

**Opportunity Title:** Biometric sensor development summer research  
**Opportunity Reference Code:** AFRL-711HPW-2020-0009S

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

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**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.](#)
- Two Recommendations

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 [AIRFORCE@orise.ora.u.gov](mailto:AIRFORCE@orise.ora.u.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.

Letter of Recommendation: While a letter of recommendation is not required to be considered, applicants are required to provide contact information for one recommendation in order to submit the application. Applicants are encouraged to request a letter of recommendation before submission as this may help reviewers have a better understanding of the applicant's qualifications and interests. If selected, a letter recommendation must be submitted on your behalf upon acceptance of the appointment.

## Description


The Air Force Research Laboratory (AFRL), located at Wright-Patterson AFB, OH, is seeking summer research participants for the Airman Systems Directorate, 711th Human Performance Wing. The participant will support research to develop a biometric sensor based on measuring and characterizing mitochondrial structure and function as an indicator of Airman health and performance. Specifically, the biometric sensor will detect mitochondria traits to quantitatively inform physiological conditions and predict future performance.

The goal of this project is to investigate how stressful operational environments impact certain processes within the human body (e.g., the ability to maintain homeostasis) and the potential risk for performance degradation. Under the guidance of a mentor, the participant will help develop technology that seeks to enable, sustain, enhance, and restore Airman health and performance in operational environments. The successful candidate will gain experience in:

- Advanced molecular techniques
- Cell culture
- Operating analytical equipment
- Processing relevant data
- Device development






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The successful candidate will effectively present their research upon completion.

For more information about the Air Force Research Laboratory (AFRL), please visit:

<https://www.wpafb.af.mil/afri/>.

#### Appointment Details

This appointment is a short-term summer 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. This appointment will be located at Wright-Patterson Air Force Base, Ohio, and participation will be full-time.

#### Participant Benefits

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

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

Candidate with or pursuing BS/MS degree. Strong candidates will also have clear evidence of academic aptitude, including exemplary GPA and previous awards/scholarships that recognize academic performance. Ideal practical experience will include work performed in research labs, with preferred hands-on experience building physical devices such as biosensors.

#### Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree or Master's Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 )
  - **Communications and Graphics Design** (2 )
  - **Computer, Information, and Data Sciences** (16 )
  - **Earth and Geosciences** (21 )
  - **Engineering** (27 )
  - **Environmental and Marine Sciences** (14 )
  - **Life Health and Medical Sciences** (45 )

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- **Mathematics and Statistics** (10 👁)
- **Other Non-Science & Engineering** (2 👁)
- **Physics** (16 👁)
- **Science & Engineering-related** (1 👁)
- **Social and Behavioral Sciences** (27 👁)