NJIT Research Newsletter

Issue: ORD-GOA-2015-26

Recent Awards **Events and Announcements** **Grant Opportunities**

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

Recent Research Grant and Contract Awards

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

PI: Michel Boufadel (PI)
Department: Center for Natural Resources Development and Protection, CEE
Grant/Contract Project Title: Delineating the floodplains due to storm surge
Funding Agency: PS&S
Duration: 07/15/15-01/14/16

PI: Dale Gary (PI)
Department: Center for Solar Terrestrial Research, Physics
Grant/Contract Project Title: Developing 10.7 cm Wavelength Microwave Imaging to Assess the Sun's Impact on Geospace
Funding Agency: AFOSR
Duration: 09/05/15-09/14/16

PI: Songhua Xu (PI)
Department: Information Systems
Grant/Contract Project Title: Cyber-Informatic Approach to Studying Migration & Environmental Cancer Risk
Funding Agency: UT-Battelle
Duration: 07/11/14-05/31/16

PI: Veronica Guzman (PI)
Department: Consortium for Pre-College Programs
Grant/Contract Project Title: Upward Bound for English Language Learners (ELLs)
Funding Agency: Department of Education
Duration: 09/01/12-08/31/17

PI: Veronica Guzman (PI)
Department: Consortium for Pre-College Programs
Grant/Contract Project Title: Educational Talent Search Program
Funding Agency: Department of Education
Duration: 09/01/12-08/31/16

PI: Shidong Jiang (PI)
Department: Mathematical Sciences
Grant/Contract Project Title: Collaborative Research: Efficient high-order parallel algorithms for large-scale photonics simulation
Funding Agency: NSF
Duration: 08/15/14-07/31/17

PI: Durga Misra (PI)
Department: Electrical and Computer Engineering
Grant/Contract Project Title: Reliability of High K gate Stack on High Mobility Materials
Funding Agency: Tel Technology Center, America LLC (TTCA)
Duration: 03/01/15-02/28/16

Events and Announcements

Event: **NSF Grants Conference**
When: November 3, 2015; 8.30 AM – 4.00 PM
Where: Webinar http://www.nsf.gov/events/event_summ.jsp?cntn_id=135129&org=NSF
Brief Description: The Fall 2015 National Science Foundation Grants Conference will be hosted by Georgetown University in Arlington, VA on **November 2-3, 2015**.
Registration is not yet available. Please visit http://events.SignUp4.com/nsfnotification to be placed on the registration notification list.
Key officials representing each NSF program directorate, administrative office, Office of General Counsel, and Office of the Inspector General will participate in this two-day conference. The conference is considered a must, particularly for new faculty, researchers, educators and administrators who want to gain insight into a wide range of important and timely issues at NSF including: the state of current funding; the proposal and award process; and current and recently updated policies and procedures.
Topics covered include:

- Introduction to NSF;
- NSF's proposal preparation and merit review process;
- Award management;
- Conflict of interest policies;
- New programs and initiatives;
- Cross-disciplinary and special interest programs; and
- Breakout sessions by discipline.

Event: **S-STEM 2015 "Flipped" Webinars**
When: July 8, 2015 9:00 AM to October 1, 2015 5:00 PM
Where: Webinar https://nsf.webex.com/nsf/mc
Brief Description: NSF Scholarships in Science, Technology, Engineering, & Mathematics
This page describes pre-recorded and live webinar presentations by NSF Program Officers about **S-STEM NSF 15-581** http://www.nsf.gov/pubs/2015/nsf15581/nsf15581.htm. The goal of these resources is to communicate features of the program and provide an opportunity for Program Officers to respond to questions.

On June 24, 2015 a new solicitation was released for the S-STEM program. Proposals for this round of the solicitation will be due on September 22, 2015 (and then again on May 16, 2016). This page provides links and clarification regarding presentations and webinars for potential principal investigators (PIs) interested in submitting proposals to this round of the S-STEM competition. These presentations and webinars will provide general information on the S-STEM program, but will also emphasize elements that are new or have changed since previous S-STEM solicitations.

These materials will make use of a "flipped classroom" approach. Potential PIs should prepare questions that occur to them while viewing the presentations and then they can ask them in the question and answer sessions.

