

# NJIT Research Newsletter

Issue: ORN-2017-03

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

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## Save The Date!

Office of Research Events Calendar: Spring 2017

### Research Showcases and Presidential Research Forums:

**Event: Inauguration of NJIT Institute of Brain and Neuroscience Research**

**When:** March 6, 2017; 10.00 AM – 2.30 PM

**Where:** Ballroom A/B/Atrium

**Keynote Speaker:** Col. Sidney Hinds, MD, DoD Brain Health Research Program Coordinator, Medical Research and Materiel Command

**Event: Panel Discussion: NSF Proposal Preparation and Review: Intellectual Merit and Broader Impact**

**When:** March 7, 2017; 1.00 PM – 3.00 PM

**Where:** Campus Center Atrium

**Panel Speakers:**

Dr. Jennifer Slimowitz Pearl, Program Director, Division of Mathematical Sciences (DMS), NSF

Dr. Bernice Anderson, Senior Advisor, Office of Integrative Activities and Program Director- INCLUDES, NSF

Dr. Melvin Hall, Board Member, American Evaluation Association

**Event: Faculty Research Showcase and Presidential Forum**

**When:** March 28, 2017; 10.00 AM – 2.30 PM

**Where:** Ballroom A/B/Gallery

**Keynote Speaker:** James Gallarda, PhD, Senior Program Officer, Diagnostics at Bill & Melinda Gates Foundation

**Event: Innovation Day Symposium (Student Research and Innovation Showcase)**

**When:** April 10, 2017; 9.00 AM – 12.00 PM

**Where:** Ballroom A/B/Atrium

**Keynote Speaker:** Bill Huffnagle, President, Reconstructive Division at Stryker Orthopaedics

**Event: Faculty Research Advisory Board Meeting**

**When:** April 11, 2017; 1.00 PM – 2.00 PM

**Where:** Ballroom B

**Event: Science and Technology Forum: Big Data Analytics: Current and Future Trends**

**When:** April 12, 2017; 1.00 PM – 2.00 PM

**Where:** Ballroom B

**Panel Speaker:** Ms. Terry Christiani, Product Marketing Manager, [Microsoft](#)

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**Grant Opportunity Alerts**

Keywords and Areas Included in the Grant Opportunity Alert Section Below

**NSF:** Faculty Early Career Development Program (CAREER); Mind, Machine and Motor Nexus (M3X); STEM + Computing Partnerships (STEM+C)

**NIH: CTSA Program Data to Health (CD2H) Coordinating Center (U24);** Development of Socially-Assistive Robots (SARs) to Engage Persons with Alzheimer's Disease (AD) and AD-Related Dementias (ADRD), and their Caregivers (R43/R44); Jointly Sponsored Ruth L. Kirschstein National Research Service Award Institutional Predoctoral Training Program in the Neurosciences (T32)

**Department of Defense/US Army/DARPA/ONR:** Diverse Collegiate Research and Development Collaboration Program

**Department of Energy:** Saving Energy Nationwide In Structures With Occupancy Recognition (SENSOR)

**NASA:** ROSES 2016: Fellowships for Early Career Researchers

**National Endowment of Humanities:** Institutes for Advanced Topics in the Digital Humanities

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**Recent Research Grant and Contract Awards**

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

**PI:** Treena Arinzeh (PI)

**Department:** Biomedical Engineering

**Grant/Contract Project Title:** NASA Space Technology Research Fellowships (NSFTRF) hMSCs Cultured on Plant-Derived Tissue Engineering Extracellular Matrix in a Microgravity Environment

**Funding Agency:** NASA

**Duration:** 01/12/17-08/31/17

**PI:** Rongfang (Rachel) Liu (PI)

**Department:** Civil and Environmental Engineering

**Grant/Contract Project Title:** Improve Congestion Performance Measures via Conflating Private and Public Information Sources

**Funding Agency:** US Department of Transportation /University Transportation Research Center

**Duration:** 09/01/16-11/30/17 (updated)

**PI:** Zafar Iqbal (PI)  
**Department:** Chemistry and Environmental Sciences  
**Grant/Contract Project Title:** Electrical Properties of Novel Nanomaterials  
**Funding Agency:** US Army  
**Duration:** 04/01/13-06/30/17

**PI:** Reginald Farrow (PI) and Gordon Thomas (Co-PI)  
**Department:** Department of Physics  
**Grant/Contract Project Title:** Developing an Artificial Pancreas to Prevent Blindness from Diabetes  
**Funding Agency:** Hoffman Foundation  
**Duration:** 01/27/17-01/26/18

**PI:** Xioyang Xu (PI)  
**Department:** Chemical, Biological and Pharmaceutical Engineering  
**Grant/Contract Project Title:** I-Corps: Nanomedicine as Treatment for Drug-Resistant Bacteria  
**Funding Agency:** NSF  
**Duration:** 03/01/17-11/30/17

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### **In the News...**

(National and Federal News Related to Research Funding and Grant Opportunities)

**Defense Health Research:** Although the FY17 Defense Appropriations bill has not been passed and funds have not been appropriated for future solicitations beyond the existing Continuing Resolution, the Congressionally Directed Medical Research Programs (CDMRP) has provided the information in a *pre-announcement* to allow investigators time to plan and develop ideas for submission to the anticipated FY17 funding opportunities.

