

Opportunity Title: Aerospace / Mechanical Engineering Summer Internship: Air Force Institute of Technology (AFIT)
Opportunity Reference Code: ERDC-ITL-2023-0013

Organization U.S. Department of Defense (DOD)

Reference Code ERDC-ITL-2023-0013

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

Description The Air Force Institute of Technology, with its main campus located at Wright-Patterson AFB, Ohio, is the Department of the Air Force's leader for advanced, multi-disciplinary academic education, as well as its institution for technical professional continuing education. A component of Air University and Air Education and Training Command, AFIT is committed to providing innovative, defense focused graduate education and related research, and operationally relevant professional continuing education, to sustain the technological supremacy of America's air, space, and cyber forces.

Project: Utilizing HPCMP resources to compute, compare, and analyze problems critical to the development and fielding of directed energy weapons. The intern will compare the accuracy and efficiency of DoD and NASA CFD software for this complex aero-optic environment, thus given current and future DoD scientist and engineers key insight into modern computational tools at their disposal.

What will I be doing?

Under the guidance of a mentor, you will receive considerable amount of experience using the HPCMP CREATE-AV Kestrel unstructured CFD solver and the NASA OVERFLOW structured overset CFD solver. Both of these codes are widely used across DoD for performing complex CFD simulations, where the complexity arises due to complicated geometry, flow physics or both. You will be exposed to the grid generation tools and techniques used by researchers to build both unstructured and structured overset CFD meshes. You will also gain valuable experience in performing aero-optical analysis using CFD data, which is a challenging, multi-disciplinary simulation technique that is of great interest to several DoD components. You will also have access to accounts that will allow you to access HPCMP resources as part of the co-mentor's HPC research projects. You will have access to world-class researchers and educators involved in addressing challenging and cutting-edge problems in aerodynamics for the Air Force. You will also have the opportunity to tour the wind-tunnel facilities maintained at WPAFB with other summer researchers. You will tour the AFRL DoD Supercomputing Resource Center to see the computational hardware that their simulations are performed on and interact with personnel supporting the DoD HPC Enterprise.

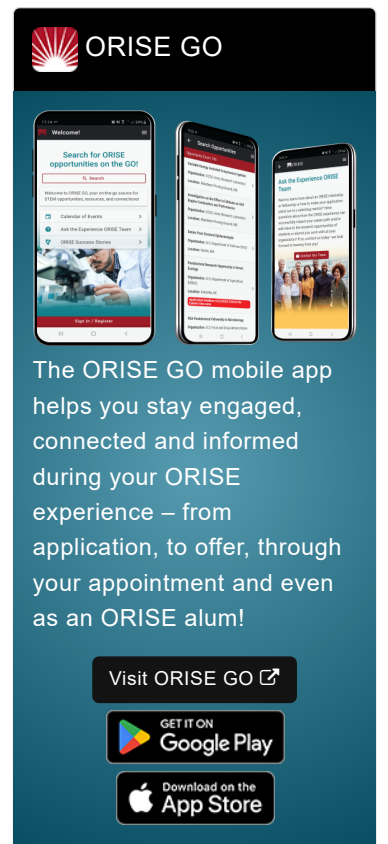
Why should I apply? This fellowship provides the opportunity to independently utilize your skills and engage with experts in innovative ideas to move the proposed research forward.

Where will I be located? Wright-Patterson AFB, Ohio

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 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:



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- 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 degree in aerospace or mechanical engineering.

- Completed at least two undergraduate fluid dynamics courses (required, more preferred).
- Completed course in CFD preferred.
- Some knowledge of computer programming required.
- Experience with Linux OS or macOS 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 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).