

**Opportunity Title:** High Performance Computing (HPC) Portal Usage Statistics:  
Air Force Research Laboratory Summer Internship  
**Opportunity Reference Code:** ERDC-ITL-2023-0029

**Organization** U.S. Department of Defense (DOD)

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**How to Apply** Click on *Apply* at the bottom of the opportunity to start your application.

**Description** The Maui High Performance Computing Center (MHPCC) DoD Supercomputing Resource Center (DSRC), established in 1993, is an Air Force Research Laboratory (AFRL) Center managed by the University of Hawaii, under contract to AFRL's Directed Energy Directorate at Kirtland Air Force Base, New Mexico. MHPCC is dually organized as a flight within the 15th Space Surveillance Squadron (15 SPSS), United States Space Force (USSF). The MHPCC DSRC operates as one of five DSRCs within the DoD's High Performance Computing Modernization Program (HPCMP). AFRL has designated MHPCC as the Vanguard Center for High Performance Computing, charges MHPCC to evaluate and optimize early production HPC technology, and to provide breakthrough software solutions --thereby significantly increasing the breadth and impact of the HPCMP.

#### What will I be doing?

The HPC Portal provides a zero-footprint web front-end that allows access to desktop software applications, pre/post-processing, and data visualization for all DoD HPC users. MHPCC sustains, maintains, and develops Portal. To better resource HPC systems, usage statistics are logged to provide insight to Program Managers and to leadership. MHPCC intends to leverage these existing data points, while creating additional useful statistics, to inform future HPC investments. Specifically, gained insights aim to influence R&D procurement activities by evaluating code interoperability between several microprocessor architectures and code optimization across varying hardware node types. The HPC Portal Usage Statistic investigation impacts multi-million dollar procurement costs incurred by the HPCMP and lowers barriers to HPC within the DoD by providing hundreds of RDT&E projects with access to exquisite supercomputing resources.

Currently, the HPC Portal appliance logs the following usage statistics: Web App Usage, Users Per Week, and Tickets (created, closed, opened). MHPCC seeks to apply these data, exploit existing usage statistics, and discover new statistics to best guide HPC hardware and software investments. Under the guidance of a mentor, you will collaborate with the Portal development team and to accurately report progress to the Portal management team. You will be provided access to relevant system logs and are encouraged to collect and analyze sufficient data to provide meaningful recommendations.

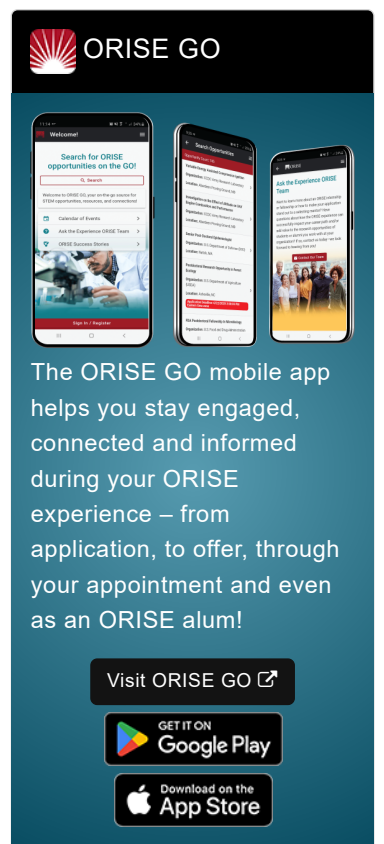
You will engage in various research activities, including:

- Identify significant HPC usage statistics from existing Portal log files
- Characterize MHPCC utilization metrics based upon existing HPC hardware
- Propose recommendations to capture additional usage statistics within Portal logs
- Demonstrate gained efficiencies in resourcing based upon recommendations via case studies.

Tools and resources to achieve these objectives include access to relevant Portal system logs, a laptop computer, access to Portal, invitations to technical interchange meetings with Portal developers, and regularly scheduled briefings with your mentor and program management teams.

#### 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.



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**Where will I be located?** Kihei, Hawaii

**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?**

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** Must be proficient with MS Office (Word, Excel, PowerPoint, and Outlook); Possess strong organizational skills, attention to detail, and an ability to work with abstract concepts/environments; Experience presenting and defending research data to senior leaders; Study relevant educational fields (computer science/engineering, data science, statistics, operations research or similar); Background knowledge about HPCMP and/or MHPCC is beneficial, but not required.

**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.

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](mailto: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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| <b>Eligibility Requirements</b> | <ul style="list-style-type: none"> <li>• <b>Citizenship:</b> U.S. Citizen Only</li> <li>• <b>Degree:</b> Bachelor's Degree received within the last 60 months or currently pursuing.</li> <li>• <b>Overall GPA:</b> 3.00</li> <li>• <b>Discipline(s):</b> <ul style="list-style-type: none"> <li>◦ <b>Computer, Information, and Data Sciences</b> (<a href="#">17</a> )</li> <li>◦ <b>Engineering</b> (<a href="#">27</a> )</li> <li>◦ <b>Mathematics and Statistics</b> (<a href="#">11</a> )</li> <li>◦ <b>Physics</b> (<a href="#">16</a> )</li> </ul> </li> <li>• <b>Age:</b> Must be 18 years of age</li> <li>• <b>Veteran Status:</b> Veterans Preference, degree received within the last 120 month(s).</li> </ul> |
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