

Opportunity Title: Multisensory Integration and Perception

Opportunity Reference Code: ARL-C-HRED-1386277471

Organization DEVCOM Army Research Laboratory

Reference Code ARL-C-HRED-1386277471

Description About the Research

The U.S. Army Research Laboratory (ARL) has research opportunities available in multisensory integration and perception. ARL seeks outstanding Associates to join a team that is advancing empirical understandings and theoretical conceptualizations of human multisensory processing. Experimental approaches focus on developing and utilizing novel technology platforms to examine new multi-sensor combinations and critical issues of multisensory integration in real-world environments. We aim to discover techniques to enable robust, versatile, closed-loop systems that improve performance throughout the sensory-perceptual-motor decision-making cycle by leveraging knowledge of human nervous system capabilities for integrating, interpreting, and utilizing information from the brain, body, behavior, and environment. Modeling efforts focus on cybernetic, systems control theory, or dynamical systems approaches to conceptualizing multisensory integration at the systems level (or higher), with an emphasis on nonlinear, adaptive, and/or dynamical models. Other relevant modeling approaches will also be considered.

The Associate will pursue well-defined objectives within the broad scope of this program, but should have the ability to do research within a multidisciplinary team that includes collaborators from wide-ranging domains, such as cognitive neuroscience, electrical engineering, computer science, and applied physics or mathematics, among others. The Associate should have a strong affinity for quantitative analysis, with experience in biosignal data collection and/or analysis recommended. Researchers having familiarity with multi-aspect data approaches are encouraged to apply, with programming skill and experience with measurement and user interface hardware and software integration desired. Computational scientists with experience in the modeling of closed-loop systems are similarly encouraged to apply, with demonstrated skill in model development, implementation, analysis, simulation, and testing, a significant plus. The Associate will collaborate with team members to design and conduct human subjects experiments, including tests of specific model predictions, integrating ideas and techniques across the foundational knowledge base of human multisensory integration.

ARL Advisor: Jeremy Gaston

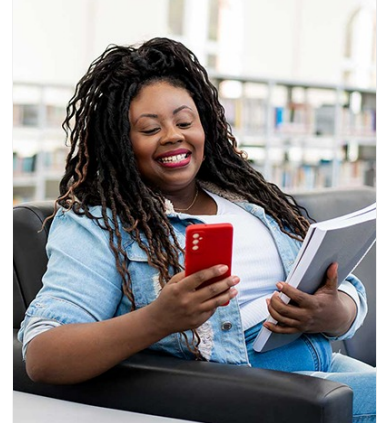
ARL Advisor Email: jeremy.r.gaston.civ@mail.mil

About HRED

The Human Research and Engineering Directorate (HRED) is ARL's principal center for research and development directed toward optimizing Soldier performance and human-autonomy teaming. Research within HRED focuses on how to improve Soldier performance in a dynamic and changing battlefield. As technology and autonomous systems become an increasingly



ORAU Pathfinder



Whether you are just starting your career or already at a senior level, ORAU offers internships, fellowships, research opportunities, and contract positions that can provide you with invaluable experience. Download the ORAU Pathfinder mobile app and find the right opportunity to propel you along your career path!

Visit ORAU Pathfinder [↗](#)



Opportunity Title: Multisensory Integration and Perception

Opportunity Reference Code: ARL-C-HRED-1386277471

integral part of Soldier teams, it is critical to determine how these systems can work with and be adapted to the Soldier and their capabilities. Autonomous systems must be able to be integrated into Soldier teams and move from tools to teammates. Critical to this is an understanding of how humans and human teams perform and change in dynamic environments and situations. HRED leverages human-robot interaction, human-informed machine learning, human cognition and adaptive teaming to improve human-autonomy teaming for future Army teams.

About ARL-RAP

The [Army Research Laboratory Research Associateship Program](#) (ARL-RAP) is designed to significantly increase the involvement of creative and highly trained scientists and engineers from academia and industry in scientific and technical areas of interest and relevance to the Army. Scientists and Engineers at the CCDCArmy Research Laboratory (ARL) help shape and execute the Army's program for meeting the challenge of developing technologies that will support Army forces in meeting future operational needs by pursuing scientific research and technological developments in diverse fields such as: applied mathematics, atmospheric characterization, simulation and human modeling, digital/optical signal processing, nanotechnology, material science and technology, multifunctional technology, combustion processes, propulsion and flight physics, communication and networking, and computational and information sciences.

A complete application includes:

- **Curriculum Vitae or Resume**
- **Three References Forms**
 - An email with a link to the reference form will be available in Zintellect to the applicant upon completion of the on-line application. Please send this email to persons you have selected to complete a reference.
 - References should be from persons familiar with your educational and professional qualifications (include your thesis or dissertation advisor, if applicable)
- **Transcripts**
 - Transcript verifying receipt of degree must be submitted with the application. Student/unofficial copy is acceptable

If selected by an advisor the participant will also be required to write a **research proposal** to submit to the ARL-RAP review panel for :

- Research topic should relate to a specific opportunity at ARL (see [Research Areas](#))
- The objective of the research topic should be clear and have a defined outcome
- Explain the direction you plan to pursue
- Include expected period for completing the study
- Include a brief background such as preparation and motivation for the

Opportunity Title: Multisensory Integration and Perception

Opportunity Reference Code: ARL-C-HRED-1386277471

research

- References of published efforts may be used to improve the proposal

A link to upload the proposal will be provided to the applicant once the advisor has made their selection.

Questions about this opportunity? Please email ARLFellowship@oraui.org

- Eligibility**

Requirements
- **Citizenship:** U.S. Citizen Only
 - **Degree:** Doctoral Degree received within the last 60 month(s).
 - **Academic Level(s):** Any academic level.
 - **Discipline(s):**
 - **Chemistry and Materials Sciences** ([12](#) )
 - **Communications and Graphics Design** ([1](#) )
 - **Computer, Information, and Data Sciences** ([16](#) )
 - **Earth and Geosciences** ([21](#) )
 - **Engineering** ([27](#) )
 - **Environmental and Marine Sciences** ([14](#) )
 - **Life Health and Medical Sciences** ([45](#) )
 - **Mathematics and Statistics** ([10](#) )
 - **Other Non-Science & Engineering** ([5](#) )
 - **Physics** ([16](#) )
 - **Science & Engineering-related** ([1](#) )
 - **Social and Behavioral Sciences** ([28](#) )
 - **Age:** Must be 18 years of age