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Opportunity Title: Engineering and Instrumentation Support Training in Diving and Hyperbaric Environments
Opportunity Reference Code: NEDU-2020-0001

Organization U.S. Department of Defense (DOD)

Reference Code NEDU-2020-0001

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 - For this opportunity, an unofficial 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.
- 1 Recommendation(s)

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 **NAVY@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.

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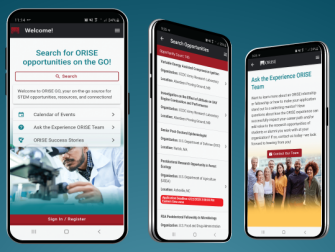
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Description This opportunity takes place at the Navy Experimental Diving Unit (NEDU) in Panama City, Florida. NEDU's mission is to conduct manned, unmanned, and biomedical research; develop, test, and evaluate diving, hyperbaric, life support, and submersible systems and procedures; and ensure all diving equipment and procedures meet the safety standards and operational requirements to expand the U.S. Navy's advantage during any undersea military operation. NEDU is equipped with the United State's largest research hyperbaric chamber complex for wet and dry hyperbaric/diving operations, a 55,000 gallon test pool, and state-of-the-art physiological research facilities.For further information, please visit https://www.navsea.navy.mil/Home/SUPSALV/NEDU/

The prospective candidate will support research under Warfighter Human Performance involving basic and applied integrative physiology research. These tasks primarily involve development of thermophysiological and performance guidance, and testing of thermal protection equipment for military operations.

Under the guidance of the Principal Investigator, the candidate's contributions to ongoing research activities are expected to include the following:

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1) Design, build, test, troubleshoot, and repair developmental and production electronic components and systems in biomedical instrumentation. If needed, the fellow shall coordinate development and repair with appropriate vendors.

2) Develop technical documentation, abstracts, journal articles, and presentations. Develop new ideas that promote current research. Prepare and publish scientific manuscripts under the direction of the Principal Investigator.

3) Maintain laboratory organization, equipment, and required supplies for project execution. Participate in laboratory maintenance activities such as calibrating sensitive equipment, repairing electronics, editing data processing code, tracking supplies, backing up data on servers.

4) Coordinate and execute physiological experimentation to include, but not limited to, human performance testing, nutrition assessment, pulmonary function testing, examination of the effects of hyperbaric and extreme environments on thermoregulation and cardiovascular, autonomic, respiratory, and muscular physiology.

5) Collect and analyze data using statistical and graphing software, as well as specialized software to measure physiological variables such as body temperature, peripheral blood flow, oxygen consumption, lactate threshold, and hemodynamic status.

6) Write custom computer code and scripts using matrix algebra, calculus, and differential equations, Fourier analysis, as well as other engineering analysis techniques. Develop LabVIEW and MATLAB code and modify and/or troubleshoot LabVIEW data acquisition interfaces and MATLAB analysis programs for multiple projects.

This opportunity will allow the candidate to engage with state-of-the-art-equipment and cutting edge research that compliment and further the candidate's educational background. Specifically, the prospective candidate will receive training in diving and hyperbaric equipment/instrumentation design, development, and fielding, as well as human physiological experimentation.

Appointment Length

This appointment is a twelve month 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.

Participant Benefits

Participants will receive a stipend to be determined by **NEDU.** 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*

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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

Research activities at NEDU will expose the candidate to all aspects of the research process, from laboratory research and experimental design to collection and analysis of data, and publication or reports. Potential candidates should meet the following minimum requirements:

• A bachelor's or master's degree in Biomedical Engineering or related engineering/quantitative science field.
• Coursework in calculus, differential equations, and linear algebra as well as strong Matlab/Python/LabVIEW programming skills required. Ability to develop, modify, and/or troubleshoot LabVIEW and MATLAB code in data acquisition interfaces is highly desired.
• Experience working with biomedical instrumentation to measure physiological parameters such as heart rate, blood pressure, metabolic rate, and skin temperature.
• Hands-on experience fabricating electronic boards and soldering.
• Awareness of electrical safety procedures/requirements and biomedical equipment safety standards.
• Ability to identify physical signs which may be observed during exercise that are indicators of distress.
• Experience in biomedical laboratory research preferred. Strong organizational and communication skills, and ability to work with a diverse, interdisciplinary team required.
• Proven knowledge of Microsoft Word, Excel, LabVIEW and other data acquisition coding.
• Familiarity with rigorous biomedical research operations and equipment.
• Coursework in biomechanics and physiology.
• Possess 3D modeling and 2D drawing skills with SolidWorks, CAD, Blender or your favorite software

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree or Master's 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** (2 👁)
  - **Computer, Information, and Data Sciences** (16 👁)
  - **Earth and Geosciences** (21 👁)

Opportunity Title: Engineering and Instrumentation Support Training in Diving and Hyperbaric Environments
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- **Engineering** (27 👁)
- **Environmental and Marine Sciences** (14 👁)
- **Life Health and Medical Sciences** (45 👁)
- **Mathematics and Statistics** (10 👁)
- **Other Non-Science & Engineering** (2 👁)
- **Physics** (16 👁)
- **Science & Engineering-related** (1 👁)
- **Social and Behavioral Sciences** (27 👁)