Opportunity Title: Using Virtual Environments to Understand Cognitive Processes in More Mission-Relevant Scenarios
Opportunity Reference Code: ARL-C-HRED-300164

Organization	DEVCOM Army Research Laboratory
Reference Code	ARL-C-HRED-300164
Description	**About the Research**

The vast majority of what is known about how visual information is processed by the human brain comes from tightly controlled laboratory experiments. However, in order to transition these results into field-ready technologies, it is essential that we explore how cognitive mechanisms, well-understood in the lab, operate in more immersive, real-world environments, with mission-relevant tasks.

For this project, successful candidates will apply principles of neural computational models based on desktop paradigms to visual search experiments in immersive virtual environments to test predictions and form foundational theories as to how the visual system operates in the natural environment. This combination of computational theory and experimentation using cutting edge technology will inform the design of human-AI teams by providing a better understanding of how the human visual system deploys attentional resources in the environment, thereby allowing us to build complementary AI systems

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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 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 CCDC Army 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 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@orau.org.

Eligibility Requirements	- **Degree:** Currently pursuing a Master's Degree or Doctoral Degree. - **Academic Level(s):** Any academic level. - **Discipline(s):** - **Social and Behavioral Sciences** (4 👁)