Narrated Powerpoint Presentations

Seven short presentations with narration on S-STEM are available on the links below. Viewing all 7 presentations requires approximately an hour.

- Overview of the New Program – Powerpoint 1
- Strand 1: S-STEM Institutional Capacity Building – Powerpoint 2
- Strand 2: Single Institution – Powerpoint 3
- Strand 2: Multi-Institution – Powerpoint 4
- Proposal Content Info for New PIs – Powerpoint 5
- Project Description Contents – Powerpoint 6
- Merit Review Criteria – Powerpoint 7

WebEx Question and Answer Sessions

In addition, there will be a series of question and answer sessions in WebEx at a number of different dates and times. They will provide an opportunity to obtain clarification regarding questions that you may have. All video information will be communicated through a computer on the internet via WebEx. The WebEx session password is S-Stem2015. Each question and answer session will last up to 1 hour. These sessions will occur on the following dates and times:

Q & A Session #1	Wednesday, July 15, 2-3 pm (EST)	Link to WebEx Session 1
Q & A Session #2	Thursday, July 16, 1-2 pm (EST)	Link to WebEx Session 2
Q & A Session #3	Tuesday, July 21, 3-4 pm (EST)	Link to WebEx Session 3

All audio information will be communicated through the telephone (preferably a landline).

USA/Canada dial toll-free: 1-888-889-5127 or Toll: 1-773-799-3447
Participant Passcode: 8754707
State your name with the spelling to the operator to join the meeting in listen-only mode.

Grant Opportunity Alerts

Keywords and Areas Included in Grant Opportunity Alerts**:**

NSF: Natural Hazards Engineering Research Infrastructure; Graduate Research Fellowship Program; Long-Term Ecological Research; Collaborative Research in Computational Neuroscience; Louis Stokes Alliances for Minority Participation **;** Advancing Informal STEM Learning (AISL); Ideas Lab
NIH: Imaging - Science Track Award for Research Transition (I/START) (R03); U.S.-India Collaborative Vision Research Program (R01);
DoD/ONR/AFOSR/ARL: Information Innovation Office (I2O) Office-wide; Defense Medical Research and Development Program (DMRDP) DoD DMRDP JPC-1/MSIS

Grant Opportunities

National Science Foundation

Grant Program: Natural Hazards Engineering Research Infrastructure (NHERI) Network Coordination Office, Computational Modeling and Simulation Center, and Post-Disaster, Rapid Response Research Facility
Agency: National Science Foundation NSF 15-598
RFP Website: http://nsf.gov/pubs/2015/nsf15598/nsf15598.htm
Brief Description: The planned outcome of this solicitation is to establish the final three awards for the NSF-supported Natural Hazards Engineering Research Infrastructure (NHERI) - Network Coordination Office (NCO), Computational Modeling and Simulation Center (SimCenter), and Post-Disaster, Rapid Response Research (RAPID) Facility. The NCO, SimCenter, and RAPID Facility components for NHERI were originally competed under program solicitation NSF 14-605, Natural Hazards Engineering Research Infrastructure (NHERI) 2015-2019, but no awards for these components were made under that solicitation. Because the NCO, SimCenter, and RAPID Facility are integral awards for an integrated NHERI facility, this solicitation includes information about all four components of NHERI listed in NSF 14-605: NCO, Cyberinfrastructure (CI), SimCenter, and Experimental Facility (EF). The RAPID Facility is considered part of the EF cohort. Under this solicitation, proposals will only be accepted for the NCO, SimCenter, and RAPID Facility. All other proposals will be returned without review.

NHERI is the next generation of National Science Foundation (NSF) support for a natural hazards engineering research large facility, replacing the George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES). NEES was established by NSF as a distributed, multi-user, national research infrastructure for earthquake engineering through a facility construction phase during 2000 - 2004, followed by operations of this infrastructure to support research, innovation, and education activities from October 2004 through September 2014.

