

Opportunity Title: Semi-Autonomous Neural Design via Improved Evolutionary

AutoML: Established Scientist

Opportunity Reference Code: ERDC-ITL-2024-0001-ES

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), part of the U.S. Army Engineer Research and Development Center (ERDC), is a premier Department of Defense (DoD) laboratory engaged in the creation and application of advanced information technology in support of the warfighter and the Nation. ITL helps enable the missions of the ERDC, Army, DoD, and other agencies by conceiving, planning, managing, conducting, and coordinating research and development (R&D) in high-performance computing (HPC), data science, computer-aided and interdisciplinary engineering, high performance data analytics (HPDA), software engineering, computer science, systems engineering, cybersecurity, and instrumentation systems. Through a balanced program of R&D and demonstration, ITL advances the Army's knowledge and ability to use revolutionary information technology to address a wide range of engineering and scientific challenges.

What will I be doing?

The project involves researching an open-ended framework of neural architecture search expanding current capabilities within the field to larger, novel network designs that have yet to be observed. This research requires a high level of knowledge on several connected fields of research. You should be able to speak on recent as well as historical research within deep learning, neural architecture search, and evolutionary algorithms research fields and share knowledge with researchers performing experiments. You will also be involved in the high-level organization of experiments and code in order to accelerate project goals. Additionally, you will explore and learn a novel technique within the field that combines techniques from the fields of expertise listed. You will collaborate in planning and implementing this novel technique, which can generate neural networks from minimal mathematical functions by combining quality diversity and open-ended evolution. You will gain knowledge regarding the combination of the subfields into a novel region of research space.

Where will I be located? Location Varies

Why should I apply?

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

What is the anticipated start date?

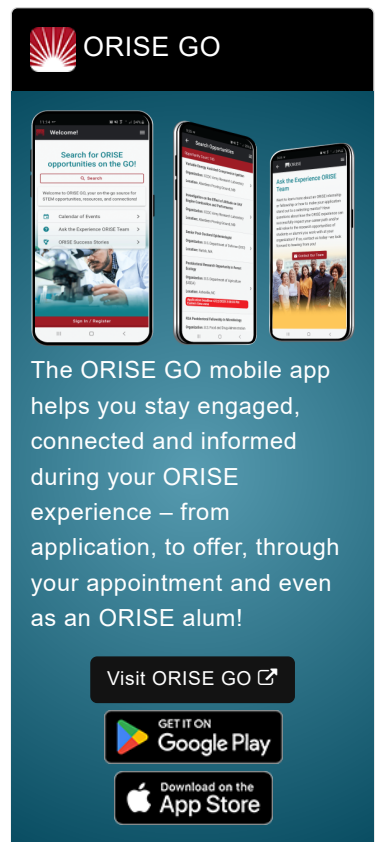
ERDC-ITL is ready to make an appointment immediately. Exact start date will be determined at the time of selection and in coordination with the selected candidate.

What is the length of appointment?

This ORISE appointment is a part-time seven-month opportunity. 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 ERDC-ITL. Stipends are typically based on the participant's academic standing, discipline, experience, and research facility location. Other



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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 Established expert in the field of deep learning, neural architecture search, and autoML with experience coding in object-oriented languages. A PhD in computer science, mathematics, complex systems, or a similar field is preferred. Knowledge of statistical methods and current research are also a requirement since the project goals heavily involve the scientific method of research and verification of that research for publication at top venues / journals. Having published works in these journals or venues is also highly encouraged.

A complete application consists of:

- Zintellect Profile
- Educational and Employment History
- Essay Questions (goals, experiences, and skills relevant to the opportunity)
- Resume (PDF)

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

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 • **Citizenship:** U.S. Citizen Only

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- Requirements**
- **Degree:** Doctoral Degree.
 - **Discipline(s):**
 - **Computer, Information, and Data Sciences** ([17](#) 👁)
 - **Engineering** ([27](#) 👁)
 - **Mathematics and Statistics** ([11](#) 👁)
 - **Science & Engineering-related** ([2](#) 👁)
 - **Age:** Must be 18 years of age