Programs include the [Amyotrophic Lateral Sclerosis Research Program](http://cdmrp.army.mil/pubs/press/2017/17alsrppreann) (<http://cdmrp.army.mil/pubs/press/2017/17alsrppreann>) and the [Breast Cancer Research Program](http://cdmrp.army.mil/pubs/press/2017/17bcrppreann) (<http://cdmrp.army.mil/pubs/press/2017/17bcrppreann>). These are pre-announcements, as the RFPs have not been released yet.

**President Infrastructure Plan:** Debates began this week over the implementation of President Trump's infrastructure plan. A \$137 billion list of *Emergency and National Security potential projects* was developed for the Trump transition team by the National Governors Association which provides some indication of the basic metrics and priorities that could be followed. This includes the establishment of a *National Research Lab for Infrastructure* which would be aimed at commercializing infrastructure technology. This would be managed by the Ohio State University and Battelle Labs. The plan also includes several advanced grid and transmission expansion projects that would be essential to the growth of wind and solar energy.. More information is posted on <http://thehill.com/policy/transportation/315977-trumps-team-identifies-top-projects-for-infrastructure-plan-report>

**White House Statements on R&D and Engineering Priorities:** A cluster of White House statements and executive orders shed light on policies affecting engineering:

- An [America First energy statement](#) says the administration will "embrace the shale oil and gas revolution" and its "estimated \$50 trillion" in untapped reserves, using "revenues from energy production to rebuild our roads, schools, bridges and public infrastructure." It's "also committed to clean coal technology, and to reviving America's coal industry. . . . Lastly, our need for energy must go hand-in-hand with responsible stewardship of the environment. . . .President Trump will refocus the EPA on its essential mission of protecting our air and water."
- An [Executive Order Expediting Environmental Reviews and Approvals For High Priority Infrastructure Projects](#) says "All agencies shall give highest priority to completing such reviews and approvals by the established deadlines using all necessary and appropriate means."
- A [memorandum on manufacturing](#) calls for departments and agencies "to support the expansion of manufacturing in the United States through expedited reviews of and approvals for proposals to construct or expand manufacturing facilities and through reductions in regulatory burdens affecting domestic manufacturing."
- A [pipeline memorandum](#) calls for a plan "under which all new pipelines, as well as retrofitted, repaired, or expanded pipelines . . . use materials and equipment produced in the United States, to the maximum extent possible."

**NSF Announces New Proposal & Awards Policies & Procedures Guide (PAPPG):** The new NSF PAPPG provides the policies and procedures for all proposals to be submitted on or after January 30, 2017. The *Proposal & Award Policies & Procedures Guide* (PAPPG) is comprised of documents relating to the Foundation's proposal and award process for the assistance programs of NSF. The PAPPG, in conjunction with NSF's Grant General Conditions, serves as the Foundation's implementation of 2 CFR § 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*. If the PAPPG and NSF Grant Conditions are silent on a specific area covered by 2 CFR § 200, the requirements specified in 2 CFR § 200 must be followed.

**Significant Changes to the PAPPG Part I:**

- **Chapter I.D.1, Letters of Intent (LOI)**, includes additional language regarding the submission of a LOI for collaborative proposals. Proposers that plan to submit a collaborative proposal from multiple organizations should submit a single LOI for the entire project, given that NSF considers a collaborative proposal to be a unified research project.
- **Chapter II.B, Format of the Proposal**, has been updated to include two new types of proposals, RAISE and GOALI. These two types of proposals are described in greater detail in Chapter II.E. An additional resource has also been added to this section with information on NSF auto-compliance checks that are conducted during the proposal preparation and submission process.
- **Chapter II.C.1.e, Collaborators & Other Affiliations Information**, includes additional instructions for proposers. Each section of the Collaborators & Other Affiliations Information should be listed alphabetically by last name. The text has also been revised to remove the requirement that proposers list postgraduate scholar sponsors in this section of the proposal. Postgraduate scholar sponsor is not a disqualifying relationship for a reviewer, therefore, it was determined that this information is not necessary.
- **Chapter II.C.2, Sections of the Proposal**, has been revised to inform proposers that proposal preparation for RAPID, EAGER, RAISE, GOALI, Ideas Lab, FASED, Conference, Equipment, Travel, Center, Research Infrastructure and Fellowship projects may deviate from the content requirements of a full research proposal.
- **Chapter II.C.2.a, Cover Sheet**, has been updated to provide instructions that more closely follow the proposal preparation screens in FastLane.