NHERI will be a distributed, multi-user, national facility that will provide the natural hazards engineering community with access to research infrastructure (earthquake and wind engineering experimental facilities, cyberinfrastructure, computational modeling and simulation tools, and research data), coupled with education and community outreach

activities. NHERI will enable research and educational advances that can contribute knowledge and innovation for the nation's civil infrastructure and communities to prevent natural hazard events from becoming societal disasters.
NHERI will consist of the following components, established through separate awards:

- NCO - one award to be made under this solicitation;
- SimCenter - one award to be made under this solicitation;
- Experimental Facility: RAPID Facility - one award to be made under this solicitation;
- CI - one award made under NSF 14-605; and
- Experimental Facilities for earthquake engineering and wind engineering research - six or seven awards made under NSF 14-605.

Under this solicitation, one cooperative agreement for the NCO, one cooperative agreement for the SimCenter, and one cooperative agreement for the RAPID Facility are anticipated to commence in early calendar 2016, with a five-year award duration. These three Awardees will not conduct research. The primary research enabled by NHERI will be conducted by investigators supported through separate NSF awards. The NCO, SimCenter, and RAPID Facility Awardees, along with the other NHERI Awardees and the natural hazards engineering community, will work together, through Governance and Awardee activities, to establish a shared vision for NHERI, set natural hazards engineering research and education agendas and priorities, and make NHERI a value-added and productive research infrastructure.
Awards: Up to 5 awards will be made in FY 2016 pending availability of funds and the type, scale, and variety of project ideas developed at the Ideas Lab.
Anticipated Funding Amount: $1,000,000 to $2,000,000
Up to $2,000,000 will be available for US researchers in 2016-2017 for successful proposals through the Ideas Lab, pending availability of funds and compelling proposals.
Letter of Intent: Required by October 16, 2015
Full Proposal Deadlines: November 4, 2016
Contacts:

- Joy M. Pauschke, Program Director, Division of Civil, Mechanical and Manufacturing Innovation (Lead Cognizant Program Officer), telephone: (703) 292-7024, email: jpauschk@nsf.gov
- William L. Miller (CISE/ACI), Science Advisor, Division of Advanced Cyberinfrastructure, telephone: (703) 292-7886, email:wlmiller@nsf.gov
- Erica Stein, Grants and Agreements Specialist, Division of Acquisition and Cooperative Support, telephone: (703) 292-5399, email:digiovanna-stein@nsf.gov
- Deanna DiGiovanna, Grants and Agreements Specialist, Division of Acquisition and Cooperative Support, telephone: (703) 292-4374, email: digiovanna-stein@nsf.gov

---

Grant Program: Graduate Research Fellowship Program (GRFP)
Agency: National Science Foundation NSF 15-597
RFP Website: http://nsf.gov/pubs/2015/nsf15597/nsf15597.htm
Brief Description: The purpose of the NSF Graduate Research Fellowship Program (GRFP) is to help ensure the vitality and diversity of the scientific and engineering workforce of the United States. The program recognizes and supports outstanding graduate students who are pursuing research-based master's and doctoral degrees in science, technology, engineering, and mathematics (STEM) and in STEM education. The GRFP provides three years of support for the graduate education of individuals who have demonstrated their potential for

significant research achievements in STEM and STEM education. NSF especially encourages women, members of underrepresented minority groups, persons with disabilities, and veterans to apply. NSF also encourages undergraduate seniors to apply.
https://www.fastlane.nsf.gov/fastlane.jsp) prior to submitting an application. Confirmation of acceptance in a graduate degree program in science or engineering is required at the time of Fellowship acceptance, no later than May 1, 2016. Prospective Fellows must enroll in a university, college, or non-profit academic institution of higher education accredited in, and having a campus located in, the United States, its territories, or possessions, or the Commonwealth of Puerto Rico that offers advanced degrees in STEM or STEM education no later than fall 2016. All Fellows from the date of Acceptance through Completion or Termination of the Fellowship must be affiliated with a graduate degree-granting institution accredited in, and having a campus located in, the United States, its territories, or possessions, or the Commonwealth of Puerto Rico. NSF especially encourages women, members of underrepresented minority groups, persons with disabilities, and veterans to apply. NSF also encourages undergraduate seniors to apply.

Applicants must self-certify that they are eligible to receive the Fellowship.

