Opportunity Title: Engineering Graduate Fellow-Determining Uncertainty in Probabilistic Life Cycle Analysis Models
Opportunity Reference Code: ERDC-CHL-2020-0006

Organization U.S. Department of Defense (DOD)

Reference Code ERDC-CHL-2020-0006

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 Coastal and Hydraulics Laboratory (CHL, est. 1996) multi-disciplinary team of scientists, engineers and support personnel is internationally recognized for its world-class research. This 222-member group includes 152 scientists and engineers and 18 contractors, including 59 doctorate and 62 master's degrees. Along with access to unique, cutting-edge facilities, these team members have the experimental and computational expertise needed to solve water resource problems worldwide. CHL addresses an entire spectrum of water resource challenges in groundwater, watersheds, rivers, reservoirs, estuaries, harbors, coastal inlets and wetlands. This information and more can be found on our website at https://www.erdc.usace.army.mil/Locations/CHL

US Army Corps of Engineers (USACE) Districts evaluate federal funding of coastal flood protection and beach nourishment projects by quantifying NED benefits using Probabilistic Life Cycle Analysis (PLCA) models. A cost benefit ratio greater than one is typically required for federal funding. Due to recent guidance it has become necessary to provide further quantification of uncertainties in the inputs and outputs of the Generation 2 Coastal Risk Model (G2CRM) and Beach-fx. Additionally, further additions to G2CRM and Beach-fx are planned during FY21 that will be tested and included in new documentation.

Under the guidance of a mentor, the participant may contribute to this research by creating additional tools to expedite district use of models in respect to inputs to the model and uncertainty quantification. Due to the interdisciplinary nature of the models, the tools created by the participant could process asset data, damage functions, climate forcing, or post-process results depending on the background of the selected participant. Typically, G2CRM runs contain thousands of assets (structures and their contents in an area of interest), and model user's must convert local information into a form usable in G2CRM. The participant will benefit from exposure to multiple USACE district users in engineering, planning, and economics. Ideally, the participant will have either an coastal engineering, economics/finance or statistics background. The participant will have the opportunity to co-author reports and presentations throughout the project.

Appointment Length

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This ORISE appointment is for a 12 month period. 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-CHL. 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.

Qualifications

The candidate should be a current student in or recent graduate of a Master's or PhD level graduate program with a background in coastal engineering, economics, or statistics.

Relevant interests and skills:
- Use of geographic information systems (GIS) and geospatial data in decision-making
- Matlab
- Python
- Exposure to disaster and hazard studies

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Master's Degree or Doctoral Degree received within the last 60 months or currently pursuing.
- **Overall GPA:** 3.00
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Communications and Graphics Design** (1 👁)
  - **Computer, Information, and Data Sciences** (16 👁)
  - **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** (4 👁)
  - **Physics** (16 👁)
  - **Social and Behavioral Sciences** (27 👁)
- **Age:** Must be 18 years of age

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