Opportunity Title: Modeling and Simulations of Active Protection Systems for Combat Vehicles

Opportunity Reference Code: ARL-R-WMRD-1548633027

Organization	DEVCOM Army Research Laboratory
Reference Code	ARL-R-WMRD-1548633027
Description	**About the Research**

The Applied Physics Branch of the US Army Research Laboratory is looking for applicants to perform research in the area of Active Protection Systems (APS) for combat vehicles. An end-to-end APS scenario consists of threat launch, detection, tracking, filtering, fire controls, countermeasure launch, detonation, and engagement. Attributes of many APS components and events exhibit random characteristics, such as probability of detection, measurement noises, threat trajectories, aim point dispersion, fuze activation timing, etc. Two categories of research are sought and both will support ongoing development of a software suite for APS modeling and simulations.

Research in the first category may be chosen from one of the areas: (1) APS model verification, validation and uncertainty quantification; (2) Artificial intelligence based cooperative protection network for maximum survivability and minimum collateral damages. Applicants for the research category should possess a Ph.D. in applied math, computer science, physics, engineering or a related discipline.

Research in the second category may be chosen from one of the areas: (1) Sensor modeling; (2) Countermeasure modeling; and (3) Database management. Applicants for the research category should possess strong C++ programming skills and/or knowledge in database design, and should be undergraduate juniors or above in engineering, computer science, physics or a related discipline.

All research will be performed at Adelphi Laboratory Center, 2800 Powder Mill Road, Adelphi, Maryland. All fellowships are open to U.S. Citizens only.

ARL Advisor: Michael Chen

ARL Advisor Email: michael.chen9.civ@mail.mil

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.

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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.or

Eligibility Requirements	- **Citizenship:** U.S. Citizen Only - **Degree:** Doctoral Degree.

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- **Academic Level(s):** Any academic level.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Computer, Information, and Data Sciences** (16 👁)
  - **Engineering** (27 👁)
  - **Mathematics and Statistics** (10 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (1 👁)
- **Age:** Must be 18 years of age