

Opportunity Title: Endotracheal Tube Stabilization Device (ETSD) Development Opportunity Reference Code: NAMRU-SA-2019-0001

Organization	U.S. Department of Defense (DOD)

Reference Code NAMRU-SA-2019-0001

How to Apply

ply 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 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.

Description Located on the San Antonio Military Medical Center campus, Joint Base Fort Sam Houston, Texas, NAMRU-SA serves as one of the leading research and development laboratories of the U.S. Navy. The Command's Mission is to conduct gap driven combat casualty care, craniofacial, and directed energy research to improve survival, operational readiness, and safety of Department of Defense personnel engaged in routine and expeditionary operations.

> The intern will participate in the development and analysis of an endotracheal tube stabilization device (ETSD) indicated for a patient with maxillofacial burn injuries. The long-term goal of this research is to overcome acute and chronic maxillofacial injuries caused by current ETSD designs and securing methods. The central hypothesis is that an ETSD can be designed to secure an endotracheal tube with features that mitigate the likelihood of both acute and chronic comorbidities in patients with maxillofacial burns. The intern will be a key participant in the ETSD design and development through multiple iterations of structural analysis and prototyping. The intern will be involved in the use of design simulation software (finite element analysis) to model and test the structural integrity and feasibility of the ETSD models with various loading conditions, material properties, maxillofacial burn conditions, and other plausible design factors. The intern will collaborate with engineers from the Biomedical







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> Systems Engineering and Evaluation Department at NAMRU-SA and clinicians at the Institute of Surgical Research Burn Intensive Care Unit at the Brooks Army Medical Center, Joint Base San Antonio, Fort Sam Houston.

Appointment Length

This ORISE appointment is for an eight 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 NAMRU-SA. 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.

• Additional information that may be included if applicable:

While participants will not enter into an employment relationship with DOD or any other agency, this opportunity will require a suitability investigation/background investigation. Any offer made is considered tentative pending favorable outcome of the investigation.

Qualifications This research opportunity would provide an excellent educational opportunity for a candidate with a biomedical or mechanical engineering background. Coursework and/or project experience in computational modeling, finite element analysis, biomechanics, force vector analysis, CAD design, 3D printing, and/or biocompatible materials are desired attributes. Communication and documentation skills demonstrated through publications, technical reports, briefings and/or presentations would be advantageous. Familiarity with Microsoft Office, MATLAB, LabView, SolidWorks, COMSOL and/or similar software is a plus.

Eligibility • Citizenship: U.S. Citizen Only



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- Requirements
- **Degree:** Bachelor's Degree or Master's Degree received within the last 60 months or currently pursuing.
- Academic Level(s): Post-Bachelor's or Post-Master's.
- Discipline(s):
 - Chemistry and Materials Sciences (12 (1))
 - Communications and Graphics Design (1 •)
 - Computer, Information, and Data Sciences (16 (16))
 - Earth and Geosciences (21
 ●)
 - Engineering (27 ☉)
 - Environmental and Marine Sciences (3 (1))
 - Life Health and Medical Sciences (45 ●)
 - Other Non-Science & Engineering (5 (*)
 - Physics (16 👁)
 - Social and Behavioral Sciences (28 ●)