

NJIT Research Newsletter

Issue: ORN-2016-08

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NJIT Research Newsletter includes **Grant Opportunity Alerts**, recent awards, and announcements of research related seminars, webinars and special events. The Newsletter is posted on the NJIT Research Website <http://www.njit.edu/research/>

Recent Research Grant and Contract Awards

Congratulations to faculty and staff on receiving research grant and contract awards!

PI: Edward Dreizin (PI)

Department: Chemical, Biological and Pharmaceutical Engineering

Grant/Contract Project Title: Reactive Nanocomposite Materials for Enhanced Lethality Kinetic Warheads

Funding Agency: MDA

Duration: 12/21/15-12/21/16

PI: Janice Daniel (PI)

Department: Civil and Environmental Engineering

Grant/Contract Project Title: Seatbelt Usage Study-2016

Funding Agency: State and Community Highway Safety

Duration: 10/01/15-09/30/16

PI: Yi Chen (PI) and Songhua Xu (Co-PI)

Department: School of Management and Computer Science

Grant/Contract Project Title: Understanding and Processing Subjective Queries on Structured Data

Funding Agency: Google Inc.

Duration: 02/01/16-02/01/17

PI: Zhi Wei (PI)

Department: Computer Science

Grant/Contract Project Title: SIV Infection of Viral Vector-Induced CD4T Cells in Vivo

Funding Agency: UTMB -The Robert Mapplethorpe Foundation

Duration: 12/01/15-11/30/17

PI: Casey Dickman (PI)

Department: Mathematical Sciences

Grant/Contract Project Title: CAREER: Neuronal Data Assimilation Tools and Models for Understanding Circadian Rhythms

Funding Agency: NSF

Duration: 07/01/16-06/30/18

Events and Announcements

Event: NSF Advanced CyberInfrastructure (ACI) Solicitation Webinar

When: March 3, 2016: 11.00 AM – 2.00 PM

Where: http://www.nsf.gov/events/event_summ.jsp?cntn_id=137798&org=NSF

Brief Description: The [Division of Advanced Cyberinfrastructure](#) enables science and engineering research and education by developing, creating, and supporting secure, advanced, global cyberinfrastructure (CI). These goals are achieved through a number of cross-cutting program solicitations. We will provide information on several recently posted solicitations, including Data Infrastructure Building Blocks (DIBBs), Software Infrastructure for Sustained Innovation (SI2), and Petascale Computing Resource Allocations (PRAC), Cybersecurity Innovation for Cyberinfrastructure (CICI) and Learning and Workforce Development (LWD) (to include discussion of NSF's CAREER, CRII, REU Sites, and NRT programs).

On Thursday March 3, 2016 from 11:00 AM to 2:00 PM EST, this webinar will cover the elements of each solicitation, including objectives, award types, and submission requirements. There will be a question and answer session following the discussion of each program solicitation. Please feel free to join and leave the webinar at various times, as you wish. The agenda is as follows (note all times are Eastern Time):

- 11:00 AM Welcome and overview, Amy Friedlander, Deputy Division Director, ACI
- 11:30 AM Data Infrastructure Building Blocks (DIBBs), Amy Walton, Program Director, CISE/ACI
- 12:00 PM Software Infrastructure for Sustained Innovation (SI2), Rajiv Ramnath, Program Director, CISE/ACI
- 12:30 PM Petascale Computing Resource Allocations (PRAC), Ed Walker, Program Director, CISE/ACI
- 1:00 PM Cybersecurity Innovation for Cyberinfrastructure (CICI), Anita Nikolich, Program Director, CISE/ACI
- 1:30 PM Learning and Workforce Development (LWD) (Sushil Prasad, Program Director, CISE/ACI.

Register: Please register by 12:00 noon EST on Wednesday March 2 at:

<https://nsfevents.webex.com/nsfevents/onstage/g.php?MTID=eef48ca7f1b170752f04b8baf487ef40e>.

Event: NSF Webinar: Empirical Modeling of Complex Systems

When: March 3, 2016: 12.30 PM – 1.30 PM

Where: http://www.nsf.gov/events/event_summ.jsp?cntn_id=137718&org=NSF

Brief Description: Abstract: Engineering is about building models of phenomena. Traditionally, these models are built using 'foundational' equations such as those of motion, continuum mechanics and electromagnetism, that capture the core causal relationships of the domain. Unfortunately, we do not have such equations for heterogeneous complex systems that

we find in biological, environmental and behavioral sciences. Recently, exploiting large amounts of data and compute resources, we have started using machine learning to build empirical models of such systems. This technique is behind the success of many widely used products such as Google search and advertising. However, a number of obstacles need to be overcome before empirical modeling becomes more widespread. In this talk, we discuss two of these problems along with their possible solutions.

