



U.S. NATIONAL SCIENCE FOUNDATION
2415 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22314

NSF 24-071

Dear Colleague Letter: Research Internships for Graduate Students at U.S. Army Combat Capabilities Development Command Army Research Laboratory (DEVCOM ARL) or Ground Vehicle Systems Center (DEVCOM GVSC) Supplemental Funding Opportunity (NSF-DEVCOM INTERN)

March 21, 2024

Dear Colleagues:

Fostering the growth of a globally competitive and diverse research workforce and advancing the scientific and innovation skills of the Nation is a strategic objective of the National Science Foundation (NSF). The NSF and U.S. Army Combat Capabilities Development Command Army Research Laboratory (DEVCOM ARL) and Ground Vehicle Systems Center (DEVCOM GVSC) have entered into a partnership to support the development of graduate students to meet both the NSF's strategic workforce development objectives as well as DEVCOM ARL's and DEVCOM GVSC's mission to advance cutting-edge scientific discovery, technological innovation and transition of knowledge products to empowering U.S. Army capabilities today and in the future.

This Dear Colleague Letter (DCL) describes this unique partnership with DEVCOM ARL or DEVCOM GVSC and is aligned with and conforms with the NSF INTERN opportunity described in the [Dear Colleague Letter: Non-Academic Research Internships for Graduate Students \(INTERN\) Supplemental Funding Opportunity](#). This DCL is referred to as the NSF - DEVCOM INTERN DCL.

SUPPLEMENTAL FUNDING OPPORTUNITY

NSF and DEVCOM ARL and DEVCOM GVSC will consider supplemental funding requests that enable PIs (or co-PIs) to request up to six months of additional support for graduate students supported on active NSF grants with the following goals:

1. To provide graduate students with the opportunity to augment their research assistantships or NSF Graduate Research Fellowship Program (GRFP) fellowships with DEVCOM ARL or DEVCOM GVSC research internship activities and development opportunities that will complement their academic research development;
2. To allow graduate students to pursue new activities aimed at acquiring professional development experience that will enhance their preparation for multiple career pathways after graduation; and
3. To encourage the participation of the full spectrum of diverse talent in science, technology,

engineering, and mathematics (STEM) in the programs and activities of the Department of Defense.

DESCRIPTION OF THE ACTIVITIES SUPPORTED

The Principal Investigator (PI) or co-PI of an active NSF award may request supplemental funding for one or more graduate students to gain knowledge, skills and experiences that will augment their preparation for a successful long-term career through an internship at the DEVCOM ARL or DEVCOM GVSC.

PIs and co-PIs are encouraged to discuss with the cognizant NSF program directors and the DEVCOM ARL or DEVCOM GVSC point of contact to identify potential Army collaborators and ensure activities are aligned with Army mission priorities and within the NSF grant project scope. It is expected that the graduate student and the PI on the NSF grant will work together to identify innovative experiences that add the most educational value for the graduate student. Further, it is expected that the internship will be on-site at DEVCOM ARL (Adelphi, MD, Aberdeen Proving Ground, MD or White Sands, NM) or DEVCOM GVSC (Warren, MI) and will be research-focused within a relevant STEM field.

DEVCOM ARL RESEARCH FOCUS AREAS

DEVCOM ARL research initiatives are aligned to eleven (11) research competencies (Figure 1). These provide the Army foundational expertise to accelerate the delivery of knowledge products aimed to solve the most Army-relevant research questions. Opportunities for NSF-supported graduate student internships provide ample research stimulation as the competencies span a wide spectrum of NSF supported science and engineering basic research fields.



Figure 1. DEVCOM ARL Research Competencies

1. Biological and Biotechnology Sciences: biological-related disciplines, including synthetic biology, biological materials, biological / abiological interfaces and biological effect.
2. Electromagnetic Spectrum Sciences: novel approaches to sensing and operating across the entire electromagnetic (EM) environment; counter-sensing across the EM spectrum; protection from EM effects; emerging concepts for RF, radars, and electronic warfare (EW).
3. Energy Sciences: science of mechanical and electrical power generation, storage, conditioning, and distribution; energy conversion; and emerging concepts for lasers, directed energy (DE), and DE protection and propagation.
4. Humans in Complex Systems: 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.
5. Mechanical Sciences: science of novel mechanics, mechanisms, and control to enable manned/unmanned ground and air vehicle concepts.
6. Military Information Sciences: underpinning sciences, physical autonomy, and enablers required to provide timely, mission-aware information to humans and systems at speed and scale for all-domain and coalition operations.
7. Network, Cyber, and Computational Sciences: sciences to enable and ensure secure resilient communication networks for distributed analytics in Multi-Domain Operations.
8. Photonics, Electronics, and Quantum Sciences: materials (and related manufacturing methods) and devices intended for achieving photonic, electronic, and quantum-based effects.
9. Sciences of Extreme Materials: materials and related manufacturing methods focusing on mechanical response and performance extremes, including active, adaptive, and flexible/soft materials; novel manufacturing science for energetic materials.
10. Terminal Effects: sciences and applied research of weapon–target interactions.
11. Weapons Sciences: internal, transitional, and external ballistics; launch, flight, control, and navigation of guided weapons and aerial systems; development of novel weapon concepts.