Categories of applicants that are ineligible:

- Those who do not hold United States citizenship, national, or permanent resident status by the application deadline.
- Those who were previously awarded a Fellowship from the NSF Graduate Research Fellowship Program and accepted it.
- Those who did not accept the NSF Graduate Research Fellowship and failed to notify NSF by the published deadline for accepting the Fellowship.
- Those who have completed the requirements for any graduate or professional degree by August 1, 2015, except 1) applicants who have completed a joint baccalaureate-master's (BS/MS) program and have not completed any further graduate study outside the joint program unless the graduate coursework was required to establish or maintain credentials in a profession such as teaching; or 2) applicants that have had an interruption in graduate study of at least two consecutive years prior to November 1, 2015 and have completed no additional graduate study as of August 1, 2015.
- Current NSF employees.

Awards: The NSF expects to award 2,000 Graduate Research Fellowships under this program solicitation pending availability of funds.

Anticipated Funding Amount: $337,500,000

Each Fellowship consists of three years of support during a five-year fellowship period. NSF provides a stipend of $34,000 to the Fellow and a cost-of-education allowance of $12,000 to the graduate degree-granting institution for each Fellow who uses the fellowship support in a fellowship year.

Letter of Intent: Not required

Full Proposal Deadlines: October 26, 2015; Geosciences; Life Sciences

October 27, 2015; Computer and Information Science and Engineering; Engineering; Materials Research

October 29, 2015; Psychology; Social Sciences; STEM Education and Learning

October 30, 2015; Chemistry; Mathematical Sciences; Physics and Astronomy

Contacts:

- Applications, contact: GRF Operations Center, telephone: (866) 673-4737, email:info@nsfgrfp.org
- Gisele Muller-Parker, telephone: (866) 673-4737, email: info@nsfgrfp.org
- Joerg Schlatterer, telephone: (866) 673-4737, email: info@nsfgrfp.org

Grant Program: Long-Term Ecological Research (LTER): Renewal
Agency: National Science Foundation NSF 15-596
RFP Website: http://nsf.gov/pubs/2015/nsf15596/nsf15596.htm
Brief Description: NSF currently supports 25 LTER sites, and the solicitation is open to renewal proposals only.
To address ecological questions that cannot be resolved with short-term observations or experiments, NSF established the Long Term Ecological Research Program (LTER) in 1980. Two components differentiate LTER research from projects supported by other NSF programs: 1) the research is located at specific sites chosen to represent major ecosystem types or natural biomes, and 2) it emphasizes the study of ecological phenomena over long periods of time based on data collected in five core areas. Long-term studies are essential to achieve an integrated understanding of how populations, communities, and other components of ecosystems interact as well as to test ecological theory. Ongoing research at LTER sites must test ecological theories and significantly advance understanding of the long-term dynamics of populations, communities and ecosystems. It often integrates multiple disciplines and, through cross-site interactions, examines patterns or processes over broad spatial scales. Recognizing that the value of long-term data extends beyond use at any individual site, NSF requires that data collected by all LTER sites be made broadly accessible.
Awards: Eleven sites are scheduled for renewal in FY 2016.
Anticipated Funding Amount**:** $12,320,000
Projects currently funded at $980,000 per year may increase their annual request by up to 15%, to an annual request not to exceed $1,127,000. This amount includes $16,000 to support two research experiences for undergraduates and $24,000 for Schoolyard activities. Budgets must be thoroughly justified.
Letter of Intent: Not required
Full Proposal Deadlines: March 4, 2016
Contacts:

- Saran Twombly, Division of Environmental Biology, telephone: (703) 292-8133, email:stwombly@nsf.gov
- David L. Garrison, Division of Ocean Sciences, telephone: (703) 292-7588, email:dgarriso@nsf.gov
- Lisa M. Clough, Division of Polar Programs, telephone: (703) 292-4746, email: lclough@nsf.gov

---

Grant Program: Collaborative Research in Computational Neuroscience (CRCNS) Innovative Approaches to Science and Engineering Research on Brain Function
Agency: National Science Foundation and NIH: NSF 15-595
RFP Website: http://nsf.gov/pubs/2015/nsf15595/nsf15595.htm
Brief Description: Computational neuroscience provides a theoretical foundation and a rich set of technical approaches for understanding complex neurobiological systems, building on the theory, methods, and findings of computer science, neuroscience, and numerous other disciplines.

