty candidate must be a current faculty member at an accredited institution of higher education and will have the following skills:

- Computer programming skills (C and Python are a plus)
- Knowledge of how to handle large data sets.
- Basic electronics skills.

Security Investigation: Applicants should be able to pass a National Agency Check and Inquiries (NACI) security investigation should they be selected and accept the internship offer.

Application Requirements

A complete application consists of:

- Zintellect profile
- Educational and Employment History
- Curriculum Vitae (PDF)
- Salary Certification from your university

Submitted documents must have all social security numbers, student identification numbers, and/or dates of birth removed (blanked out, blackened out, made illegible, etc.) prior to uploading into the application system. All documents must be in English or include an official English translation. If

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you have questions, send an email to USACE@orise.orau.gov. Please list the reference code of this opportunity in the subject line of the email. Please understand that ORISE does not review applications or select applicants; selections are made by the sponsoring agency identified on this opportunity. All application materials should be submitted via the “Apply” button at the bottom of this opportunity listing. Please do not send application materials to the email address above.

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!

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Master's Degree or Doctoral Degree.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (17 👁)
  - **Engineering** (27 👁)
  - **Mathematics and Statistics** (11 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (1 👁)
- **Age:** Must be 18 years of age