Opportunity Title: ERDC-CHL Summer Internship: Enhancing Coastal Defense: Advancing Numerical Wave Modeling for Military Resilience
Opportunity Reference Code: ERDC-CHL-2025-0002

Organization	U.S. Department of Defense (DOD)
Reference Code	ERDC-CHL-2025-0002
How to Apply	Click on *Apply* now to start your application.
Application Deadline	4/17/2025 3:00:00 PM Eastern Time Zone
Description	The U.S. Army Engineer Research and Development Center's Coastal & Hydraulics Laboratory (CHL) performs research on ocean, estuarine, riverine, and watershed systems in support of the U.S. Army Corps of Engineers (USACE) and the Department of Defense (DOD) Task Force in support of the Ocean Commission. A multi-disciplinary team of scientists, engineers, and support personnel work in CHL's internationally known, unique facilities. This team has developed state-of-the-art experimental and computational models for solving water resource problems worldwide. CHL research and development addresses water resource and navigation challenges in a variety of hydrodynamic systems including aquifers, watersheds, rivers, reservoirs, lakes, estuaries, harbors, coastal inlets, and wetlands. Physical facilities of approximately 1.7 million square feet and high-performance computing facilities at the DOD Supercomputing Research Center.

What will I be doing?

Over the course of this 10-week internship, you will gain valuable hands-on experience in data handling, preprocessing, and visualization techniques within the **FLEX4** project. You will learn and develop practical skills in creating and refining tools to visualize key model inputs, such as wave directions, periods, and heights, as well as model outputs, including wave propagation patterns and boundary conditions. Through this process, you will enhance your ability to analyze and interpret large datasets, learning how to generate meaningful visual comparisons between simulated and observed data for model calibration and validation. These skills are essential for assessing the accuracy and reliability of numerical models used in coastal and oceanic studies. In addition, you will be introduced to **WaveWatch III** and **FUNWAVE**, two widely used wave modeling tools, gaining a foundational understanding of their applications. By actively participating in team discussions, you will strengthen your problem-solving abilities, contribute coding insights, and deepen your knowledge of wave dynamics. This internship will provide you with a strong computational and analytical foundation, preparing you for future research in coastal engineering, ocean modeling, and related fields.

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.
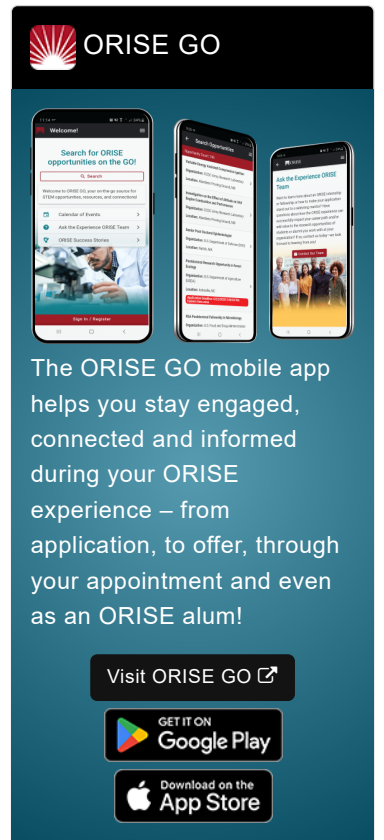
Where will I be located? Vicksburg, Mississippi

What is the anticipated start date? June 2025

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 full-time ten-week summer research appointment. Appointments may be extended depending on funding availability, project assignment, program rules, and availability of the participant.

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What are the appointment provisions?

You will receive a stipend to be determined by ERDC-CHL. Stipends are typically based on a participant's academic standing, discipline, experience, and research facility location. Other provisions 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   The ideal candidate is currently pursuing a master's or Ph.D. in computer science, civil or ocean engineering, data science, applied mathematics, oceanography, or a related field. They should have experience or coursework in numerical wave modeling, coastal hydrodynamics, data handling, preprocessing, and visualization techniques. Proficiency in programming languages such as Python and/or MATLAB. The candidate should also have a strong background in statistical analysis, particularly in comparing simulated and observed datasets for model calibration and validation. Additionally, strong problem-solving skills, the ability to work with large datasets, and a keen interest in coastal defense and military resilience applications are highly valued.

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 - Please upload a copy of a transcript for your current or most recent degree program that meets the disciplinary qualifications of the opportunity. Click here for detailed information about acceptable transcripts.
- One recommendation. We encourage you to contact your recommender(s) as soon as you

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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.

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 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

Point of Contact	Debbie
Eligibility Requirements	**Citizenship:** U.S. Citizen Only **Degree:** Currently pursuing a Master's Degree or Doctoral Degree. **Discipline(s):** **Computer, Information, and Data Sciences** (5 👁) **Engineering** (4 👁) **Environmental and Marine Sciences** (1 👁) **Mathematics and Statistics** (5 👁) **Age:** Must be 18 years of age