

**Opportunity Title:** Exercise Science Research Fellowship at STRONG Lab, Air Force Research Laboratory

**Opportunity Reference Code:** AFRL-711HPW-2023-0018

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

**Reference Code** AFRL-711HPW-2023-0018

**How to Apply** Click on *Apply* at the bottom of the opportunity to start your application.

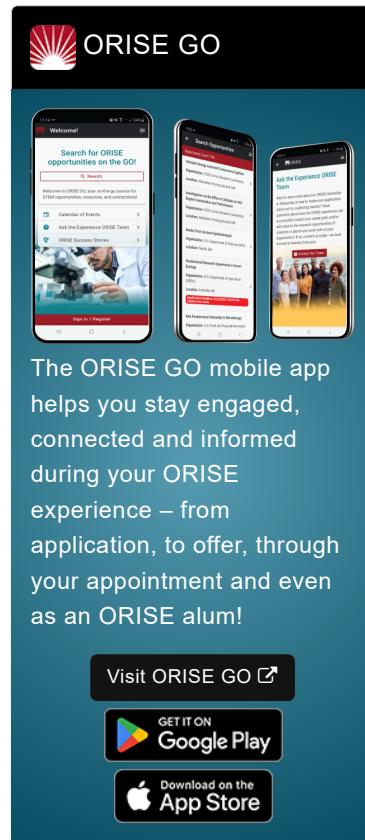
#### About AFRL

The 711th Human Performance Wing (711 HPW), headquartered at Wright-Patterson Air Force Base in Ohio, is the first human-centric warfare wing to consolidate human performance research, education, and consultation under a single organization. Established under AFRL, the 711 HPW is comprised of the Air and Space Biosciences Directorate (RH) and the United States Air Force School of Aerospace Medicine (USAFSAM). For more information about the 711th Human Performance Wing, visit <https://www.wpafb.af.mil/afrl/711hpw/>.

**Description** The U.S. Air Force Research Laboratory (AFRL) is offering an internship in the Signature Tracking for Optimized Nutrition and Training (STRONG) lab in the area of Real-time Health Performance Monitoring. The STRONG lab is the exercise-science relevant research arm of the Human Performance Wing / Airman Systems Directorate at AFRL. Projects are based in the exercise sciences and connect to a wide range of disciplines and collaborators across government labs, academia, industry, and military operators in order to generate the most innovative and effective solutions. There are several systems that have been proposed to influence performance; the U.S. Air Force is interested in optimizing these systems among various operational units.


#### The STRONG lab interest in this area includes:


- Movement assessment tools propose various connections between movement patterns, operational performance, and injury risk. A major focus of the STRONG lab is to evaluate and determine optimal usage for various movement screening tools among multiple military populations. Movement assessment includes identifying asymmetries and capturing movement quality by traditional movement test and procedures, motion capture, and technology-driven resources.
- Motion capture technologies (i.e. high-fidelity camera systems and accompanying software) provide insight into tactical movement patterns that might not be identified with visual assessment alone. Additionally, motion capture technology provides detailed information about nuances of movement that may impact training and performance while validating test equipment and procedures.
- Novel solutions for Airmen (USAF) and Guardian (USSF) fitness contributes to readiness and tactical performance. This includes carefully guided creation and delivery of 12-wk training plans to offer individualized programs with optimized training for active duty cohorts. Instruction of exercise movements using various modalities to guide weightlifting techniques and cardiovascular training is imperative.
- Wearable devices tracking physiological biometrics and other




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performance and health markers show promise and will be implemented for further lab/field study and testing.

- Solutions to provide optimal training strategies for Airmen continue to develop to enhance readiness and performance optimization. Product test and evaluation of such equipment is necessary to determine durability, feasibility, and efficacy in a tactical/field setting.
- Cognition and decision-making are influenced by factors such as aerobic capacity, performance under duress, etc. and will be further analyzed in future studies.
- Running assessments: Motion capture via various technologies to assess 3-D run and/or march with load and effective ways to introduce this technology and maximize benefits for operational units.
- Extreme climate research and impact on physical performance and physiological metrics is being investigated. Specifically, cold weather apparel and performance tasks are being evaluated and scientifically validated. This may include research with environmental chamber at varying degrees of intensity and will include research design, IRB navigation, subject recruitment and monitoring, etc.
- Spine assessment: low back and cervical spine continue to be critical areas of health/fitness in order for operators and aircrew to operate safely and effectively, and will be evaluated using various strategies.

As an ORISE participant, you may perform data collection and analysis for any of the aforementioned categories of study.