- **Chapter II.C.2.d(iii), Results from Prior NSF Support**, includes revised language to clarify NSF's purpose for collecting this information in the Project Description. The purpose of the Results from Prior NSF Support section is to assist reviewers in assessing the quality of prior work conducted with current or prior NSF support. Additional instructions have also been added regarding the type of information that should be included for projects that have been recently awarded, where no new results exist.
- **Chapter II.C.2.g(vi), Other Direct Costs**, has been updated to include information on incentive payments, for example, payments to human subjects or incentives to promote completion of a survey. These costs should be included on line G6 of the NSF Budget and should be proposed in accordance with organizational policies and procedures. Indirect costs should be calculated on incentive payments in accordance with the organization's approved US Federally negotiated indirect cost rate(s).
- **Chapter II.C.2.g(x), Fees (Line K on the Proposal Budget)**, has been added to provide instructions for use of the Fee line on the NSF budget, which is available for use only by the SBIR/STTR programs.
- **Chapter II.C.2.j, Special Information and Supplementary Documentation**, has been updated to include language that informs submitters of the type of information that may be requested by NSF in order to comply with Federal environmental statutes, including, but not limited to, the National Environmental Policy Act, the National Historic Preservation Act. And the Endangered Species Act.
- **Chapter II.D, Special Processing Instructions**, has been revised to address areas where special proposal processing may be required. Information on RAPID, EAGER, Ideas Lab, FASED, Equipment, Conference, and Travel Proposals has been moved to Chapter II.E.
- **Chapter II.D.5, Proposals Involving Human Subjects**, has been updated to reflect the Foundation's implementation of 45 CFR 690.118, applications and proposals lacking definite plans for involvement of human subjects. A hypertext link is provided to an NSF-approved format that may be used to submit such determinations by proposing institutions. Clarification has also been added regarding the IRB documentation that NSF must have in order to make an award when proposals involve human subjects.
- **Chapter II.E, Types of Proposals**, has been added to describe, in one place, the various other types of proposals that can be submitted to NSF, including the two new types, RAISE and GOALI. This section includes proposal preparation instructions for each of the types of proposal that may supplement or deviate from the guidance provided elsewhere in Chapter II.
- **Chapter II.E.9, Travel Proposal**, has been updated from "International Travel Proposals" to "Travel Proposal" to reflect that this type of proposal can be used for both domestic and international travel requests. Additional proposal preparation instructions have also been added to inform proposers of the required proposal elements, including the requirement that the Project Description contain Results from Prior NSF Support.

**NIH Notice NOT-OD-17-003: Ruth L. Kirschstein National Research Service Awards (NRSA) Postdoctoral Stipends, Training Related Expenses, Institutional Allowance, and Tuition/Fees Effective for Fiscal Year 2017**

URL <https://grants.nih.gov/grants/guide/notice-files/NOT-OD-17-003.html>

Related Announcements

[NOT-OD-16-134](#)

[NOT-OD-16-062](#)

National Institutes of Health ([NIH](#))

**Purpose:** The purpose of this Notice is to announce the process whereby recipients of Kirschstein-NRSA institutional training grant and individual fellowship awards supporting currently active postdoctoral trainees or fellows with 0, 1, or 2 years of experience as of December 1, 2016, will receive increased stipends. The Notice also provides instructions for requesting one-time supplemental funding to cover the stipend increase. As previously announced ([NOT-OD-16-134](#)), stipend levels for postdoctoral NRSA recipients with 0, 1 or 2 years of experience will be increased in furtherance of the NIH mission. This increase is distinct from a projected cost-of-living adjustment for postdoctoral stipends that is subject to the availability of FY 2017 appropriations.

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## Webinar and Events

### **Event: NSF Webinar: Introduction to I-Corps Teams**

**When: February 7, 2017; 2.00 PM – 4.00 PM**

**Website:** [https://www.nsf.gov/events/event\\_summ.jsp?cntn\\_id=189701&org=NSF](https://www.nsf.gov/events/event_summ.jsp?cntn_id=189701&org=NSF)

**Brief Description: Abstract:** Curious about the NSF I-Corps program? Join this monthly introductory webinar to learn more about I-Corps Teams and how they contribute to the innovation ecosystem. During the webinar, I-Corps program directors will answer questions about I-Corps and provide updated information about I-Corps contacts, the [curriculum](#), important dates and other aspects of I-Corps. The I-Corps curriculum provides real-world, hands-on, immersive learning about what it takes to successfully transfer knowledge into products and processes that benefit society.

The webinar will be held the **first Tuesday of every month at 2:00 p.m., eastern time.**

**To Join the Webinar:** First, access the audio portion of the webinar by phone by calling (800) 857-5210 (for callers inside the U.S.) OR (210) 234-7080 (for callers outside the U.S.). The participant passcode is 3192939#

Second, access the [visual portion](#) of the webinar (WebEx meeting number 743 582 265):

- Go to <https://nsf.webex.com/nsf/j.php?MTID=m37c931eeb5d7a1c32e62c41975c03a2b> [Note: Firefox is recommended for Mac users.]
- If requested, enter your name and email address.
- If a password is required, enter the meeting password: I\_C0rp5!
- Click "Join".

You may download the slides in advance--[download the slides](#) (PDF, 1.6 MB).

For assistance joining the meeting, go to <https://nsf.webex.com/nsf/mc> and click "Support" on the left navigation bar.

Note for first-time users: To check whether you have the appropriate players installed for UCF (Universal Communications Format) rich media files, go to <https://nsf.webex.com/nsf/systemdiagnosis.php>.

### **Event: IEEE Webinar: Getting Ahead with RF Breakdown Simulation for Space Hardware**

**When: February 9, 2016 5.00 PM (CET)**

**Website:** [https://www.cst.com/events/webinars/2017-02-09-aurorasat?sc\\_camp=2769760313034C80B8B87AB22435AC73&utm\\_source=ieee&utm\\_medium=email&utm\\_content=aurorasat&utm\\_campaign=getahead17](https://www.cst.com/events/webinars/2017-02-09-aurorasat?sc_camp=2769760313034C80B8B87AB22435AC73&utm_source=ieee&utm_medium=email&utm_content=aurorasat&utm_campaign=getahead17)

**Brief Description:** In this webinar we will review the RF Breakdown effects which can occur in space hardware namely multipactor discharge. The webinar will focus on the advantages of using full numerical approaches instead of analytical ones to determine the breakdown power level. Situations in which analytical approaches are not valid will be pointed out, as well as practical

cases in which the analytical calculation significantly underestimates the breakdown power level. Simulations with SPARK3D and CST PARTICLE STUDIO® coupled with CST MICROWAVE STUDIO® will show the benefits of using a full numerical approach to tackle these problems in space applications. To register, please visit the above URL.

