Opportunity Title: Studying human-autonomy teaming through mobile games and wearable sensors

Opportunity Reference Code: ARL-R-HRED-300138

Organization	DEVCOM Army Research Laboratory
Reference Code	ARL-R-HRED-300138
Description	**About the Research**

An overarching goal of the Human Sciences at the U. S. CCDC Army Research Laboratory is to facilitate human-autonomy teaming through methods that increase an autonomy's understanding of a human teammate's state, preferences, and intents. CCDC ARL researchers are seeking to meet this goal through an improved accounting of inter- and intra-person variability in behavior and ability across relevant tasks incorporating intelligent agents working as teammates with humans. This work is completed through the use of mobile games and wearable sensors, which offer an opportunity to collect complex, continuous behavioral and physiological data from individuals over long (e.g., 6 months) periods of time. Given data from such "in the wild" techniques, CCDC ARL researchers are seeking to apply machine learning methods to both predict behavior and make inferences about the underlying processes that generate behavior as a means of improving human-autonomy team outcomes. We are recruiting from a broad range of disciplines and academic levels, but applicants are expected to have expertise with computational and analytical methods as well as a background in human data analysis or collection.

Keywords: Machine learning, Human-autonomy teaming, longitudinal data collection, wearable sensors, mobile games

ARL Advisor: Evan C. Carter

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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
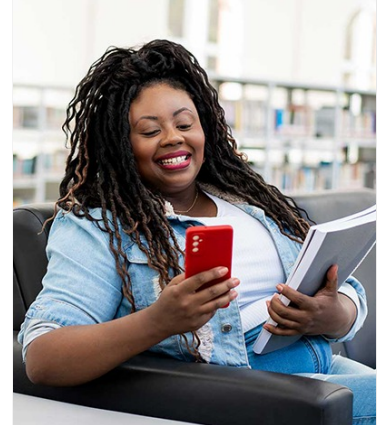
scientific and technical areas of interest and relevance to the Army. Scientists and Engineers at the CCDCArmy Research Laboratory (ARL) help shape and execute the Army's program for meeting the challenge of developing technologies that will support Army forces in meeting future operational needs by 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 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:** Bachelor's Degree, Master's Degree, or Doctoral Degree.
- **Academic Level(s):** Any academic level.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (16 👁)
  - **Engineering** (1 👁)

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- - **Other Non-Science & Engineering** (1 👁)
  - **Social and Behavioral Sciences** (2 👁)
- **Age:** Must be 18 years of age