Through the CRCNS program, the National Science Foundation (NSF), the National Institutes of Health (NIH), the German Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung, BMBF), the French National Research

Agency (Agence Nationale de la Recherche, ANR), and the United States-Israel Binational Science Foundation (BSF) support collaborative activities that will advance the understanding of nervous system structure and function, mechanisms underlying nervous system disorders, and computational strategies used by the nervous system.

Two classes of proposals will be considered in response to this solicitation: Research Proposals describing collaborative research projects, and Data Sharing Proposals to enable sharing of data and other resources.

Domestic and international projects will be considered. As detailed in the solicitation, international components of collaborative projects may be funded in parallel by the participating agencies. Opportunities for parallel funding are available for bilateral US-German Research Proposals, US-German Data Sharing Proposals, US-French Research Proposals, US-French Data Sharing Proposals, US-Israel Research Proposals, and multilateral proposals involving the United States and 2 or more additional countries.

NSF will coordinate and manage the review of proposals jointly with participating domestic and foreign funding organizations, through a joint panel review process used by all participating funders. Additional information is available in Section VI of the solicitation.

Appropriate scientific areas of investigations may be related to any of the participating funding organizations. Questions concerning a particular project's focus, direction and relevance to a participating funding organization should be addressed to the appropriate person in the list of agency contacts found in Section VIII of the solicitation.

Examples of topics amenable to these approaches include but are not limited to the following:

- Neurodevelopment, neurodegeneration, neuroinflammation and repair;
- Pattern recognition and perception;
- Motor control mechanisms and sensorimotor integration;
- Learning, representation, and encoding;
- Cognitive and decision-making functions and dysfunction, including, *e.g.*, impulse control and disinhibition;
- Neural origins of risk and time preference;
- Judgment, choice formation, and social-behavioral phenomena such as trust, competitiveness, and cooperation;
- Language and communication;
- Intellectual and developmental disabilities;
- Neural interface decoding and analysis, control, and modeling of processes affecting neural interfaces and neuroprostheses;
- Normal and abnormal sensory processing (vision, audition, olfaction, taste, balance, proprioception and somatic sensation);
- Neurological, neuromuscular and neurovascular disorders;
- Mental health, mental illness and related disorders; and
- Alcohol and drug abuse related disorders, including, *e.g.*, their interaction with eating disorders and other psychiatric and neurological disorders.

Awards: Standard Grant or Continuing Grant
Estimated Number of Awards**:** 15 to 25
Anticipated Funding Amount: $5,000,000 to $20,000,000
Letter of Intent: Not required
Full Proposal Deadlines: October 29, 2015
Contacts:

- Dana Hunter, CRCNS Administrative Coordinator - NSF; Program Analyst, Division of Information and Intelligent Systems, National Science Foundation, 1125 S, telephone: (703) 292-5044, fax: (703) 292-9073, email: dmhunter@nsf.gov
- Kenneth Whang, CRCNS Program Coordinator - NSF; Program Director, Division of Information and Intelligent Systems, National Science Foundation, 1125 S, telephone: (703) 292-5149, fax: (703) 292-9073, email: kwhang@nsf.gov

---

Grant Program: Louis Stokes Alliances for Minority Participation (LSAMP)
Agency: National Science Foundation NSF 15-594
RFP Website: http://nsf.gov/pubs/2015/nsf15594/nsf15594.htm
Brief Description: Louis Stokes Alliances for Minority Participation (LSAMP) program assists universities and colleges in their efforts to significantly increase the numbers of students matriculating into and successfully completing high quality degree programs in science, technology, engineering and mathematics (STEM) disciplines in order to diversify the STEM workforce. Particular emphasis is placed on transforming undergraduate STEM education through innovative, evidence-based recruitment and retention strategies, and relevant educational experiences in support of racial and ethnic groups historically underrepresented in STEM disciplines: African Americans, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians, and Native Pacific Islanders.

The LSAMP program provides funding to alliances that implement comprehensive, evidence-based, innovative, and sustained strategies that ultimately result in the graduation of well-prepared, highly-qualified students from underrepresented groups who pursue graduate studies or careers in STEM.

