

Opportunity Title: ARL-Central: Short-Term Research Initiative in Artificial Intelligence and Machine Learning

Opportunity Reference Code: ARL-R-WMRD-300129

Organization DEVCOM Army Research Laboratory

Reference Code ARL-R-WMRD-300129

Description About the Research

DEVCOM Army Research Laboratory is looking for exceptional scientists and engineers: undergraduate or graduate students, faculty, postdoctoral candidates, and senior researchers. Artificial intelligence and machine learning (AI/ML) is expected to play a key role in the ecosystem of future Army systems, from autonomous robotic systems to propulsion science to power and energy to advanced materials and manufacturing to soldier protection and ballistics to networks to human-agent teaming to quantum technologies to electronic warfare. Do you have expertise in AI/ML and want to do cutting-edge Army-specific research in the area? Do you have expertise in a different functional area and want to combine it with the latest AI/ML techniques for future Army capabilities? Are you searching for ways that your talent can contribute to research in Army applications?

The Midwest hub of the Army Research Laboratory, ARL Central, is launching an initiative to support short-term research opportunities (1 month to 1 year, potentially renewable) in areas of scientific research interest to the Army, including but not limited to research focus areas of the region such as artificial intelligence, machine learning, and data science; propulsion, power, and energy; advanced materials and manufacturing; impact physics, energetic materials, and biomechanics; internet of battlefield things (IOBT); RF sensing and electronic warfare; to name a few. The initiative's goals are to:

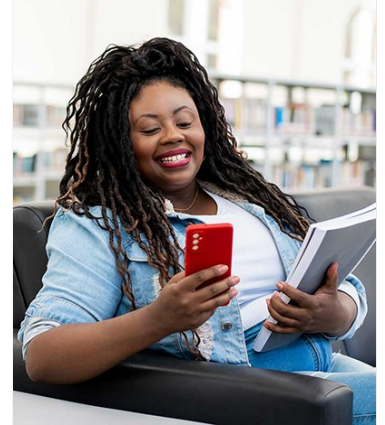
- Advance the participant's scientific skills and knowledge in areas of critical national need
- Provide high impact research opportunities for outstanding scientists
- Promote the influx of new ideas and skills into ARL and the Army
- Enhance collaborative relationships with the broader academic/industrial research communities

As a part of this initiative, ARL Central seeks exceptional researchers, from student to postdoctoral researchers to faculty to senior researchers, to strengthen the collaborative relationships between our research partners in the Midwest and ARL, the Army, and the DOD. The emphasis of this initiative is to introduce applicants to mission-oriented science and technology programs in Army and DOD laboratories and centers. The applicants gain exposure to current national defense issues in science and technology, have opportunities to share and exchange innovative ideas and techniques, and make significant contributions to these programs. Participants are encouraged to publish and present research findings as part of a research team to enhance their own professional development. The interaction of ideas, skills, approaches, and technologies will be of mutual benefit to the fellow and to ARL/Army/DOD.

This initiative is also a unique opportunity to take full advantage of ARL's strategic intra-extramural reach with a seamless collaboration among ARL



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laboratories, ARL scientists, regional campuses, and leading external scientists. For those researchers interested, a crash course into the state of the art in machine learning and artificial intelligence will be offered to train in collaboration with scientists at ARL and at our partners.

More information on ARL: <https://www.arl.army.mil/>

More information on Open Campus: <https://www.arl.army.mil/opencampus/>

More information on Technical Competencies:

<https://www.arl.army.mil/opencampus/?q=TechnicalCompetencies>

More information on Essential Research Programs:

<https://www.arl.army.mil/opencampus/?q=ERPs>

While specific research topics are often sought, this announcement is primarily meant to encourage creative proposals from talented individuals with cutting-edge research interests.

If you have questions about this opportunity, please email to ARLCentral@arl.army.mil

Keywords: artificial intelligence, machine learning, data science, power and energy, propulsion systems, materials science, manufacturing, impact physics, mechanics, energetic materials, biomechanics, internet of battlefield things, electronic warfare, hypersonics

About WMRD

The goals of the Weapons and Materials Research Directorate (WMRD) are to enhance the lethality and survivability of weapons systems, and to meet the soldier's technology needs for advanced weaponry and protection. Research is pursued in energetic materials dynamics, propulsion/flight physics, projectile warhead mechanics, terminal effects phenomena, armor/survivability technologies, environmental chemistry, and advanced materials (energetic, metals, ceramics, polymers, composite/hybrids, and mechanics) for armor, armament, missiles, ground vehicles, helicopters, and individual soldier applications necessary for maintaining and ensuring supremacy in future land warfare.

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

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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.

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| Eligibility Requirements | <ul style="list-style-type: none">• Citizenship: U.S. Citizen Only• Degree: Bachelor's Degree, Master's Degree, or Doctoral Degree.• Academic Level(s): Any academic level.• Discipline(s):<ul style="list-style-type: none">◦ Chemistry and Materials Sciences (12 )◦ Computer, Information, and Data Sciences (17 )◦ Earth and Geosciences (1 )◦ Engineering (27 )◦ Environmental and Marine Sciences (3 )◦ Mathematics and Statistics (10 )◦ Physics (16 )◦ Social and Behavioral Sciences (1 )• Age: Must be 18 years of age |
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