Opportunity Title: Multi-modal Sensing and Human-Machine Integration for Adaptive AI in Tactical Environments
Opportunity Reference Code: ARL-R-HCxS-400012-F1

Organization DEVCOM Army Research Laboratory

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Description We have an open position for a postdoctoral research fellow to investigate multi-modal sensor-fusion approaches for understanding human behavior in realistic environments to facilitate human-AI adaptation at the tactical edge. The aim of the project will be to leverage advanced analytics on human-derived signals from diverse systems to passively predict actions and estimate user state such that future AI platforms for dismounted Soldiers can quickly adapt to the changing needs of the Soldier and squad. The research fellow will be a part of a multi-disciplinary team of cognitive psychologists, neuroscientists, engineers, and data scientists that will conduct research to understand the relationship between critical behaviors and relevant data/metrics from wearables (physiological and biomechanical), AR/VR systems, and other off body systems across controlled laboratory studies and operational field exercises. Research and/or work experience at the intersection of wearables, bio-signals, machine learning, and individual and team performance outcomes are important for this role. Further knowledge of advanced machine learning techniques such as reinforcement learning is a plus.

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About ARD

ARL's Army Research Directorate (ARD) focuses on exploiting concept development, discovery, technology development, and transition of the most promising disruptive science and technology to deliver to the Army fundamentally advantageous science-based capabilities through laboratory's 11 research competencies. This intramural research directorate also manages the laboratory's essential research programs, which are flagship research efforts focused on delivering defined outcomes.

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.

About HUMANS IN COMPLEX SYSTEMS (HCxS)

Multi-disciplinary non-medical approaches to understand and modify the potential of humans situated in and interacting within complex social, technological, and socio-technical systems.

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.

Point of Contact ARL

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Master's Degree or Doctoral Degree.
- **Academic Level(s):** Any academic level.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)

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- **Computer, Information, and Data Sciences** (17 👁)
- **Engineering** (27 👁)
- **Life Health and Medical Sciences** (1 👁)
- **Social and Behavioral Sciences** (29 👁)