Opportunity Title: 2021 Summer Research Internship Opportunities
Opportunity Reference Code: ERDC-CERL-2021-0004

Organization U.S. Department of Defense (DOD)

Reference Code ERDC-CERL-2021-0004

How to Apply Components of the online application are as follows:

- Profile Information
- Educational and Employment History
- Essay Questions (goals, experiences, and skills relevant to the opportunity)
- Resume (PDF)
- Transcripts/Academic Records -Click here for detailed information about acceptable transcripts
- References

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.

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.

All documents must be in English or include an official English translation.

Description The U.S. Army Corps of Engineers (USACE) Engineer Research and Development Center (ERDC) Construction Engineering Research Laboratory (CERL) develops and infuses innovative technologies to provide excellent facilities and realistic training lands for the Department of Defense, the U.S. Army and many other customers while also supporting ERDC's research and development mission in geospatial research and engineering, military engineering, and civil works.

CERL directs its research efforts toward increasing the Army's ability to more efficiently design, construct, operate and maintain its installations and contingency bases and to ensure environmental quality and safety at a reduced life-cycle cost. Excellent facilities support the Army's training, readiness, mobilization and sustainability missions. Adequate infrastructure and realistic training lands are critical assets to installations in carrying out their military missions. Efficient contingency bases, which minimize the use of external resources and the generation of waste and enhance relations with local communities, are critical for successful deployments in all situations—from disaster response and humanitarian assistance to stability operations and conflicts.

Under the guidance of mentors, students and recent graduates will conduct research alongside CERL staff and primary researchers. Through student participation in the ORISE program at CERL, students will be introduced to a real world laboratory environment as well as modern research technologies and techniques. This experience will inspire students to continue to pursue STEM disciplines as a career pursuit.

Research Areas Includes:

- Military installation and contingency bases sustainability
- Enhancing socio-cultural understanding in theater operations
- Improving civil work facilities and infrastructure
- Resilient Facilities and Infrastructure
- Smart Sustainable Materials
- Installation Decision Support
- Urban and Stability Operations

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Specific Project Focus for 2021:
1.) Novel Waste to Energy Applications- the main technology investigated is catalytic hydrothermal gasification(CHG), which can covert water-borne organics in to gaseous fuels.

2.) Source Reduction and Resource Resilience- environmental compliance, to include sustainable practices, alternative waste solutions, waste to energy technologies, and environmental compliance is preferred.

3.) Cultural Geography of the Built Environment of Department of Veterans Affairs Facilities-using Geographic Information System (GIS) skills to communicate research results, while researching the relationship between U.S. social movements, military history and the built environment.

4.) Additive Construction-utilizes deployable 3D printers to produce infrastructure components on-demand, in the field, using locally available materials.

5.) Enterprise Sustainment Management System (ESMS) and Builder Sustainment Management System (SMS)- web-based software application used to decide when, where, and how to best maintain existing infrastructure using condition-based inspections and expected life cycle of deterioration.

Appointment Length

An ORISE appointment period can be a short-term (less than 2 weeks), summer (10-12 weeks), or yearlong appointment. Faculty appointments are generally for 10-12 weeks during the summer, but appointments during the academic year are also available. Appointments may be extended depending on funding availability, project assignment, program rules, and availability of the participant.

Participant Benefits

Participants will receive a stipend to be determined by ERDC-CERL. Stipends are typically based on the 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

Nature of Appointment

The participant will not enter into an employee/employer relationship with ORISE, ORAU, DOD, or any other office or agency. Instead, the participant will be affiliated with ORISE for the administration of the appointment through the ORISE appointment letter and Terms of Appointment.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** High School Diploma/GED, Associate's Degree, or Bachelor's Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Business** (11 👁)

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  - **Chemistry and Materials Sciences** (12 👁)
  - **Communications and Graphics Design** (6 👁)
  - **Computer, Information, and Data Sciences** (17 👁)
  - **Earth and Geosciences** (21 👁)
  - **Engineering** (27 👁)
  - **Environmental and Marine Sciences** (14 👁)
  - **Life Health and Medical Sciences** (45 👁)
  - **Mathematics and Statistics** (10 👁)
  - **Other Non-Science & Engineering** (13 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (1 👁)
  - **Social and Behavioral Sciences** (28 👁)
- **Age:** Must be 16 years of age