

**Organization**

DEVCOM Army Research Laboratory

**Reference Code**

ARL-C-WMRD-300028

**Description****About the Research**

CCDC ARL Center for Agile Materials Manufacturing Science (CAMMS, <https://www.arl.army.mil/opencampus/?q=centers/camms>) additive manufacturing (AM) laboratory is conducting state of the art transformative agile manufacturing, which includes but not limited to additive manufacturing (AM) also known as 3D printing and advanced manufacturing, research for developing Army relevant metallics, polymeric, and hybrid materials based AM feedstocks; and integrating the AM feedstocks to various advanced digital manufacturing processes in support of the Army Modernization Priorities (<https://www.army.mil/standto/2018-01-16>). Advances in additive and digital manufacturing create new sets of opportunities in expediting very complex designs to on-demand at the point of need manufacturing while presenting the unique challenges associated with the multidisciplinary and interdisciplinary researches require to solve the problems linked with the Army Modernization Priorities. Exceptional candidates with Bachelor of Science in engineering or physics sought in the area of additive manufacturing processing with emphases on additive manufacturing pre-processing, post-processing, and in-situ and ex-situ processing data analyses. The position will require to work as a part of large AM applied research teams to develop various pre-, post-, and in-situ processes; to analyze ex-situ data; and to implement additive tool motion path controls. The desired digital manufacturing research competencies include computer aided design (CAD), computer aided manufacturing (CAM), manipulation of digital manufacturing software tools, 3D object slicers, support structure optimizers, computer programmings, and scripting languages. The main research focus will be the implementation of computer aided software and hardware tools, sample preparations and characterizations data, automations, digitization, and mechatronics for supporting the large AM research teams. This research opportunity aligns with the Army Modernization Priorities and CCDC ARL Essential Research Programs (ERP); and directly supports the Agile Manufacturing mission research program and the Science of AM for Next Generation Munition (SAMNGM) ERP. Candidates should demonstrate a relevant academic background with the research interests in additive or digital manufacturing and an ability to self-motivated, learn new skills, and work independently with limited supervisions.

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**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 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@oraу.org](mailto:ARLFellowship@oraу.org)

**Eligibility Requirements**

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree received within the last 60 months or currently pursuing.
- **Academic Level(s):** Any academic level.
- **Discipline(s):**
  - **Engineering** ([27](#))
  - **Physics** ([16](#))

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