Opportunity Title: EACE Musculoskeletal Tissue Biomechanist Research Fellowship

Opportunity Reference Code: EACE-2019-0006

Organization	U.S. Department of Defense (DOD)
Reference Code	EACE-2019-0006
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 - 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.
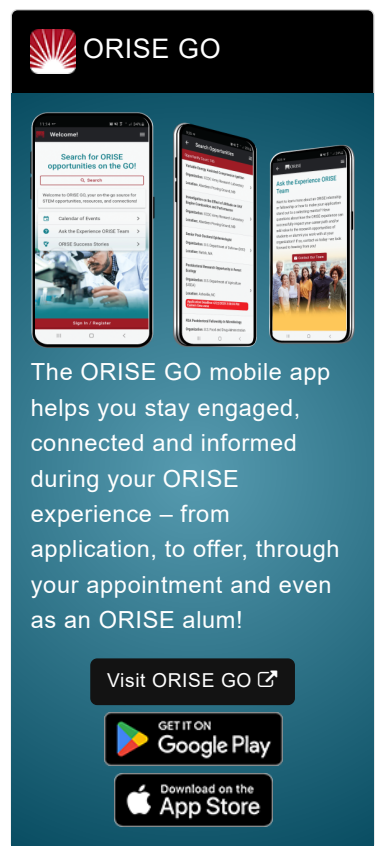
1 Recommendation Required

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 STEM-WORKFORCE@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 Extremity Trauma and Amputation Center of Excellence (EACE) is the leading advocate for research and treatment of Department of Defense (DoD) and Department of Veterans Affairs (VA) patients with extremity trauma and amputation. The EACE leads efforts to enhance collaboration between the DoD and the VA extremity trauma and amputation care providers and conduct scientific research to minimize the effects of traumatic injuries and improve clinical outcomes (https://www.health.mil/About-MHS/OASDHA/HSPO/EACE). This position will be housed at Walter Reed National Military Medical Center (WRNMMC), the flagship of United States Military Medicine.

The EACE Musculoskeletal Tissue Biomechanist Research participant will have an opportunity to learn and operate the MTS machine, reduce and analyze collected data, as well as take part in the dissemination of findings and idea development. We have identified five projects of interest to the orthopaedic community that align with the musculoskeletal health line of inquiry and compliment the EACE mission. The identified projects emphasize the repetitive stresses (i.e., cyclical loading) that our Service Members face when they return-to-duty following musculoskeletal injury. Cyclically loading the tissues and implants in a controlled laboratory setting allows us to identify the failure points (e.g., tissue vs implant) without the need to prospectively track Service Members overtime. The information gleaned from these projects will better inform clinical decision making and improve Warfighter medical care, culminating in: 1) reduced time to full unrestricted return-to-duty through expedited healing ("Biomechanical Assessment of Incorporating Osteophyte or Sclerotic bone into Cervical Integrated Fixation Devices"); 2) reduced post-operative surgical failure

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rates through improved surgical techniques and implants ("A Biomechanical Evaluation of Posterior Shoulder Instability, Evaluating Capsular Deformity and Suture Anchor Capsular Plication"; "Cyclic Fatigue Analysis of Tendon Fixation Techniques"); and 3) improved long-term Service Member health through reduced aberrant tissue loading following musculoskeletal surgery ("Changes in Knee Joint Loading Characteristics Following Common Arthroscopic Knee Surgical Procedures"; "Cyclic Fatigue Analysis of Proximal Junctional Kyphosis").

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 EACE. 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

Knowledge, Skills, and Abilities: Experience in the fields of biomedical engineering, human tissue biomechanics, biomaterials or related fields. Proficiency operating the above noted equipment (or equivalent). Specific research background in the area of extremity trauma is highly desired. A track record of publication and excellent technical writing skills are preferred.

Education/Training: PhD from an accredited institution in biomedical engineering, or a related field.

Experience: 1-2 years of experience performing tissue biomechanics research

Physical Capabilities: Long periods of standing and sitting

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Currently pursuing a Doctoral Degree to be received by 9/1/2019 12:00:00 AM.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Communications and Graphics Design** (2 👁)
  - **Computer, Information, and Data Sciences** (16 👁)
  - **Earth and Geosciences** (21 👁)
  - **Engineering** (27 👁)

Opportunity Title: EACE Musculoskeletal Tissue Biomechanist Research Fellowship
Opportunity Reference Code: EACE-2019-0006

- 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 👁)