Data drives empirical modeling and in order to get an adequate data set, we often need to merge data from different sources. Aligning schemas and resolving references to entities that appear in different sets with ambiguous names is expensive and error prone. In this talk, we look at how human communication deals with similar issues to show how these techniques may be adapted to allow very large scale data sharing.

High infrastructure setup costs have severely restricted the number of researchers experimenting with large datasets. We present the concept of Data Commons, a cloud offering that aggregates multiple datasets and makes them available to users of the cloud. In this model, data is part of the cloud infrastructure, like storage or networking. We discuss the potential impact of Data Commons and report on first steps.

Bio: Guha is the creator of widely used web standards such as RSS, RDF and Schema.org. He is also responsible for products such as Google Custom Search. He was a co-founder of Epinions.com and Alpiri. Until recently, he was a Google Fellow and a vice president in research at Google. He has a Ph.D. in computer science from Stanford University and B.Tech in mechanical engineering from IIT Chennai

Register: Please register by 11:59 PM EST on Wednesday March 2 at:

<https://nsf.webex.com/nsf/j.php?RGID=rb32519a442914f7003b9227b79873557>

Grant Opportunity Alerts

Keywords and Areas Included in Grant Opportunity Alerts:

NSF: Innovation Corps- National Innovation Network Sites Program (I-Corps Sites); Innovation Corps - National Innovation Network Nodes Program (I-Corps Nodes); Materials Research Science and Engineering Centers; NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM); Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES); Joint DMS/NIGMS Initiative to Support Research at the Interface of the Biological and Mathematical Sciences (DMS/NIGMS)

NIH: Team-Based Design in Biomedical Engineering Education (R25); Bridges to the Doctorate (R25); NLM Institutional Training Grants for Research Training in Biomedical Informatics and Data Science (T15)

Department of Defense/US Army/DARPA/ONR: Medical Photonics; Signal Processing at RF (SPAR); Biological Control

Foundations: Bill & Melinda Gate Foundation Grand Challenges

Grant Opportunities

National Science Foundation

Grant Program: Innovation Corps- National Innovation Network Sites Program (I-Corps Sites)

Agency: National Science Foundation NSF 16-547

RFP Website: <http://www.nsf.gov/pubs/2016/nsf16547/nsf16547.htm>

Brief Description: The National Science Foundation (NSF) seeks to develop and nurture a national innovation ecosystem that builds upon research to guide the output of scientific discoveries closer to the development of technologies, products and processes that benefit society.

In order to contribute to a national innovation ecosystem, NSF established the NSF Innovation Corps Sites Program (NSF I-Corps Sites). Sites are funded at academic institutions, having already existing innovation or entrepreneurial units, to enable them to:

- Nurture students and/or faculty who are engaged in projects having the potential to be transitioned into the marketplace. I-Corps Sites will provide infrastructure, advice, resources, networking opportunities, training and modest funding to enable groups to transition their work into the marketplace or into becoming [I-Corps Team applicants](#).
- Develop formal, active, local innovation ecosystems that contribute to a larger, national network of mentors, researchers, entrepreneurs and investors. Networking is an essential component of all of NSF's I-Corps activities – local and national networking activities help advance the goals of I-Corps and contribute to local and national ecosystems for innovation.

The purpose of an I-Corps Site is to nurture and support multiple, local teams to transition their ideas, devices, processes or other intellectual activities into the marketplace.

Awards: Up to 25 I-Corps Sites awards annually, pending availability of funds.

Limited Submission: An Institution may submit one proposal.

