NJIT Research Newsletter

Issue: ORN-2017-04

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/ .

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 Material 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: Tomorrow's Internet Project Office (TIPOFF) Building on the Success of the Global Environment for Network Innovations; Faculty Early Career Development Program (CAREER); Mind, Machine and Motor Nexus (M3X)
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); 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: Stewardship Science Academic Alliances (SSAA) Program
NASA: ROSES 2016: Fellowships for Early Career Researchers
National Endowment of Humanities: Fellowships; 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: Michel Boufadel (PI)
Department: Center for Natural Resources Development and Protection
Grant/Contract Project Title: Dispersion Research on Oil: Physics and Plankton Studies (DROPPS II)
Funding Agency: Consortium for Ocean Leadership, Inc.
Duration: 01/15/15-12/31/17

PI: Michael Lee (PI)
Department: Information Systems
Grant/Contract Project Title: CRII: Cyberlearning: Keeping Computer Programming Learners Engaged Online
Funding Agency: NSF
Duration: 05/10/17-04/30/19

PI: Wei Zhi (PI)
Department: Computer Science
Grant/Contract Project Title: Computational Methods for Big Data Analytics
Funding Agency: NSF
Duration: 01/16/17-01/15/18

PI: William Hunter (PI), Treena Arinzeh (Co-PI)
Department: Biomedical Engineering
Grant/Contract Project Title: Science and Technology Center for Mechano-Biology
Funding Agency: NSF-University of Pennsylvania
Duration: 10/01/16-06/31/17

PI: Janice Daniel (PI), Athanassios Bladikas (Co-PI), Sima Bagheri (Co-PI)
Department: Civil and Environmental Engineering, Mechanical and Industrial Engineering
Grant/Contract Project Title: Safety Belt Usage Study 2017
Funding Agency: NJDOT
Duration: 10/01/16-09/30/17

PI: William Hunter (PI), Xiaobo Li (Co-PI)
Department: Biomedical Engineering
Grant/Contract Project Title: 43rd Northeast Bioengineering Conference
Funding Agency: NSF
Duration: 04/01/17-09/30/17

PI: Edward Dreizin (PI)
Department: Chemical, Biological and Pharmaceutical Engineering
Grant/Contract Project Title: Combustion of Reactive Material in Gas Flows with Turbulent Mixing
Funding Agency: DTRA
Duration: 05/01/14-04/30/19

PI: Edward Dreizin (PI), Mirko Schoenitz (Co-PI)
Department: Chemical, Biological and Pharmaceutical Engineering
Grant/Contract Project Title: Reactive Materials with Staged Release of Energy and Biocidal Products
Funding Agency: DTRA
Duration: 02/12/15-02/11/18

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

NIH Funding Under 21st Century Cure Act: The 21st Century Cure Act provides $4.8 billion in new funding for the National Institutes of Health; of that, $1.8 billion is reserved for the "cancer moonshot" launched by Vice President Biden to accelerate research in that field. Another $1.6 billion is earmarked for brain diseases including Alzheimer's. Also included are $500 million in new funding for the Food and Drug Administration and $1 billion in grants to help states deal with opioid abuse.

The NIH published a new solicitation entitled All of Us Research Program, a community based outreach initiative aimed at building a million person volunteer cohort for the Precision Medicine Initiative. The longitudinal, long-term study will collect data on key factors underlying individual health and the occurrence of disease. NIH envisions that up to $5 million per year will be allocated over the next three years. With an encouragement to develop local and regional partnerships of health care professionals, the solicitation indicates that up to four awards will be made by spring, and additional awards later in FY17 pending the outcome of final budget actions. Proposals are due March 24th. More Information on Precision Medicine Initiative on the website https://obamawhitehouse.archives.gov/precision-medicine.

Cybersecurity And The Grid: A House Energy and Commerce subcommittee looked into how the electric power sector confronts cyber risks and what's necessary "to ensure the reliability and resilience of the nation's electricity transmission." Panel Chairman Fred Upton (R-Mich.) said a record of industry efforts to address threats will help determine whether additional measures are needed. Ranking Democrat Frank Pallone, Jr. (D-NJ) faulted President Trump for removing the energy secretary from his National Security Council principals committee. More information is posted on http://docs.house.gov/meetings/IF/IF03/20170201/105497/HHRG-115-IF03-20170201-SD002-U2.pdf

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 received 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
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, 2017 5.00 PM
Where: Foran 138A, G.H. Cook Campus, Rutgers University
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
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.

