

**Opportunity Title:** Biomechanical Modeling Fellowship

**Opportunity Reference Code:** EACE-2020-0012

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

**Reference Code** EACE-2020-0012

**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.](#)
- Recommendation(s) 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](mailto: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 the Department of Defense (DoD) and Department of Veterans Affairs (VA) patients with extremity trauma and amputation. The Research & Surveillance Division of the EACE, specifically, conducts research studies to improve the function and quality of life for patients with traumatic extremity injuries. Working with TRICARE, the Military Health System, VA, and other Centers of Excellence, EACE will lead 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.

The Extremity Trauma and Amputation Center of Excellence (EACE) is offering an ORISE learning opportunity that will focus on OpenSim musculoskeletal modeling software and the expansion of musculoskeletal models that will improve the clinical care of patients with lower limb musculoskeletal trauma. As an ORISE participant, the project and activities in which you will engage are to support the rehabilitation of individuals with extremity trauma. During your appointment, you will participate in hands-on experimental testing, as well as numerical simulations incorporating exoskeletal devices into the framework. Under the guidance of a mentor, you will take part in data collection and analysis to knowledge product generation in a short period of time and for a high return on investment. You will also have the opportunity to contribute to grant submissions to add to their knowledge of pursuing funding and becoming an independent researcher while learning and networking with post-doctoral fellows, both locally at the Center for Limb Loss and Mobility at the VA Puget Sound and nationally across the EACE.

Other specific learning objectives will include:

1. Expanding existing models of the lower limb and ankle bracing systems into OpenSim's Moco framework.
2. Developing subject-specific models using human subject data on individuals with lower limb musculoskeletal injury.



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3. Evaluating different bracing and rehabilitation conditions.

For more information about EACE, please visit (<https://www.health.mil/About-MHS/OASDHA/HSPO/EACE>)

#### **Appointment Length**

This appointment is an eleven 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** The successful candidate will be about to complete, or have completed, a Ph.D. in an area related to the biomechanics or neuromechanics of human movement. Research experience and strong technical skills in human motion analysis and musculoskeletal modeling are highly desirable. Proficiency in OpenSim and Matlab are required. The candidate must demonstrate excellent organizational, time management, and communication (oral and written) skills, as well as intellectual independence and initiative. The ability to work both independently and as part of a team is essential.

- Eligibility Requirements**
- **Citizenship:** U.S. Citizen Only
  - **Degree:** Doctoral Degree received within the last 24 months or currently pursuing.
  - **Overall GPA:** 3.40
  - **Discipline(s):**
    - **Engineering** ([27](#))
    - **Environmental and Marine Sciences** ([1](#))
    - **Life Health and Medical Sciences** ([45](#))
  - **Veteran Status:** Veterans Preference, degree received within the last 24 month(s).