Institutional Internal Competition Submission: Interested faculty must submit an Internal Letter of Intent (up to three pages) to Atam Dhawan, Vice Provost of Research through their College/School dean no later than **March 10, 2016**. The Letter of Intent should have the following sections:

1. Executive Summary and Goals of the Project
2. Intellectual Merit
3. Broader Impact
4. Collaborators and Type of Projects
5. Available Resources
6. Overall Proposal Budget Estimate

Letter of Intent to NSF: Not Required

Full Proposal Deadlines: May 25, 2016

Contacts:

- Anita J. La Salle, telephone: (703) 292-5006, email: alasalle@nsf.gov
- Lydia V. McClure, telephone: (703) 292-8050, email: lmccclure@nsf.gov

Grant Program: Innovation Corps - National Innovation Network Nodes Program

Agency: National Science Foundation NSF 16-539

RFP Website: <http://www.nsf.gov/pubs/2016/nsf16539/nsf16539.htm>

Brief Description: The National Science Foundation (NSF) seeks to further develop and nurture a national innovation ecosystem that builds upon fundamental research to guide the output of scientific discoveries closer to the development of technologies, products, processes and services that benefit society. The goal of the program is to dramatically reduce the period of time necessary to bring a promising idea from its inception to widespread implementation.

Through this solicitation, NSF plans to build upon the established National Innovation Network (consisting of I-Corps Nodes and Sites) to further support the needs for innovation research, education and training. NSF is seeking to expand and sustain the network of I-Corps Nodes that work cooperatively to support the development of innovations that will benefit society. The interconnected nodes of the network are expected to be diverse in research areas, resources, tools, programs, capabilities, and geographic locations - providing the network with the flexibility to grow or reconfigure as needs arise.

I-Corps Nodes will foster understanding on how to: 1) identify, develop and support promising ideas that can generate value, 2) create and implement tools, resources and training activities that enhance our nation's innovation capacity, 3) gather, analyze, evaluate and utilize the data and insight resulting from the experiences of those participating in regional programs and 4) share and leverage effective innovation practices on a national scale - to improve the quality of life for the U.S. citizenry. In addition, Nodes must identify and are expected to implement plans for sustainable scaling of their efforts beyond the duration of NSF support.

Please Note: The solicitation has been modified to now include two tracks:

- **Track 1: *I-Corps Node Development*** - new I-Corps Node applicants, and
- **Track 2: *I-Corps Node Renewal*** - previously funded I-Corps Nodes.

Award amounts have changed, and are no longer dependent upon the number of institutions participating in the Node.

Awards: Approximately 4 - 7 awards are anticipated.

Track 1: *I-Corps Node Development* - new I-Corps Node awardees - to be supported at a level of up to:

- \$1,200,000 (years 1 and 2)
- \$900,000 (year 3)
- \$600,000 (year 4)
- \$300,000 (year 5)

Track 2: *I-Corps Node Renewal* - previously funded I-Corps Nodes - to be supported at a level of up to:

- \$900,000 (years 1 and 2)
- \$750,000 (year 3)
- \$600,000 (year 4)
- \$300,000 (year 5)

Letter of Intent: A Letter of Intent (LOI) MUST be submitted by the Authorized Organizational Representative (AOR) for either a Track 1 or Track 2 proposal in order to be considered for funding. Full proposals that are submitted without a LOI (that had been received by the appropriate deadline) will be returned without review (RWR). Deadline: March 10, 2016

Full Proposal Deadlines: May 10, 2016

Contacts:

- Rathindra DasGupta, telephone: (703) 292-8353, email: rdasgupt@nsf.gov
- Lydia McClure, telephone: (703) 292-8798, email: lmclure@nsf.gov

Grant Program: Materials Research Science and Engineering Centers

Agency: National Science Foundation NSF 16-545

RFP Website: <http://www.nsf.gov/pubs/2016/nsf16545/nsf16545.htm>

Brief Description: Materials Research Science and Engineering Centers (MRSECs) provide sustained support of interdisciplinary materials research and education of the highest quality while addressing fundamental problems in science and engineering. MRSECs address research of a scope and complexity requiring the scale, synergy, and interdisciplinarity provided by a campus-based research center. They support materials research infrastructure in the United States, promote active collaboration between universities and other sectors, including industry and international institutions, and contribute to the development of a national network of university-based centers in materials research, education, and facilities. A MRSEC may be located at a single institution, or may involve multiple institutions in partnership.

Awards: The number of MRSEC awards will depend on the quality of the proposals and available funds. An estimate of \$23M will be available for the FY 2017 competition for funding approximately 6 to 8 MRSEC awards.

Limited Submission: Only one MRSEC preliminary proposal may be submitted by any one organization as the lead institution in this competition. An institution proposing research in several groups should submit a single MRSEC proposal with multiple Interdisciplinary Research Groups (IRGs). A MRSEC proposal must contain a minimum of 2 IRGs and a maximum of 3 IRGs. The IRGs in a center may be thematically related, or they may address different aspects of materials research. A single center at an organization allows efficient usage of resources, including common infrastructure, and better coordination of education and other activities of the center.

