

Opportunity Title: Scalable Interactive Machine Learning for Human-AI Integration in Battlefield Decision-Making

Opportunity Reference Code: ARL-R-HCxS-400029-F1

Organization DEVCOM Army Research Laboratory

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Description The U.S. Army Combat Capabilities Development Command (DEVCOM) Army Research Laboratory (ARL) has a research opportunity available in the research and development of scalable interactive machine learning (SIML) systems. In particular, DEVCOM ARL is looking for an outstanding individual to conduct research to enable systems of multiple AI agents to interact and collaborate with multiple humans to solve complex tasks that are not straightforward for humans or AI to accomplish alone. The developed methods will apply to real-world challenges in Command and Control—the process by which military personnel make decisions, order action, and monitor and influence actions—enabling Army personnel to collaborate with a network of AI agents to develop plans of action more efficiently and robustly. A successful candidate will have expertise in one or more of the following areas: robotics, machine learning methods, deep reinforcement learning, optimal control, experimental design, mathematics, and computer programming. Emphasis will be on translational research and technology development that will build on current internal DEVCOM ARL research on human-guided machine learning. The candidate will support the short-term goal of developing a working proof-of-concept system that demonstrates the viability of human-AI integration when scaling the number of AI agents in the system. The candidate will perform algorithm and system development, conduct experiments, publish papers, and integrate ideas and methods with the ongoing efforts of a multidisciplinary research team.

ARL Advisors:

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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)



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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@ora.u.org.

Point of Contact [ARL](#)

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- Eligibility Requirements**
- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree.
 - **Minimum Overall GPA:** 3.80
 - **Academic Level(s):** Bachelor's Degree (Journeyman Fellow), Master's Degree (Journeyman Fellow), Master's Degree 7+ years (Senior Fellow), Doctoral Degree (Postdoctoral Fellow), Doctoral Degree 5+ years (Senior Fellow), or Faculty.
 - **Discipline(s):**
 - **Chemistry and Materials Sciences** ([12](#))
 - **Communications and Graphics Design** ([2](#))
 - **Computer, Information, and Data Sciences** ([17](#))
 - **Earth and Geosciences** ([21](#))
 - **Engineering** ([27](#))
 - **Environmental and Marine Sciences** ([14](#))
 - **Life Health and Medical Sciences** ([51](#))
 - **Mathematics and Statistics** ([11](#))
 - **Physics** ([16](#))
 - **Science & Engineering-related** ([2](#))
 - **Social and Behavioral Sciences** ([29](#))