There are four *alliance award types*:

1. Alliances (Multi-institutional Partnerships): 5-year projects focused on undergraduate recruitment and retention activities.
2. Bridge to the Baccalaureate (B2B) Alliances (Alliances with a community college as lead institution): 3-year projects focused on activities that provide effective educational preparation of community college students for successful transfer to 4-year institutions in STEM.
3. Bridge to the Doctorate (BD) Activity: 2-year projects eligible only to existing alliances funded more than 10 consecutive years; these projects are focused on providing post-baccalaureate fellowship support to a cohort of 12 LSAMP students for the first two years of their STEM graduate studies and on providing the necessary academic and research skills that will enable them to successfully earn STEM doctoral degrees and transition into the professoriate and/or STEM workforce.
4. Pre-Alliance Planning Grants: Up to 18-month projects that undertake planning activities necessary to form new alliances or regional outreach and knowledge-diffusion centers of excellence.

In this solicitation, the acronym STEM stands for science, technology, engineering, and mathematics that includes biological sciences (except medicine and other clinical fields); physical sciences (including physics, chemistry, astronomy, and materials science); mathematical sciences (including statistics and data science); computer and information sciences; geosciences (including earth and ocean sciences); engineering; and technology areas associated with the preceding disciplines (for example, biotechnology, chemical technology, nanotechnology, engineering technology, information technology).

Important Notes on LSAMP Alliance Projects

The NSF LSAMP Program allows grantees to provide performance-based stipend support to undergraduate students. However, LSAMP is not a student financial aid scholarship program, and thus funds should NOT be used to award scholarships to students.

The LSAMP Program does NOT make awards directly to individual students to undertake their education or research activities. Students are encouraged to contact the respective institutions to inquire about whether there are LSAMP programs (including Bridge to the Doctorate) on their campuses.

All students receiving stipends/fellowships must be U.S. citizens, U.S. nationals, or permanent residents of the United States.

Institutional partners (including community colleges) in all LSAMP Alliances (including B2B) must be budgeted as sub-awardees unless designated as a lead institution in an alliance. Please contact a LSAMP Team member if your institution does not enter into subaward agreements.

Awards: Standard Grant or Continuing Grant.

Anticipated Funding Amount: $45,600,000. Approximately $32 million, pending availability of funds, for new awards in FY2016 to support Alliances (including Bridge to the Baccalaureate), Bridge to the Doctorate, Pre-Alliance Planning grants, and other funding opportunities.

Letter of Intent: Not required

Full Proposal Deadlines:

November 04, 2015
Bridge to the Doctorate; Pre-Alliance Planning Grants
November 20, 2015
LSAMP Alliance Proposals (including Bridge to the Baccalaureate)
October 14, 2016
Bridge to the Doctorate; Pre-Alliance Planning Grants
November 04, 2016
LSAMP Alliance Proposals (including Bridge to the Baccalaureate)

Contacts:

- LSAMP Program Team, telephone: (703) 292-8640, fax: (703) 292-9018, email:LSAMP_national@nsf.gov
- A. James Hicks, Program Director and Co-Lead, 815 N, telephone: (703) 292-4668, email:ahicks@nsf.gov
- Tasha R. Inniss, Program Director and Co-Lead, 815 N, telephone: (703) 292-4684, email:tinniss@nsf.gov
- Martha L. James, Program Director, 815 N, telephone: (703) 292-7772, email: mjames@nsf.gov
- Maurice Dues, Program Specialist, 815 N, telephone: (703) 292-7311, email: mdues@nsf.gov

---

Grant Program: Advancing Informal STEM Learning (AISL)
Agency: National Science Foundation NSF 15-593 (Update)
RFP Website: http://www.nsf.gov/pubs/2015/nsf15593/nsf15593.htm
Brief Description: The Advancing Informal STEM Learning (AISL) program seeks to advance new approaches to and evidence-based understanding of the design and development of STEM learning opportunities for the public in informal environments; provide multiple

pathways for broadening access to and engagement in STEM learning experiences; and advance innovative research on and assessment of STEM learning in informal environments.

The AISL program supports seven types of projects: (1) Collaborative Planning, (2) Exploratory Pathways, (3) Research in Service to Practice, (4) Innovations in Development, (5) Broad Implementation, (6) Conferences, and (7) Informal STEM Learning Resource Center (FY 2016 only).