Institutional Internal Competition Submission: Interested faculty must submit an Internal Letter of Intent (up to three pages) to Atam Dhawan, Vice Provost of Research through their College/School dean no later than **April 2, 2016**. The Letter of Intent should have the following sections:

1. Executive Summary and Goals of the Project
2. Intellectual Merit
3. Broader Impact
4. Collaborators and Interdisciplinary Projects
5. Available Resources
6. Overall Proposal Budget Estimate

Letter of Intent to NSF: Not Required

Preliminary Proposal Due Date: July 01, 2016

Full Proposal Deadlines: December 02, 2016

Contacts:

- Daniele Finotello, 1065 N, telephone: (703) 292-4676, email: dfinotel@nsf.gov
- Alfredo Caro, 1065 N, telephone: (703) 292-4914, email: jcaro@nsf.gov

Grant Program: NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM)

Agency: National Science Foundation NSF 16-540

RFP Website: <http://www.nsf.gov/pubs/2016/nsf16540/nsf16540.htm>

Brief Description: A well-educated science, technology, engineering, and mathematics (STEM) workforce is a significant contributor to maintaining the competitiveness of the U.S. in the global economy. The National Science Foundation (NSF) Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM) program addresses the need for a high quality STEM

workforce in STEM disciplines supported by the program and for the increased success of low-income academically talented students with demonstrated financial need who are pursuing associate, baccalaureate, or graduate degrees in science, technology, engineering, and mathematics (STEM).

Recognizing that financial aid alone cannot increase retention and graduation in STEM, the program provides awards to Institutions of Higher Education (IHEs) to fund scholarships and to advance the adaptation, implementation, and study of effective evidence-based curricular and co-curricular activities that support recruitment, retention, transfer (if appropriate), student success, academic/career pathways, and graduation in STEM. The S-STEM program encourages collaborations among different types of partners: Partnerships among different types of institutions; collaborations of STEM faculty and institutional, educational, and social science researchers; and partnerships among institutions of higher education and local business and industry, if appropriate.

The program seeks: 1) to increase the number of low-income academically talented students with demonstrated financial need obtaining degrees in STEM and entering the workforce or graduate programs in STEM; 2) to improve the education of future scientists, engineers, and technicians, with a focus on academically talented low-income students; and 3) to generate knowledge to advance understanding of how factors or evidence-based curricular and co-curricular activities affect the success, retention, transfer, academic/career pathways, and graduation in STEM of low-income students.

The STEM disciplines supported by the S-STEM program include:

- Biological sciences (except medicine and other clinical fields);
- Physical sciences (including physics, chemistry, astronomy, and materials science);
- Mathematical sciences;
- Computer and information sciences;
- Geosciences;
- Engineering; and

Technology areas associated with the preceding disciplines (for example, biotechnology, chemical technology, engineering technology, information technology, etc.).

Awards: \$70,000,000 to \$95,000,000 annually, for new and continuing awards, subject to availability of funds. The program supports three types of projects. Awards for Strand 1 - Institutional Capacity Building projects may not exceed \$650,000. Awards for Strand 2 - Design and Development Type 1 Single Institution projects may not exceed \$1.0 million. Awards for Strand 2 - Design and Development Type 2 Multi-Institutional Consortia projects may not exceed \$5.0 million. In all cases, the totals are inclusive of direct and indirect costs.

Limited Submission: An Institution may submit one proposal (either as a single institution or as subawardee or a member of a Collaborative Research project) from each constituent school or college that awards degrees in an eligible field. See Additional Eligibility Information below for more details.

Institutional Internal Competition Submission: Interested faculty must submit an Internal Letter of Intent (up to three pages) to Atam Dhawan, Vice Provost of Research through their College/School dean no later than **March 10, 2016**. The Letter of Intent should have the following sections:

7. Executive Summary and Goals of the Project
8. Intellectual Merit
9. Broader Impact
10. Collaborators
11. Available Resources
12. Overall Proposal Budget Estimate

Letter of Intent to NSF: Not Required
Full Proposal Deadlines: May 16, 2016
Contacts:

- Connie K. Della-Piana, telephone: (703) 292-5309, email: cdellapi@nsf.gov
 - Paul Tymann, telephone: (703) 292-2260, email: ptymann@nsf.gov
 - John Krupczak, telephone: (703) 292-4647, email: jkrupcza@nsf.gov
 - Yvette P. Weatherton, telephone: (703) 292-5323, email: yweather@nsf.gov
 - Kevin Lee, telephone: (703) 292-4639, email: kelee@nsf.gov
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Grant Program: Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES)

Agency: National Science Foundation NSF 16-544

RFP Website: <http://www.nsf.gov/pubs/2016/nsf16544/nsf16544.htm>

Brief Description: Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES) is a comprehensive national initiative designed to enhance U.S. leadership in science, technology, engineering and mathematics (STEM) discoveries and innovations focused on NSF's commitment to diversity, inclusion, and broadening participation in these fields. NSF INCLUDES supports efforts to develop talent from all sectors of society to build the STEM workforce. The initiative aims to improve the preparation, increase the participation, and ensure the contributions of individuals from groups that have traditionally been underrepresented and underserved in the STEM enterprise, including women, members of racial and ethnic groups, persons with disabilities, and persons with low socio-economic status. Significant advancement of these groups will result in a new generation of promising STEM talent and leadership to secure our nation's future in science and technology.

The grand challenge of broadening participation in STEM is to transform the STEM enterprise at all levels in order to fully engage the nation's talent for the ultimate improvement of the STEM enterprise. As a comprehensive national initiative, NSF INCLUDES aims to address the various complex equity and inclusion-related challenges and opportunities that characterize the nation's cultural and linguistic diversity, with a specific emphasis on the aforementioned groups. The goal is to achieve national level impact and progress toward STEM inclusion. Viewing this challenge as a social innovation problem, NSF is particularly interested in using approaches to scaling and growth such as collective impact, networked communities and strategic partnerships. The objective is to develop networks that involve representative organizations and consortia from different sectors that are committed to a common agenda to solve a specific STEM inclusion problem at scale. The long-term goal of NSF INCLUDES is to support, over the next ten years, innovative models, networks, partnerships, and research that enable the U.S. science and engineering workforce to thrive by ensuring that women, blacks, Hispanics, and people with disabilities are represented in percentages comparable to their representation in the U.S. population.

In FY 2016, NSF seeks proposals for Design and Development Launch Pilots to catalyze the formation of NSF INCLUDES Alliances.

Awards: In FY 2016, approximately \$12.5 million is available to fund 30 - 40 NSF INCLUDES two-year Design and Development Launch Pilot Projects at levels up to \$300,000 each.

Letter of Intent: Not Required

Preliminary Proposal Due Date: April 15, 2016

Full Proposal Submission Due Date: June 24, 2016

Contacts:

- Bernice T. Anderson, telephone: (703) 292-5151, email: banderso@nsf.gov
 - Janice Cuny, telephone: (703) 292-8900, email: jcuny@nsf.gov
 - Tasha R. Inniss, telephone: (703) 292-4684, email: tinniss@nsf.gov
 - Mark H. Leddy, telephone: (703) 292-4655, email: mleddy@nsf.gov
 - Julio E. Lopez-Ferrao, telephone: (703) 292- 5183, email: jlopezfe@nsf.gov
 - James L. Moore, telephone: (703) 292-7082, email: jamoore@nsf.gov
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Grant Program: Joint DMS/NIGMS Initiative to Support Research at the Interface of the Biological and Mathematical Sciences (DMS/NIGMS)

Agency: National Science Foundation NSF 16-543 and NIH

RFP Website: <http://www.nsf.gov/pubs/2016/nsf16543/nsf16543.htm>

Brief Description: The Division of Mathematical Sciences in the Directorate for Mathematical and Physical Sciences at the National Science Foundation and the National Institute of General Medical Sciences at the National Institutes of Health plan to support research in mathematics and statistics on questions in the biological and biomedical sciences. Both agencies recognize the need and urgency for promoting research at the interface between the mathematical sciences and the life sciences. This program is designed to encourage new collaborations, as well as to support existing ones.

Awards: 15 to 20 Awards from this competition may be made by either NSF or NIH at the option of the agencies, not the grantee.