**About the Speaker:** Carlos Vicente received the PhD. degree in Telecommunications Engineering in 2005 from the Technical University of Darmstadt, Germany. In his Doctoral Thesis, Dr. Vicente did research on high power effects in Communications Satellites such as RF Breakdown and Passive Intermodulation. In 2006, he co-founded the company Aurora Software and Testing S. L. (AURORASAT) devoted to the telecommunications sector now part of CST AG. Dr. Vicente currently serves as Director of AURORASAT.

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## **Grant Opportunities**

### **National Science Foundation**

**Grant Program: Faculty Early Career Development Program (CAREER) Includes the description of NSF Presidential Early Career Awards for Scientists and Engineers (PECASE)**

**Agency: National Science Foundation NSF 17-537**

**RFP Website:** <https://www.nsf.gov/pubs/2017/nsf17537/nsf17537.htm>

**Brief Description:** *CAREER:* The Faculty Early Career Development (CAREER) Program is a Foundation-wide activity that offers the National Science Foundation's most prestigious awards in support of early-career faculty who have the potential to serve as academic role models in research and education and to lead advances in the mission of their department or organization. Activities pursued by early-career faculty should build a firm foundation for a lifetime of leadership in integrating education and research. NSF encourages submission of CAREER proposals from early-career faculty at all CAREER-eligible organizations and especially encourages women, members of underrepresented minority groups, and persons with disabilities to apply.

*PECASE:* Each year NSF selects nominees for the Presidential Early Career Awards for Scientists and Engineers (PECASE) from among the most meritorious recent CAREER awardees. Selection for this award is based on two important criteria: 1) innovative research at the frontiers of science and technology that is relevant to the mission of NSF, and 2) community service demonstrated through scientific leadership, education, or community outreach. These awards foster innovative developments in science and technology, increase awareness of careers in science and engineering, give recognition to the scientific missions of the participating agencies, enhance connections between fundamental research and national goals, and highlight the importance of science and technology for the Nation's future. Individuals cannot apply for PECASE. These awards are initiated by the participating federal agencies. At NSF, up to twenty nominees for this award are selected each year from among the PECASE-eligible CAREER awardees most likely to become the leaders of academic research and education in the twenty-first century. The White House Office of Science and Technology Policy makes the final selection and announcement of the awardees.

**Awards:** Standard Grants. Anticipated funding amount: \$222,000,000

**Letter of Intent:** Not Required

**Full Proposal Submission Due Date:**

July 19, 2017

Third Wednesday in July, Annually Thereafter

BIO, CISE, EHR

July 20, 2017

Third Thursday in July, Annually Thereafter

ENG

July 21, 2017

Third Friday in July, Annually Thereafter

GEO, MPS, SBE

**Contacts:**

- Division CAREER contacts listed on the CAREER web page at: <http://www.nsf.gov/crssprgm/career/contacts.jsp>
  - Henry A. Warchall, telephone: (703) 292-4861, email: [hwarchal@nsf.gov](mailto:hwarchal@nsf.gov)
  - See Contacts listing, NSF, telephone: (703) 292-5111, email: [info@nsf.gov](mailto:info@nsf.gov)
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**Grant Program: Mind, Machine and Motor Nexus (M3X)**

**Agency: National Science Foundation NSF PD 17-058Y**

**RFP Website:**

[https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505402&org=NSF&sel\\_org=NSF&from=fund](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505402&org=NSF&sel_org=NSF&from=fund)

**Brief Description:** The Mind, Machine and Motor Nexus (M3X) program supports fundamental research at the intersection of mind, machine and motor. A distinguishing characteristic of the program is an integrated treatment of human intent, perception, and behavior in interaction with embodied and intelligent engineered systems and as mediated by motor manipulation. M3X projects should advance the holistic analysis of cognition and of embodiment as present in both human and machine elements. This work will encompass not only how mind interacts with motor function in the manipulation of machines, but also how, in turn, machine response and function may shape and influence both mind and motor function.

The M3X program seeks to support the development of theories, representations, and working models that draw upon and contribute to fundamental understanding within and across diverse fields, including but not limited to systems science and engineering; mechatronics; cognitive, behavioral and perceptual sciences; and applied computing. Research funded through this program is expected to lead to new computable theories and to the physical manifestation of these theories.

Application areas supported by the M3X program span the full breadth of the Division of Civil, Mechanical and Manufacturing Innovation. Methodological innovation is emphasized, as is a focus on engaging new and emerging thematic areas.

The M3X program does not support disaggregated, parallel efforts from individual disciplines or investigators: rather, supported activities must strongly integrate across disciplines to enable discoveries that would not otherwise be possible. Additionally, the M3X program will not consider proposals that do not integrate physical considerations in a fundamental way. Principal investigators proposing pure artificial intelligence or pure machine learning research are referred to funding opportunities in the Directorate for Computer and Information Science and Engineering.