DEVCOM GVSC RESEARCH FOCUS AREAS

DEVCOM GVSC research initiatives are aligned to five (5) research competencies (Figure 2). These provide the Army applied science and technology expertise to accelerate the delivery of knowledge products aimed to solve the most Army-relevant research questions focused on the ground vehicle mission. Opportunities for NSF-supported graduate student internships provide ample ground vehicle research stimulation as the competencies focuses on the physical sciences and related disciplines critical to the ground vehicle mission.



Figure 2. DEVCOM GVSC Research Competencies

1. Propulsion and Mobility: Development, control and integration of vehicle powertrains, including electrical. Track and suspension development. Energy storage including fuel cells to effectively maneuver over greater percentages of terrain than current systems.
2. Fuels and Lubricants: Development and improvement of existing and future ground and aviation fuels, fuel additives, interactions with propulsion systems and distribution to include renewable diesel fuel, alternative/sustainable fuel and fuel additives to include the needs of electronic platforms. Computational materials science and materials engineering approaches for lubricants coatings, batteries, and fuel cells.
3. Electrical and Power Management: Vehicle electrical power, including high voltage systems, system design, electromagnetic environment effects, thermal and safety concerns and component development. Vehicle embedded system architectures, firmware and software design and development to include cybersecurity issues.
4. Survivability and Protection: Protection consists of the capabilities and technologies to mitigate the effects of threats employed against ground vehicles on the occupants and individuals in their proximity. Materials science, glass, composites and ceramic production, joining technologies, structural design optimization, signature management, occupant protection, special components, physical protection and modular architecture are critical enablers to achieving optimized layered survivability and protection.
5. Autonomy & Robotics: mobility functions of robotic, automated and autonomous systems to include executive decision making, human robot interactions, development of autonomous behaviors utilizing the robotic technology kernel, robotic data modeling and curation and the development of modeling and simulation and testing methods and capabilities.

ELIGIBILITY

To be eligible, graduate students must: be a U.S. citizen, have completed at least one academic year

in their graduate programs (master's or doctoral), be in good academic standing and demonstrate satisfactory progress towards completion of their degrees. This opportunity is open to PIs or co-PIs who are supporting graduate students through any active NSF award, including institutional GRFP awards. The PI for an active GRFP fellowship (not the GRFP fellow) should contact GRFP (GRFPINTERN@nsf.gov) regarding specific requirements before submitting a supplemental funding request on behalf of a GRFP fellow.

Graduate students selected for the NSF-DEVCOM INTERN Program must be U.S. citizens in order to access the Government research facilities needed to conduct research, attend visits, and participate in meetings. Proof of citizenship, which will require two (2) forms of identification, must be provided for the selected graduate students when requested by DEVCOM ARL or DEVCOM GVSC. One form of identification must include a picture, such as a current driver's license or passport. The second form of identification does not require a picture, such as a Social Security Number (SSN) card or a birth certificate. Additionally, the selected graduate students must be willing to submit to a National Crime Information Center (NCIC) check. Proof of citizenship is NOT required as part of the supplemental funding request submitted to NSF.

SUPPLEMENTAL FUNDING REQUEST PREPARATION INSTRUCTIONS

Information about requesting supplemental support is contained in the [NSF Proposal & Award Policies & Procedures Guide](#) (PAPPG), Chapter VI.E.5. In addition to the PAPPG requirements for supplemental support, the following materials must be included.

1. The first line of the Summary of Proposed Work must include the NSF-DEVCOM INTERN DCL title and NSF publication number and include these components:
 - (A) A two-page summary that describes the internship
 - (B) A one-page personal statement from the graduate student describing career goals, accomplishments, and how the activity will better prepare the individual to enter the workforce.
2. Under supplementary documents provide the following:
 - (A) A resume of the graduate student (up to 2 pages) that contains (but not limited to) the following information:
 - a. Research summary to include contribution(s) to research discipline
 - b. Educational Preparation
 - i. Institution(s)
 - ii. Major(s)
 - iii. Year of study (1st year, 2nd year, etc.)
 - iv. Completed coursework
 - c. Employment and volunteer/outreach history
 - d. Publications (accepted only)
 - e. Other information relevant to the proposed internship

Graduate students supported by funding described in this DCL are encouraged to register for an ORCID ID and for this identifier to be provided to NSF in the student's resume as well as the PI's annual project report. ORCID® (<http://orcid.org>) is an open, non-profit, community-driven effort to

create and maintain a registry of unique researcher identifiers and a transparent method of linking research activities and outputs to these identifiers. An ORCID identifier provides a unique and persistent digital identifier to distinguish individual researchers. While NSF encourages the use of an ORCID ID, submission of the ORCID ID is optional.

(B) A letter of collaboration from a collaborator at DEVCOM ARL or DEVCOM GVSC that will host the graduate student. The letter describes the internship opportunity, the impact the intern will have to the competency, and the mentoring that will be provided to the student during the internship.