Letter of Intent: Not Required

Full Proposal Submission Due Date: September 14, 2016

Contacts:

- Mary Ann Horn, Program Director, NSF/DMS, telephone: (703) 292-4879, email: mhorn@nsf.gov
 - Nandini Kannan, Program Director, NSF/DMS, 1025, telephone: (703) 292-8104, email: nakannan@nsf.gov
 - Rosemary Renaut, Program Director, NSF/DMS, 1025, telephone: (703) 292-2112, email: rrenaut@nsf.gov
 - Paul Brazhnik, Program Director, NIH/NIGMS, telephone: (301) 451-6446, email: brazhnik@nigms.nih.gov
 - Janna Wehrle, Program Director, NIH/NIGMS, telephone: (301) 594-0828, email: wehrlej@nigms.nih.gov
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National Institutes of Health

Grant Program: Team-Based Design in Biomedical Engineering Education (R25)

Agency: National Institutes of Health PAR-16-108

RFP Website: <http://grants.nih.gov/grants/guide/pa-files/PAR-16-108.html>

Brief Description: The NIH Research Education Program (R25) supports research educational activities that complement other formal training programs in the mission areas of the NIH Institutes and Centers. The over-arching goals of the NIH R25 program are to: (1) complement and/or enhance the training of a workforce to meet the nation's biomedical, behavioral and clinical research needs; (2) enhance the diversity of the biomedical, behavioral and clinical research workforce; (3) help recruit individuals with specific specialty or disciplinary

backgrounds to research careers in biomedical, behavioral and clinical sciences; and (4) foster a better understanding of biomedical, behavioral and clinical research and its implications.

The over-arching goal of this NIBIB-NICHD R25 program is to support educational activities that complement and/or enhance the training of a workforce to meet the nation's biomedical, behavioral and clinical research needs. To accomplish the stated over-arching goal, this FOA will support creative educational activities with a primary focus on:

- ***Courses for Skills Development:*** For example, courses and programs that address innovative and/or ground-breaking developments in Biomedical Engineering, multidisciplinary/interdisciplinary education, the regulatory pathway and other issues related to the commercialization of medical devices, and the immersion of engineering students in a clinical environment.

Research education programs may complement ongoing research training and education occurring at the applicant institution, but the proposed educational experiences must be distinct from those training and education programs currently receiving Federal support. R25 programs may augment institutional research training programs (e.g., T32, T90) but cannot be used to replace or circumvent Ruth L. Kirschstein National Research Service Award (NRSA) programs.

Awards: Direct costs of up to \$20,000 per year may be requested.

Letter of Intent: April 29, 2016

Deadline: May 31, 2016; May 31, 2017; May 31, 2018, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on these dates.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Grant Program: Bridges to the Doctorate (R25)

Agency: National Institutes of Health PAR-16-109

RFP Website: <http://grants.nih.gov/grants/guide/pa-files/PAR-16-109.html>

Brief Description: The NIH Research Education Program (R25) supports research educational activities that complement other formal training programs in the mission areas of the NIH Institutes and Centers. The over-arching goals of the NIH R25 program are to: (1) complement and/or enhance the training of a workforce to meet the nation's biomedical, behavioral and clinical research needs; (2) enhance the diversity of the biomedical, behavioral and clinical research workforce; (3) help recruit individuals with specific specialty or disciplinary backgrounds to research careers in biomedical, behavioral and clinical sciences; and (4) foster a better understanding of biomedical, behavioral and clinical research and its implications.

The over-arching goal of this National Institute of General Medical Sciences (NIGMS) R25 program is to support educational activities that enhance the diversity of the biomedical, behavioral and clinical research workforce. To accomplish the stated over-arching goal, this FOA will support creative educational activities with a primary focus on:

1. *Courses for Skills Development:* For example, advanced courses in a specific discipline or research area, or specialized research techniques.

2. *Research Experiences:* For example, for graduate and medical, dental, nursing and other health professional students: to provide research experiences and related training not available through formal NIH training mechanisms; for postdoctorates, medical residents and faculty: to extend their skills, experiences, and knowledge base.

Awards: Application budgets are limited to \$300,000 direct costs per year.

Letter of Intent: Not required.