**Awards:** Standard Grants.

**Letter of Intent:** Not Required

**Full Proposal Submission Due Date:** September 1, 2017 - September 15, 2017

**Contacts:** Jordan M. Berg [jberg@nsf.gov](mailto:jberg@nsf.gov) (703) 292-5365

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**Grant Program: STEM + Computing Partnerships (STEM+C)**

**Agency: National Science Foundation NSF 17-535**

**RFP Website:** <https://www.nsf.gov/pubs/2017/nsf17535/nsf17535.htm>

**Brief Description:** As computing has become an integral part of the practice of modern science, technology, engineering and mathematics (STEM), the STEM + Computing Partnerships program seeks to address the urgent need to prepare students from the early grades through high school in the essential skills, competencies, and dispositions needed to succeed in a computationally-dependent world. Thus, STEM+C advances the integration of computational thinking and computing activities in early childhood education through high school (pre-K-12) to provide a strong and developmental foundation in computing and computational thinking through the integration of computing in STEM teaching and learning, and/or the applied integration of STEM content in pre-K-12 computer science education.

**Awards:** Standard Grants. Anticipated funding amount: \$49,895,000

**Letter of Intent:** Not Required

**Full Proposal Submission Due Date:** March 29, 2017

**Contacts:**

- Arlene M. de Strulle, EHR/DRL, telephone: (703) 292-5117, email: [adestrul@nsf.gov](mailto:adestrul@nsf.gov)
  - Michael Ford, EHR/DRL, telephone: (703) 292-5153, email: [miford@nsf.gov](mailto:miford@nsf.gov)
  - Amy Baylor, EHR/DRL, telephone: (703) 292-5126, email: [abaylor@n](mailto:abaylor@n)
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## **National Institutes of Health**

**Grant Program: CTSA Program Data to Health (CD2H) Coordinating Center (U24)**

**Agency: National Institutes of Health RFA-TR-17-006**

**RFP Website:** <https://grants.nih.gov/grants/guide/rfa-files/RFA-TR-17-006.html>

**Brief Description:** Translating biomedical discoveries into clinical applications that improve human health is a complex process with high costs and substantial failure rates. This can result in a delay of years or decades before discoveries in biomedical research result in health benefits for patients and communities. Recognizing the need to improve translation, the National Institutes of Health (NIH) established the CTSA Program in 2006. Within the context of the CTSA Program, translation is the process of turning observations in the laboratory, clinic, and community into interventions that improve the health of individuals and the public – from diagnostics and therapeutics to medical procedures and behavioral interventions. In 2011, the CTSA Program became part of the National Center for Advancing Translational Sciences (NCATS). The mission of NCATS is to catalyze the generation of innovative methods and technologies that will enhance the development, testing, and implementation of diagnostics and therapeutics across a wide range of human diseases and conditions. To accomplish this, NCATS promotes excellence in translational science – a relatively new field of inquiry focused on understanding and improving the scientific and operational principles underlying each step of the translational process. To accelerate this process, NCATS further promotes innovation in translational research to develop, demonstrate, and disseminate advances across the translational science spectrum.

Applicants for the CD2H-CC should design projects that:

1) Support and enhance a collaborative informatics community for the CTSA Program by:

- Facilitating the communication with key stakeholders, including the CTSA Program informatics domain task force and External Scientific Consultants, to identify high impact informatics projects that advance and encompass the full spectrum of translational research, including preclinical research, clinical research and/or the engagement of communities in research.
- Providing a governance structure for the CTSA Program community that develops a transparent, reproducible, and inclusive process for the evaluation of such high impact informatics projects.

- Providing an inclusive framework to collaboratively develop well-defined multi-site projects that should include time-limited milestones, expected outcomes and evaluation measures.
- Create a process for the assessment of merit-based projects that may include the consideration of the project's impact within the CTSA Program, overall goals of enhancing efficiency and performance, and/or reducing costs.
- Establishing processes and methods for common IT architecture for the CTSA Program Consortium including defining technical standards, identifying security requirements, and identifying and integrating existing resources.
- Fostering and promoting the development of an academic attribution and reimbursement framework for informatics products and processes. These processes could allow the contribution to be used for academic promotion.
- Providing a secure internet-based infrastructure (web-portal or other method) to support communications, document and resource sharing. Innovative synchronous and asynchronous communication and messaging are encouraged for the various activities.

2) Develop Good Data Practice (GDP) of clinical and research data to maximize the potential for health impact of various types of data and to facilitate rigorously conducted research by:

- Promoting the use of clinical and research data that are machine readable and that adhere to the FAIR (findable, accessible, interoperable, and re-useable) principles:
- *Findable*: Data should be uniquely and persistently identifiable and should minimally contain basic machine actionable metadata.
- *Accessible*: Data should be accessible so it can be always obtained by machines and humans, after appropriate authorization, through a well-defined telecommunications protocol (TCP) or internet provider (IP).
- *Interoperable*: Promoting interoperable data with the use or creation of metadata annotation/algorithms, a formal accessible language for knowledge representation, and using standard vocabularies [Systemized Nomenclature of Medicine-Clinical Terms (SnoMed-CT), International Classification of Diseases Ninth and Tenth Revision (ICD-9 / ICD-10), Human Phenotype Ontology (HPO), Monarch, Unified Medical Language System (UMLS), Logical Observation Identifiers Names and Codes (LOINC), etc.]
- *Re-useable*: Promoting data re-usability with relevant attributes, data usage license, and provenance (integrity and validity).

