Opportunity Title: Artificial Intelligence: Information Technology Laboratory
Summer Internship
Opportunity Reference Code: ERDC-ITL-2023-0014

Organization	U.S. Department of Defense (DOD)
Reference Code	ERDC-ITL-2023-0014
How to Apply	Click on *Apply* now to start your application.
Description	The ERDC Information Technology Laboratory (ITL), located in Vicksburg, MS is a premier Department of Defense laboratory engaged in the creation and application of advanced information technology in support of the Warfighter and the Nation. ITL conducts research and development in informatics and computational science and engineering with particular emphasis on high-performance computing, computer-aided and interdisciplinary engineering, computer science and instrumentation systems. The laboratory provides unmatched expertise in areas of data science, high-performance data analytics, software engineering, augmented and virtual reality, artificial intelligence and machine learning, cyber security, and edge HPC.

Objective: Development of a more generalizable form of artificial intelligence to address multi-domain military scenarios in multi-agent setting.

What will I be doing?

Under the guidance of a mentor, you will gain skills by conducting hands-on research by learning online and offline reinforcement learning.

Week 1) Receive an overview of the planned project and any introductory information needed to understand what it is about. A reasonably detailed description of the core technical problem project will address. Building "work in progress", document and evolving it appropriately throughout the development cycle including results and analysis added in the last stage of the cycle.

Week 2) Setting up HPC, learning to use jupyter notebook, and learning to install python libraries and check versions.

Week 3) Introduction and implementation of online RL in a toy problem.

Week 4) Introduction and implementation of offline RL in a toy problem.

Week 5-6) Introduction and implementation of offline RL in multi agent toy problem.

Week 6-8) How to use offline RL in multi agent in mission engineering using simulation data.

Week 8-10) Document result, analysis, conclusion and future work.

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.
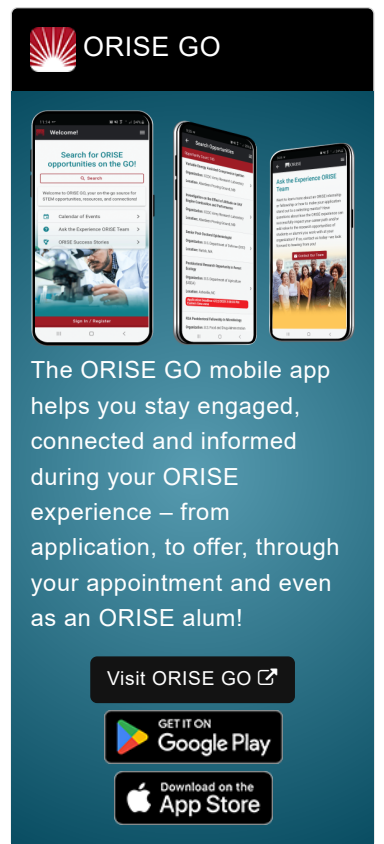
Where will I be located? Vicksburg, Mississippi

What is the anticipated start date?

June 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 10-week 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 Students with basic programing skills. Knowledge of Python preferred.

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
- Essay Questions (goals, experiences, and skills relevant to the opportunity)
- Resume (PDF)
- Transcripts/Academic Records - For this opportunity, an official 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.
- One recommendation. Your application will be considered incomplete and will not be reviewed until one recommendation is submitted. We encourage you to contact your recommender(s) as soon as you start your application to ensure they are able to complete the recommendation form and to let them know to expect a message from Zintellect. Recommenders will be asked to rate your scientific capabilities, personal characteristics, and describe how they know you. You can always log back in to your Zintellect account and check the status of your application.

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

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this opportunity listing. Please do not send application materials to the email address above.

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Eligibility Requirements	**Citizenship:** U.S. Citizen Only **Degree:** Associate's Degree, Bachelor's Degree, or Master's Degree received within the last 60 months or currently pursuing. **Overall GPA:** 3.00 **Discipline(s):** **Computer, Information, and Data Sciences** (17 👁) **Engineering** (27 👁) **Mathematics and Statistics** (11 👁) **Physics** (16 👁) **Age:** Must be 18 years of age **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).