Event: Seminars in Endocrinology and Animal Biosciences: Reward, Interrupted: Inhibitory Control and its Relevance to Addictions
When: February 10, 2017 9.15 AM-10.15 AM
Website: https://ruevents.rutgers.edu/events/displayEvent.html?eventId=86748
Brief Description: A defining feature addictions is the impaired ability to exert self-control over reward seeking and taking. This lecture will review the nature of the relationship between poor self-control and addictions, as well as identify underlying biological mechanisms (from genes to neural circuits).
Speaker: J. David Jentsch, Ph.D., Empire Innovation Professor, Department of Psychology - Behavior Neuroscience, Binghamton University

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<h1>Grant Opportunities</h1>

<h2>National Science Foundation</h2>

Grant Program: Tomorrow's Internet Project Office (TIPOFF)
Building on the Success of the Global Environment for Network Innovations
Agency: National Science Foundation NSF 17-540
RFP Website: https://www.nsf.gov/pubs/2017/nsf17540/nsf17540.htm
Brief Description: In order to leverage, advance and strengthen its investments in mid-scale computing research infrastructure, the National Science Foundation's (NSF) Directorate for Computer and Information Science and Engineering (CISE) will support the work of *Tomorrow's Internet Project Office* **(TIPOFF)**. Working closely with the U.S. academic and industrial computer networking research community, TIPOFF will provide leadership and administrative oversight in developing, deploying and operating innovative mid-scale computing research infrastructure to meet evolving research community needs and align with emerging national priorities.

To initiate this activity, TIPOFF will assume responsibility for the operation and future evolution of the Global Environment for Network Innovations (GENI) platform. TIPOFF will then lead the research community in developing an expanded and enriched experimental platform ("Platform") that leverages the existing GENI infrastructure to support exploration of robust new networking and distributed systems architectures, services and applications. This Platform will serve as a virtual laboratory for research and education, with the goal of advancing understanding of computing and communication systems and sustaining U.S. technology leadership and competitiveness in information technology (IT) and Internet-based services.

Limit on Number of Proposals per Organization: 1: An organization may participate in no more than one TIPOFF proposal submitted to this solicitation, either as a lead or a subawardee. For proposals involving multiple institutions, only one institution should submit the proposal, with funding for participating institutions made through subawards. In other words, joint projects should not be submitted as linked collaborative proposals. See PAPPG Chapter II.D.3.a for additional information.
Awards: Anticipated funding amount: $10,000,000
Letter of Intent: Not Required
Full Proposal Submission Due Date: May 02, 2017
Contacts:
- Jack Brassil, Program Director, CISE/CNS, telephone: (703) 292-8950, email: jbrassil@nsf.govKevin Thompson, Program Director, CISE/ACI, telephone: (703) 292-4220, email: kthompso@nsf.gov

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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
- See Contacts listing, NSF, telephone: (703) 292-5111, email: 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

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   (703) 292-5365

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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.

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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.

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: Stewardship Science Academic Alliances (SSAA) Program
Agency: Department of Energy Advanced Research Projects Agency Energy
DE-FOA-0001634
Website: http://open-grants.insidegov.com/l/48138/Stewardship-Science-Academic-Alliances-SSAA-Program-DE-FOA-0001634
Brief Description: The Stewardship Science Academic Alliances (SSAA) Program was established in 2002 to support state-of-the-art research at U.S. academic institutions in areas of fundamental physical science and technology of relevance to the SSP mission. The SSAA Program provides the research experience necessary to maintain a cadre of trained scientists at U.S. universities to meet the nation's current and future SSP needs, with a focus on those areas not supported by other federal agencies. It supports the DOE/NNSA's priorities both to address the workforce specific

needs in science, technology, engineering, and mathematics and to support the next generation of professionals who will meet those needs.

Awards: Awards may vary between $1 to $3 million. Approximately $18 million available in total funds.

Deadline: Apr 30, 2017 Applications should be received by April 30, 2017 and not later than 23:59 ET in Grants.gov.

Contact Information: Grants Management Specialist Patricia M. Parrish 505-845-4057 Patricia.Parrish@nnsa.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

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National Endowment of Humanities

Grant Program: Fellowships
Agency: National Endowment of Humanities
Website: https://www.neh.gov/grants/research/fellowships

Brief Description: Fellowships support individuals pursuing advanced research that is of value to humanities scholars, general audiences, or both. Recipients usually produce articles, monographs, books, digital materials, archaeological site reports, translations, editions, or other scholarly resources in the humanities. Through NEH-Mellon Fellowships for Digital Publication, the National Endowment for the Humanities and The Andrew W. Mellon Foundation jointly

support individual scholars pursuing interpretive research projects that require digital expression and digital publication. To be eligible for this special opportunity, an applicant's plans for digital publication must be essential to the project's research goals. That is, the project must be conceived as digital because the nature of the research and the topics being addressed demand presentation beyond traditional print publication. Successful projects will likely incorporate visual, audio, and/or other multimedia materials or flexible reading pathways that could not be included in traditionally published books, as well as an active distribution plan. Applicants interested in research projects that require digital expression and digital publication are encouraged to apply for [NEH-Mellon Fellowships for Digital Publication](#).

Awards: $50,400 per Fellowship
Letter of Intent: Not Required
Full Proposal Deadline: April 12, 2017
Contact: Contact NEH's Division of Research Programs at 202-606-8200 or fellowships@neh.gov

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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. 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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