Deadline: September 25, 2016; September 25, 2017; September 25, 2018. If the date falls on a week-end, the application is due the next business day, by 5:00 PM local time of applicant organization. All applications allowed for this funding opportunity announcement are due on these dates.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Grant Program NLM Institutional Training Grants for Research Training in Biomedical Informatics and Data Science (T15)

Agency: National Institutes of Health RFA-LM-16-001

RFP Website: <http://grants.nih.gov/grants/guide/rfa-files/RFA-LM-16-001.html>

Brief Description: The purpose of the National Library of Medicine (NLM) Institutional Training Program in Biomedical Informatics and Data Science is to support pre-doctoral and post-doctoral training for research careers in biomedical informatics and data science. Applications may be for the creation of entirely new training programs or for the renewal of active NLM T15 training grants. NLM's training programs help meet the growing need for investigators trained in biomedical computing, data science and related information fields as they directly relate to application domains in health and biomedicine, including health care delivery, basic biomedical research, clinical and translational research, public health and similar areas. Trainees will come to these programs with a range of educational and professional backgrounds and receive the training they need to prepare them for research careers in biomedical informatics and data science. More information about NLM's existing training programs is available at <http://www.nlm.nih.gov/ep/GrantTrainInstitute.html>. Biomedical informatics and data science training is, by its nature, interdisciplinary.

In addition to full-time training, NLM supports short-term trainee positions (STTP) to develop or enhance interest in research careers in biomedical informatics and data science among pre-doctoral health professions or veterinary students, undergraduate or graduate students who are interested in careers in biomedical informatics and data science, and for postdoctoral fellows interested in a research career in this area. NLM encourages its institutional training programs to use STTPs, in conjunction with their regular recruiting strategies, as a means to enhance diversity. In particular, this applies to individuals from under-represented racial and ethnic groups; individuals with disabilities, individuals from disadvantaged backgrounds, and women, who are still under-represented in scientific and technical fields such as biomedical informatics and data science. See, [Notice of NIH's Interest in Diversity](#). All applicants are expected to present a rigorous recruitment plan to enhance the diversity of the pool of trainee candidates; if STTP slots are requested, those should be addressed in the overall recruitment plan. Applications requesting STTP slots without an effective recruitment plan will not be considered for STTP funding. The STTP program provides short-term support for a period of at least 8, but no more than 12, weeks in a grant year for full-time training experiences under the supervision of experienced researchers. Trainees are exposed to individuals with active research careers and learn about further research training opportunities and research career options. The STTP program should be of sufficient depth to enable selected trainees, upon completion of the program, to have a thorough exposure to the principles underlying the conduct of research in biomedical informatics and data science.

Short-term training is not intended, and may not be used, to support graduate or undergraduate level coursework. Short-term positions should be requested at the time of application as described in the [NIH Grants Policy Statement](#). Research training programs solely for short-term research training should not apply to this announcement.

Awards: NIH intends to fund an estimate of 14-16 awards, corresponding to a total amount of \$14,000,000, for fiscal year 2017. Future year amounts will depend on annual appropriations.

Letter of Intent: March 18, 2016

Deadline: April 18, 2016, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on this date.

No late applications will be accepted for this Funding Opportunity Announcement.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Department of Defense/US Army/DARPA/ONR

Grant Program: Military Medical Photonics

Agency: AFOSR - Air Force Office of Scientific Research BAA-AFRL-AFOSR-2016-0002

RFP Website: <http://www.wpafb.af.mil/library/factsheets/factsheet.asp?id=8981>
<https://www.fbo.gov/index?s=opportunity&mode=form&id=c662b9245a67b9d794f3698a6a7a554c&tab=core&cvview=0>

Brief Description: The Air Force Office of Scientific Research (AFOSR) seeks unclassified proposals for broad-based research and development aimed at using lasers and other light source technology to develop applications in medicine, photobiology, surgery, and closely related materials sciences, with applications to combat casualty care and other military medical problems. This announcement is primarily directed toward university-based medical institutions; however, all qualified and responsible prime applicants located in the United States are eligible to submit proposals. The highest priority will be extended to proposals up to three (3) years duration to be conducted by teams of physicians, biomedical scientists, physical scientists, and engineers.

The efforts proposed may be basic or applied research, and must have direct relevance to combat casualty care or other military medical priorities. Applicants must demonstrate substantial experience working to further military medical priorities, including transitioning research into clinical practice and working products. Substantial experience collaborating with military medical centers is also a requirement to establish relevance to combat casualty care or other military medical priorities, and facilitate the transition of research results to meet military needs.

Applicants are encouraged to apply as early as practicable. Proposals may be reviewed and selected as received. Awards may take the form of grants or contracts.

Awards: Up to \$1,000,000.