3) Promote software development standards for interoperability by:

- Creating and/or enhancing the use of software development standards. There is high need for the development and use of software development standards in order to facilitate the creation of collaborative informatics tools, methods, processes, and technologies that will be widely used to advance translational science.
- Facilitating the collaborative engagement of other stakeholders [e.g. federal partners and standards bodies such as the National Library of Medicine (NLM), Food and Drug Administration (FDA), Health Level Seven International (HL7), Office of the National Coordinator for Health Information Technology (ONC), Clinical Data Interchange Standards Consortium (CDISC), etc.].
- Supporting best practices to ensure the licensing of products, methods, and processes developed with the support of federal funds are freely available (open source) for the CTSA Program community and other stakeholders. This may include the following considerations as consistent with standard software development life cycle requirements:
- *Quality control*: assurances that all products developed under this cooperative agreement meet the highest standards of quality including usability, functionality, dependability, interoperability, security, deployment and maintenance.

- *Accessibility*: products that are developed under this cooperative agreement should become a national resource that could be used within the collaborative informatics laboratory environment and be accessible to all investigators.
  - *Provenance*: Ensure derivatives of the products are owned by the authors of said products.
  - *Maintenance*: Plans for maintenance of the products produced.
  - *Support*: Ensure that customer support is available and responsive.
  - *Interoperability*: Ensure that all products developed under this cooperative agreement could be interoperable and that the source code will be accessible.
  - *Evaluation measures*: Metrics for performance of the product should be made available.
- 4) Foster collaborative innovation in the area of informatics tools, methods and processes by:
- Creating a collaborative informatics laboratory to be used as a CTSA Program consortium-wide resource, where novel ideas and products could be created, tested, prototyped, disseminated and maintained as well as collaboratively used.
  - Fostering the identification of commercial tools by stakeholders that are thought to provide high value for the Consortium to facilitate translational science projects. The CD2H-CC may be a central negotiator with vendors of commercial tools.
  - Developing a sustainable model for the informatics products produced and used. This may include developing a public private partnership model that would allow the possibility for investigators to develop and commercialize their tools and encouraging entrepreneurship that may include a mechanism where derivative versions of a product can be used for commercialization.
- 5) Stimulate the use of cutting edge biomedical research informatics by providing data science education for CTSA Program researchers.
- Disseminate educational informatics resources and other products and provide a forum that will provide an assessment of the value of these products.
  - Disseminate high-quality educational resources and materials (e.g. Massive Open Online Courses or MOOCs), including workshops, externship offerings, conferences and courses.
- 6) Evaluate the impact of CD2H-CC activities to enhance health care through the use of informatics resources. This may include:
- Developing and implementing a model for continuous quality improvement (CQI) where projects are continuously measured and modified.
  - Developing a system where quantifiable, measurable, and actionable results of the impact of the products of the CD2H-CC are reported.
  - Supporting the publication of the impact of the tools, methods, and processes deployed.

**Awards:** Application needs to reflect the actual needs of the proposed project and are limited to \$3.5M per year in direct costs.

**Letter of Intent:** March 14, 2017

**Deadline:** April 14, 2017, 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.

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: Development of Socially-Assistive Robots (SARs) to Engage Persons with Alzheimer's Disease (AD) and AD-Related Dementias (ADRD), and their Caregivers (R43/R44)**

**Agency:** National Institutes of Health PAR-17-108

**Companion Opportunities:** [PAR-17-107](#), [STTR R41/R42](#)- Phase I, Phase II, and Fast Track

**RFP Website:** <https://grants.nih.gov/grants/guide/pa-files/PAR-17-108.html>

**Brief Description:** The purpose of this Funding Opportunity Announcement (FOA) is to encourage Small Business Innovation Research (SBIR) research and development of next-generation socially-assistive robots (SARs) to enhance health and well-being, reduce illness and disability, and improve quality of life for individuals with Alzheimer's disease (AD) and Alzheimer's-disease-related dementias (ADRD), and for caregivers of AD and ADRD patients.

This FOA targets the development of SARs that would function as companion robots providing psychosocial support (enhancing mood, mitigating the effects of loneliness, and enhancing social connection and communication), physiological interventions (e.g., stress reduction through the provision of biofeedback or other forms of behavioral therapy), and assistance with care management and activities of daily living. To achieve these ends, this FOA encourages a multi-disciplinary approach to foster collaborations between geriatricians (particularly those with knowledge of cognitive impairment and dementia), psychologists, neurologists, computer scientists, and mechanical, electrical, and software engineering professionals.

NIA anticipates that the development of next-generation SARs would enable AD and ADRD patients and their caregivers to preserve and, to the extent possible, enhance their psychosocial and cognitive coping skills and resources. To these ends, NIA seeks research and development of SARs that would provide capabilities and resources to compensate for AD and ADRD-related challenges and deficits, including the capabilities to interpret and translate cognitive intent (to perform certain activities), make context-based decisions, and help AD/ADRD patients perform activities of daily living. Ultimately, NIA anticipates that these SARs would be capable of remote operation and assist in the delivery of healthcare and social support in settings otherwise lacking the caregiving infrastructure necessary to support AD and ADRD patients.