### **Why should I apply?**

Under the guidance of a mentor, you will gain hands-on experience to complement your education and support your academic and professional goals. Along the way, you will engage in activities and research in several areas. These include, but are not limited to,

- Taking an active role in laboratory research development and execution, with projects primarily focusing on military application of cutting-edge performance assessment (e.g., heart rate variability monitoring, sweat sensors), enhancement (e.g., nutritional supplements, glucose monitoring), and recovery (e.g., float tank, flexibility/mobility training) technologies. This will improve your skills in research design, management, and application of human performance technology.
- Learning new software, programming and data-base management skills, which are necessary to support “big” data analytics.
- Learning and applying next-gen fitness and nutrition intervention techniques.
- Highlighting various portions of findings to various groups such as on-site tours of STRONG Lab, military and national conferences, etc.
- Performing data analysis and writing scientific research proposals and manuscripts.
- Gaining further knowledge (continuing education, various certifications, etc.) through specific opportunities may be available.

Together, these experiences will help prepare you for more advanced

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academic work or to serve as a human performance practitioner in military and/or elite athletic organizations.

**Where will I be located?**

Wright-Patterson Air Force Base. The opportunity to travel for data collection on occasion might be suggested, but not required.

**What is the anticipated start date?**

AFRL is ready to make appointments immediately. Exact start dates will be determined at the time of selection and in coordination with the selected candidate. Applications are reviewed on an ongoing basis and internships will be filled as qualified candidates are identified.

**What is the appointment length?**

This is a twelve month research appointment, with the possibility to be renewed for additional research periods. Occasional flexibility in scheduling is helpful, but not required. Appointments may be extended depending on funding availability, project assignment, program rules, and availability of the participant.

**What are the benefits?**

You will receive a stipend to be determined by AFRL. Stipends are typically based on a 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

**Qualifications** The qualified candidate will have a Bachelor's degree, or should currently be pursuing that degree with an expected graduation date by August 31, 2024. Degree must have been received within five years of the appointment start date.

Highly competitive applicants will have education and/or experience in one or more of the following:

- Familiarity with motion capture laboratory setup and testing
- Capable of utilizing one or more motion capture tools for evaluation
- Exercise-science related background working with human population
- Prior experience within the field of biometrics, exercise testing, human performance
- Experience working effectively in fast-paced, dynamic environment
- Effective team-player; showing drive/initiative and motivating others
- Experience with active-duty operational personnel/aerospace physiology
- Able to communicate effectively with teammates in various relevant fields
- Good self-efficacy and ability to adapt to projects/challenges as they arise
- Good technical writing skills and experience with publication of peer-reviewed journal
- Experience with various data analytics, statistical software, internet applications relevant to motion capture
- Ability to communicate well with other exercise and interdisciplinary professionals

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**Application Requirements**

A complete application consists of:

- Zintellect Profile
- 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.](#)
- One Recommendation. Your application will be considered incomplete and will not be reviewed until the recommendation is submitted. We encourage you to contact your recommender as soon as you start your application to ensure they are able to complete the recommendation form and to let them know to expect a message from Zintellect. Recommenders will be asked to rate your scientific capabilities, personal characteristics, and describe how they know you. You can always log back in to your Zintellect account and check the status of your application.



If you have questions, send an email to [AIRFORCE@orise.orau.gov](mailto:AIRFORCE@orise.orau.gov). Please list the reference code of this opportunity [AFRL-711HPW-2023-0018] in the subject line of the email. Please understand that ORISE does not review applications or select applicants; selections are made by the sponsoring agency identified on this opportunity. All application materials should be submitted via the "Apply" button at the bottom of this opportunity listing. Please do not send application materials to the email address above.

**About ORISE**

This program, administered by Oak Ridge Associated Universities (ORAU) through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and DoD. Participants do not enter into an employee/employer relationship with ORISE, ORAU, DoD or any other office or agency. Instead, you will be affiliated with ORISE for the administration of the appointment through the ORISE appointment letter and Terms of Appointment. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE. For more information, visit the ORISE Research Participation Program at the U.S. Department of Defense.







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**Point of Contact** [Alecia](#)

- Eligibility Requirements**
- **Citizenship:** U.S. Citizen Only
  - **Degree:** Bachelor's Degree received within the last 60 months or anticipated to be received by 8/31/2024 12:00:00 AM.
  - **Discipline(s):**
    - **Communications and Graphics Design** ([2](#) )
    - **Computer, Information, and Data Sciences** ([7](#) )

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- **Engineering** ([1](#) )
- **Life Health and Medical Sciences** ([18](#) )
- **Mathematics and Statistics** ([5](#) )
- **Physics** ([1](#) )
- **Science & Engineering-related** ([1](#) )
- **Social and Behavioral Sciences** ([10](#) )