Deadline: April 22, 2016

Grant Program: Signal Processing at RF (SPAR)

Agency: Department of Defense DARPA DARPA-BAA-16-20

RFP Website:

<https://www.fbo.gov/index?s=opportunity&mode=form&id=61944d1569e0de9844d962d110525f6d&tab=core&cvview=0>

Brief Description: DARPA seeks to transform radio frequency (RF) systems by developing RF analog signal processing and nonreciprocal technologies that perform unprecedented levels of in-band interference suppression. The Signal Processing at RF (SPAR) technology must mitigate

both self and externally generated interfering signals of known and unknown characteristics. Performers will be expected to demonstrate novel in-band signal interference mitigation technologies using analog signal processing techniques as well as novel chip-scale circulator approaches.

Awards: It is anticipated that \$30M of total funding will be awarded across all technical areas approximately partitioned as follows:

- o \$ 17M for Technical Area 1 (TA1)
- o \$ 8M for Technical Area 2 (TA2)
- o \$ 5M for Technical Area 3 (TA3)

Abstract and Proposal Deadline: Abstract Due Date: 11 March 2016, 1:00PM

o FAQ Submission Deadline: 29 April 2016, 1:00PM

o Proposal Due Date: 12 May 2016, 1:00PM

Grant Program: Biological Control

Agency: Department of Defense DARPA DARPA-BAA-16-17

RFP Website:

<https://www.fbo.gov/index?s=opportunity&mode=form&id=9879ddda5f8cbd30e6e8235c468f66ed&tab=core&cvview=0>

Brief Description: The objective of the DARPA Biological Control program is to build new capabilities for the control of biological systems across scales—from nanometers to centimeters, seconds to weeks, and biomolecules to populations of organisms—using embedded controllers made of biological parts to program system-level behavior. This program will apply and advance existing control theory to design and implement generalizable biological control strategies analogous to conventional control engineering, for example, for mechanical and electrical systems. The resulting advances in fundamental understanding and capabilities will create new opportunities for engineering biology. Specifically, the Biological Control program will demonstrate tools to rationally design and implement multiscale, closed-loop control of biological systems, through the development of biological controllers, testbeds to evaluate control of system-level behavior, and theory and models to predict and design effective control strategies. The resulting capabilities will be inherently generalizable to a variety of biological systems. Successful teams will integrate and apply these capabilities to demonstrate a practical proof-of-principle biological solution to a proposer-defined application relevant to the U.S. Department of Defense (DoD).

Awards: Multiple awards are anticipated.

Abstract and Proposal Deadline:

Proposal Abstract Due Date: Friday, March 18, 2016, 4:00 PM

Proposal Due Date: Friday, April 29, 2016, 4:00 PM

Bill and Melinda Gate Foundation

Grant Program: Grand Challenges

Agency: Bill & Melinda Gate Foundation

RFP Website: <http://gcgh.grandchallenges.org>

Brief Description: The Bill & Melinda Gates Foundation and its funding partners in the Grand Challenges family of grant programs are inviting innovators to apply for three grant opportunities:

1) Our [Grand Challenges Explorations](#) fosters early-stage discovery research to expand the pipeline of ideas for solving our greatest global health and development challenges. Launched in 2008 with an initial \$100 million commitment from the foundation, Grand Challenges Explorations grants have already been awarded to more than 1100 researchers from more than 60 countries.

We are accepting applications on the following six topics until **May 11, 2016**:

- [Assess Family Planning Needs, Preferences and Behaviors to Inform Innovations in Contraceptive Technologies and Services](#)
- [Develop Novel Platforms to Accelerate Contraceptive Drug Discovery](#)
- [Design New Analytics Approaches for Malaria Elimination](#)
- [Accelerate Development of New Therapies for Childhood Cryptosporidium Infection](#)
- [Novel Approaches to Characterizing and Tracking the Global Burden of Antimicrobial Resistance](#)
- [Explore New Solutions in Global Health Priority Areas](#)

2) [Grand Challenges China: New Interventions for Global Health](#). This challenge focuses on calls for innovative concepts for safe, effective, affordable and widely utilized interventions, such as vaccines and therapeutics, with the potential to protect against the acquisition, progression or transmission of infectious diseases that disproportionately affect the world's poorest. This call is in partnership with the National Natural Science Foundation of China.

Application deadline is **March 15, 2016, 8:00 am Beijing time (March 14, 2016, 5pm Seattle time)**. For a detailed description of this challenge, please visit the [Grand Challenges site](#).

Proposal Deadline: May 11, 2016 for (1) and March 15, 2016 for (2) above.

More Information: Please contact Eric Blitz, Associate Director for Development, Corporate and Foundation Relations, eric.blitz@njit.edu