Specifically, this FOA encourages small businesses to conduct SBIR research and development that would:

- (1) develop artificial intelligence for SARs to assist families in caring for family members with AD and ADRD and to assist formal care providers helping such families;
- (2) design and validate autonomous robotic architecture for older adults with AD and ADRD and other forms of cognitive impairment or apathy;
- (3) assess the feasibility, acceptability and tolerance of the robot-mediated intervention;
- (4) design and develop robotics platforms that quickly adapt to changes in patients with AD and ADRD patients and to changes in caregivers;
- (5) develop intelligent assistive robots for patient care-management (e.g. dispensing medications, monitoring vital signs, and communicating with care givers);
- (6) enable and support AD and ADRD patients to live independently and safely in different environments (e.g, urban versus rural homes or in a assisted living facility);
- (7) use SARs to promote social interaction and engagement and reduce loneliness among AD and ADRD patients and caregivers;
- (8) develop SARs to motivate persons with AD and ADRD, and their caregivers, to be physically active;
- (9) assist care providers with awkward, unsafe, and physically stressful care tasks;
- (10) provide mobility assistance to AD and ADRD patients; and
- (11) develop SARs that are affordable and culturally acceptable in diverse populations.

**Awards:** Budgets up to \$350,000 total costs per year for Phase I and up to \$2,000,000 total costs per year for Phase II may be requested.

**Letter of Intent:** 30 days prior to the application due date.

**Deadline:** [Standard dates](#) apply, by 5:00 PM local time of applicant organization.

\*\*\* Note new SBIR/STTR Standard Due 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.

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**Grant Program: Jointly Sponsored Ruth L. Kirschstein National Research Service Award Institutional Predoctoral Training Program in the Neurosciences (T32)**

**Agency: National Institutes of Health PAR-17-096**

**RFP Website:** <https://grants.nih.gov/grants/guide/pa-files/PAR-17-096.html>

**Brief Description:** The purpose of the Jointly Sponsored Predoctoral Training Program in the Neurosciences (JSPTPN) is to provide strong, broad neuroscience training that will enable students to become successful research scientists at a time when the field is advancing at an astonishing pace. Neuroscience research increasingly requires investigators who can cross boundaries, draw on knowledge and approaches from various disciplines and levels of analysis, and apply this breadth of knowledge in novel ways to yield new discoveries about the nervous system. Moreover, the ability to conduct impactful neuroscience research requires strong foundational skills in experimental design, statistical methodology and quantitative reasoning related to study design, analysis and interpretation.

Breakthroughs in neuroscience have come, and will continue to come, not only from a deep and broad understanding of the nervous system, but also from an understanding of biological systems not historically associated with neuroscience. For example, blood brain barrier function is now known to be heavily dependent on the multidrug resistance transporter, inflammatory responses are key components of many neurological disorders, and metabolic processes historically associated with biology or diseases outside the nervous system are now known to play a role in both normal brain function and neurobiological disorders. To achieve the goals of the JSPTPN, students should therefore be exposed to a broad spectrum of relevant science. In addition, the training supported by the JSPTPN must be grounded in principles of rigorous experimental design, an understanding of the critical need for, and proper use of, statistics, and quantitative literacy.

**Broad-based research training.** The JSPTPN supports a program of broad-based education and research experience during the first two years of graduate training. As such, training programs supported by a JSPTPN training grant must have a comprehensive, two-year training plan.

**Awards:** Application budgets are not limited, but need to reflect the actual needs of the proposed project.

**Letter of Intent:** 30 days prior to the application due date

**Deadline:** May 25, 2017; May 25, 2018; May 25, 2019, 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.

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**Department of Defense/US Army/DARPA/ONR**

**Grant Program: Diverse Collegiate Research and Development Collaboration Program**

**Agency: Department of Defense Air Force Research Lab FOA-AFRL-RQKP-2017-0001**

**Website:** <http://open-grants.insidegov.com/l/47716/Diverse-Collegiate-Research-and-Development-Collaboration-Program-FOA-AFRL-RQKP-2017-0001>

**Brief Description:** The objective of the AFRL Diverse Collegiate R&D Collaboration program is to enable collaborative research partnerships between AFRL, Academia, and Industry, in areas including, but not limited to, high speed systems, turbine engines, aerospace vehicles, power and

control. These technical areas are necessary for developing critical war-fighting technologies for the nation's air, space and cyberspace forces, as well as commercial derivatives.

**Awards:** Various; Estimated Funding Available: \$2,350,000

**Full Proposal Deadline:** Anytime until December 23, 2021

**Contact Information:** John D. McClellan Grants Officer Phone 937-713-9944

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## **Department of Energy**

### **Grant Program: Saving Energy Nationwide In Structures With Occupancy Recognition (SENSOR)**

**Agency:** Department of Energy Advanced Research Projects Agency Energy

**DE-FOA-0001737**

**Website:** <https://arpa-e-foa.energy.gov/#FoaId2d3f7530-bdc3-4090-ae7c-0d5ca8584e07>

**Brief Description:** This program aims to dramatically reduce the amount of energy used for heating and cooling residential buildings (by 30%) via user-transparent sensor systems that accurately sense human presence (not merely motion). This program also aims to reduce energy usage in commercial buildings (also by 30%) by enabling ventilation control based on sensor systems that can accurately count the number of humans in a pre-determined zone. If these sensing technologies can be widely deployed with disruptively low price targets and failure rates, a significantly lower usage of energy will result without impact to comfort of the occupants of the space. Heating, cooling, and ventilation (HVAC) reduction is only one way energy can be saved; such human presence sensing and people counting will enable drastic improvements in the way buildings communicate with and respond to their occupants.