(C) An endorsement letter from the PI that confirms that the student meets the eligibility requirements specified in this DCL. The letter must describe how the proposed internship activity will contribute to the student's graduate education experience and how it may impact time to degree.

3. If the Host organization is DEVCOM GVSC, then the NSF recipient and DEVCOM GVSC must agree in advance as to how intellectual property (IP) rights will be handled. A signed agreement on IP (including publication and patent rights) must be submitted either as a supplementary document or, via email to the cognizant Program Director after submission of the supplementary funding request and prior to the award of the supplemental funding. NSF is responsible neither for the agreement reached nor the IP information exchanged between the NSF recipient and GVSC. Note: No IP Agreement is required if the Host organization is DEVCOM ARL.
4. A budget and budget justification.

SUPPLEMENTAL FUNDING AMOUNT

The total amount of funding requested must not exceed \$55,000 per student per six-month period. NSF plans to fund approximately 10 supplements in each fiscal year starting with FY 2024, depending on the availability of funds.

ALLOWABLE COSTS UNDER THIS DCL

Funds may be used to support travel, tuition and fees, health insurance, additional stipend, and temporary relocation costs for the graduate student. Additional stipends are not allowed for GRFP fellows "on tenure" (currently receiving a GRFP stipend), but a stipend will be considered for fellows "on reserve" (not currently receiving a GRFP stipend) equal to the monthly rate of the GRFP stipend. Up to \$2,500 may be used for the PI or the graduate research fellow's advisor to travel to work with the host organization in co-mentoring the student during the internship. Up to \$2,500 may be used for materials and supplies to support the student during the internship. The recipient is permitted to request indirect costs in accordance with their approved/negotiated indirect cost rate. The total requested budget cannot exceed the limits listed under the "Supplement funding amount" section above. Note: Spousal and dependent travel are not supported.

PERIOD OF SUPPORT

The supplement funding will provide up to six months of support for an internship. Up to two supplemental funding requests may be submitted per student supported by the award. This would

allow the student up to two internship periods up to six months each (i.e., a maximum of 12 months per student).

DUE DATES

Supplemental funding requests may be submitted at any time with a target date of June 15 for Fiscal Year 2024 and April 15 for future Fiscal Years.

SUBMISSION & REVIEW

Requests for supplemental funding must be submitted electronically via Research.gov. A PI or co-PI on an NSF award must contact his/her cognizant program director prior to submission. GRFP INTERN supplement requests are submitted by the GRFP PI, not by the GRFP fellow or the fellow's research advisor. Requests for supplemental funding submitted in response to this DCL will be reviewed internally by NSF Program Officers. All supplements are subject to (a) the availability of funds, and (b) merit review of the supplemental funding request.

For further information, please contact: Dr. Prakash G. Balan, pbalan@nsf.gov
DEVCOM ARL Point of Contact: Dr. Pablo E. Guzmán, pablo.e.guzman2.civ@army.mil
DEVCOM GVSC Point of Contact: Ms. Andrea Simon, andrea.m.simon.civ@army.mil

SPECIAL AWARD CONDITION

Intellectual Property Rights: Internships under this DCL are considered equivalent to traineeships. The National Science Foundation and DEVCOM ARL claim no rights to any inventions or writings that might result from its traineeship awards. However, trainees should be aware that NSF, another Federal agency, or some private party may acquire such rights through other support for particular research. Also, trainees should note their obligation to include an Acknowledgment and Disclaimer in any publication.

Note: If the Host organization is DEVCOM GVSC, an IP agreement between the NSF recipient and DEVCOM GVSC is required per the guidance under the section on Supplemental Funding Request Preparation Instructions.

POLICY OR CODE ADDRESSING HARASSMENT

Recipients are required to have a policy or code of conduct that addresses sexual harassment, other forms of harassment, and sexual assault. The recipient should coordinate with DEVCOM ARL or DEVCOM GVSC to provide orientation to graduate students to cover expectations of behavior to ensure a safe and respectful environment, and to review the recipient and DEVCOM ARL's or DEVCOM GVSC's policy or code of conduct addressing sexual harassment, other forms of harassment, and sexual assault, including reporting and complaint procedures. For additional information, see the NSF policies at <https://new.nsf.gov/stopping-harassment>.

Sincerely,

Susan Marqusee, Assistant Director

Directorate for Biological Sciences (BIO)

Dilma Da Silva, Acting Assistant Director

Directorate for Computer and Information Science and Engineering (CISE)

James Luther Moore, Assistant Director

Directorate for Education and Human Resources (EHR)

Susan Margulies, Assistant Director

Directorate for Engineering (ENG)

Alexandra Isern, Assistant Director

Directorate for Geosciences (GEO)

Denise Caldwell, Acting Assistant Director

Directorate for Mathematical and Physical Sciences (MPS)

Sylvia M. Butterfield, Acting Assistant Director

Directorate for Social, Behavioral and Economic Sciences (SBE)

Erwin Gianchandani, Assistant Director

Directorate for Technology, Innovation and Partnership (TIP)

Alicia Knoedler, Office Head

Office of Integrative Activities (OIA)

Kendra Sharp, Office Head

Office of International Science and Engineering (OISE)