Opportunity Title: Computational Fluid Dynamics: U.S. Naval Surface Warfare
Center Summer Internship
Opportunity Reference Code: ERDC-ITL-2023-0020

Organization	U.S. Department of Defense (DOD)
Reference Code	ERDC-ITL-2023-0020
How to Apply	Click on *Apply* at the bottom of the opportunity to start your application.

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Description

The Naval Surface Warfare Center (NSWC) cohesively and seamlessly operates the Navy's full spectrum research, development, test and evaluation, engineering, and fleet support centers for offensive and defensive systems associated with surface warfare and related areas of joint, homeland and national defense systems. The Acoustic Signature Technology Division's mission is to conduct research and development and provides engineering services in structural acoustics, materials development, and hydroacoustics leading to effective and affordable control of ship acoustic signatures. Provides engineering analysis, prediction, and design for signature control techniques for acoustic target strength, hull radiation and associated transfer functions, flow-noise, and propulsor signatures. Determines and assesses the technical feasibility of acoustic signature requirements of marine vehicles.

What will I be doing?

As an ORISE participant, you will join a community of scientists and researchers in an effort to study computational fluid dynamic (CFD) simulations, using the large eddy simulation (LES) approach, are exercised to improve understanding of the underlying physics and to improve the fidelity of acoustic prediction models. The results directly support the organizations mission to provide analysis and predictive tools for flow-noise. This will support the design of new ship classes to meet increasingly stringent acoustic requirements, as well as support the current fleet to maintain our stealth advantage These simulations require high-performance computing to solve the simulation results and analyze the big data outputs.

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Why should I apply?

Under the guidance of a mentor, you will engage in various research activities, including:

- Complete simulation and data processing of boundary layer profiles.
- Complete a single component CFD simulation and analyze the results
- Analyze data using Python and/or Matlab to extract relevant parameters from the output
- Tour the experimental facilities on base including the anechoic flow facility (wind tunnel)
- Run a large LES simulation
- Simulation design, execution, and post processing

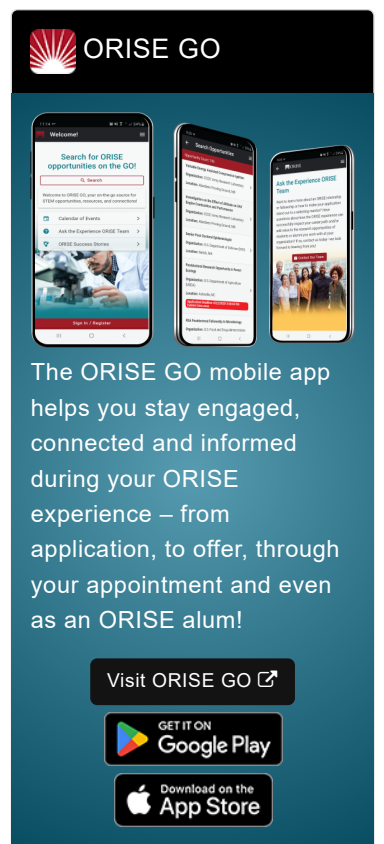**Where will I be located?** Bethesda, Maryland

What is the anticipated start date?

Exact start dates will be determined at the time of selection and in coordination with the selected candidate. Applications are reviewed on an ongoing basis and internships will be filled as qualified candidates are identified.

What is the appointment length?

This appointment is a summer research appointment, with the possibility to be renewed for additional research periods. Appointments may be extended depending on funding availability, project assignment, program rules, and availability of the participant.

What are the benefits?

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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 The qualified candidate should have or be currently pursuing a degree in Engineering.

Highly competitive applicants will have education and/or experience in one or more of the following:

- Computational fluid dynamics
- Data analysis (Matlab and/or Python)

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 - 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. 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

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this opportunity ERDC-ITL-2023-0020 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.

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Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral 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).