The accuracy, reliability, and cost requirements to deliver such substantial energy savings are far beyond the limits of sensor systems available today. However, ARPA-E believes that by building on recent trends in improved performance and reduced cost in low-power consumer electronics and wireless communication technologies, it is possible to achieve the required performance levels through a focused push in the SENSOR program. Supporting systems currently exist (i.e., thermostats/controls, variable air volume systems, etc.) that could utilize data from such sensor systems to achieve the program's energy reduction targets today, with only slight modifications. In order to ensure impact for the new sensor systems, significant adoption barriers must be identified and clearly understood, technical paths to overcome these barriers must be defined, and real-world performance of these technical solutions validated.

**Awards:** Awards may vary between \$250,000 and \$10 million. Approximately \$20 million, subject to the availability of appropriated funds.

**Deadline:** Funding Opportunity Announcement (FOA) Issue Date: January 18, 2017 First Deadline for Questions to ARPA-E-CO@hq.doe.gov: 5 PM ET, Tuesday, March 7, 2017 Submission Deadline for Concept Papers: 5 PM ET, Friday, March 17, 2017 Second Deadline for Questions to ARPA-E-CO@hq.doe.gov: 5 PM ET, TBD Submission Deadline for Full Applications: 5 PM ET, TBD Submission Deadline for Replies to Reviewer Comments: 5 PM ET, TBD.

**Contact Information:** ARPA-E Contracting Officer [ARPA-E-CO@HQ.DOE.GOV](mailto:ARPA-E-CO@HQ.DOE.GOV)

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## **NASA**

**Grant Program: ROSES 2016: Fellowships for Early Career Researchers**

**Agency: NASA NNH16ZDA001N-ECF**

**Website:**

<https://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId={0A9B8DE3-6C85-899F-E114-D3819139508F}&path=init>

**Brief Description:** The Early Career Fellowship (ECF) program supports the development of individual research programs of outstanding scientists early in their careers and stimulates research careers in the areas supported by the Planetary Sciences Division. This Program is based on the idea that supporting key individuals is a critical mechanism for achieving high impact science that will lead the field forward with new concepts, technologies, and methods. This program consists of two components with two different submission procedures: the first is the one-page application to be an "Early Career Fellow" (ECF) and the second is the subsequent submission of a seven-page proposal for start up funds by a previously selected ECF. Section 2 presents details on the former, the application to be an ECF. Section 3 presents details on the latter, the proposal in response to this program element by selected ECFs to apply for up to \$100K in start up funds, once they obtain a permanent track position, which is defined in Section 4.3. See Section 3 for eligibility to apply for start up funds.

**Awards:** The application for start up funds is the second component of this program. The request for up to \$100K of start up funds for those who meet the eligibility requirements in Section 3.1 takes the form of a proposal submitted in response to this program element at any time during the open period for ROSES (i.e., there is no single fixed due date).

**Letter of Intent:** Not Required

**Full Proposal Deadline:** March 31, 2017

**Contact:** Doris Daou Planetary Science Division Science Mission Directorate NASA Headquarters Washington, DC 20546-0001 Telephone: (202) 358-1686 E-mail: [Doris.Daou@nasa.gov](mailto:Doris.Daou@nasa.gov)

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**National Endowment of Humanities****Grant Program: Institutes for Advanced Topics in the Digital Humanities**

**Agency:** National Endowment of Humanities

**Website:** <https://www.neh.gov/grants/odh/institutes-advanced-topics-in-the-digital-humanities>

**Brief Description:** The Institutes for Advanced Topics in the Digital Humanities program supports national or regional (multistate) training programs for scholars, humanities professionals, and advanced graduate students to broaden and extend their knowledge of digital humanities. Through this program NEH seeks to increase the number of humanities scholars and practitioners using digital technology in their research and to broadly disseminate knowledge about advanced technology tools and methodologies relevant to the humanities.

The projects may be a single opportunity or offered multiple times to different audiences. Institutes may be as short as a few days and held at multiple locations or as long as six weeks at a single site. For example, training opportunities could be offered before or after regularly occurring scholarly meetings, during the summer months, or during appropriate times of the academic year. The duration of a program should allow for full and thorough treatment of the topic. These professional development programs may focus on a particular computational method, such as network or spatial analysis. They may also target the needs of a particular humanities discipline or audience. Today, digital resources and other complex data—their form, manipulation, and interpretation—are as important to humanities study as more traditional research materials. Datasets, for example, may represent digitized historical records, high-quality image data, or even multimedia collections, all of which are increasing in number due to the availability and affordability of mass data storage devices and international initiatives to create digital content. Moreover, extensive networking capabilities, sophisticated analytical tools, and

new collaboration platforms are simultaneously providing and improving interactive access to and analysis of these data as well as a multitude of other resources. The Institutes for Advanced Topics in the Digital Humanities program seeks to enable humanities scholars in the United States to incorporate advances like these into their scholarship and teaching.

**Awards:** Awards normally range from one to three years and from \$50,000 to a maximum of \$250,000 in outright funds.

**Proposal Deadline:** March 14, 2017.

**Contact:** Contact the NEH Office of Digital Humanities via e-mail at [odh@neh.gov](mailto:odh@neh.gov). Applicants wishing to speak to a staff member by telephone should provide in an e-mail message a telephone number and a preferred time to call.

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