The range of project types available serve different functions and support varied strategies for guiding proposed work. Types 1 and 2 are smaller-scale investments designed to provide teams with an opportunity to understand complex STEM learning issues and potential solutions, test methods, and reach beyond typical comfort zones or collaborations. Types 3, 4, and 5 provide opportunities to more fully explore questions and issues for which there is a significant literature or practice base. Proposal types 5 and 6 offer additional mechanisms for building capacity, advancing informal STEM learning, and synthesizing knowledge.

- **Collaborative Planning**

Projects can be funded for up to $150,000 total and one year in duration. Collaborative Planning projects provide groups of people and organizations the support necessary to increase partnerships, understanding, and influence, so that they can develop ideas and strategies to address the most complex issues of the field. Successfully attacking these complex problems will likely require a range of expertise including informal STEM practitioners, education and learning researchers, STEM discipline researchers, and others. AISL welcomes high risk / high reward and unexpected approaches to informal STEM learning and practice.

- **Exploratory Pathways**

Projects can be funded for up to $300,000 total and up to two years in duration. Exploratory Pathways projects are opportunities for practitioners and researchers to investigate issues in and approaches to informal STEM learning and to establish the basis for future research, design, and development of innovations or approaches. Such exploratory development work or feasibility studies should produce evidence, findings, and/or prototype deliverables that help the team make critical decisions about future work.

- **Research in Service to Practice**

Projects can be funded for $300,000 to $2 million and from two to five years in duration. AISL welcomes focused projects in the $300k-$750k range in addition to larger projects. The Research in Service to Practice (RSP) project type focuses on research that advances knowledge and the evidence base for practices, assumptions, broadening participation, or emerging educational arrangements in STEM learning in informal environments. For these proposals it is important for practice to inform the research as well as having research inform practice.

- **Innovations in Development**

Projects can be funded for $500,000 to $3 million and up to five years in duration. AISL welcomes focused projects in the $500k-$750k range in addition to larger projects. The Innovations in Development project type is expected to result in deliverables such as exhibits, media products, afterschool programs, etc., and in innovative models, programs, technologies, assessments, resources, or systems for an area of STEM learning in informal environments. Projects should build on evidence from prior development and research efforts. It is understood that innovations take many forms and occur at different scales. Thus projects may put forward small, medium or larger scale innovations depending on the nature of what is being innovated.

- **Broad Implementation**

Projects can be funded for $1 million to $3 million and from two to five years in duration. The Broad Implementation project type supports the expansion or reach of models, programs, technologies, assessments, resources, research, or systems that have a documented record of success, innovation, or evidence-based knowledge building. Sources of evidence may include summative evaluation or research data that indicate readiness for distribution to a broader population or new setting(s) and should be summarized in the proposal narrative. (See notes in Supplementary Documents.)

- **Conferences** (see GPG, II.D.8.)

Projects can be funded for up to $250,000 and are usually from one to two years in duration. The "Conferences" category may be used for conferences, symposia, or workshops. These activities should be well-focused, relate to the goals of the AISL program, and generate product(s) usable by practitioners and researchers. The program is particularly interested in proposals that lead to, for example, the development of communities of practice, the formulation of field-advancing practice, assessments, and research agendas for the participating professional communities. Proposals should clearly indicate how convening and outcomes support expanded or new thinking about knowledge building, innovation, strategic impact, and collaboration.

- **Informal STEM Learning Resource Center**

Up to 1 (one) center will be funded for up to $5,000,000 and five years. As a special emphasis for professional audiences under this solicitation, AISL seeks proposals that will result in a single award for the development and implementation of an Informal STEM Learning Resource Center (ISLRC). The ISLRC supports the informal STEM Learning field, NSF Principal Investigators, and Advancing Informal STEM Learning and other NSF programs.

Awards: Pending availability of funds, it is anticipated that about 10-12 Collaborative Planning awards, 10-12 Exploratory Pathways awards, 6-8 Research in Service To Practice awards, 8-10 Innovations in Development awards, 3-6 Broad Implementation awards, and 5-7 Conference awards will be made. AISL will also fund 5-7 awards made through the EAGER and RAPID mechanisms and 2-4 CAREER awards. Up to one (1) Informal STEM Learning Resource Center award is anticipated in FY 2016.

$28 - $38M in FY 2016 is anticipated to be available for new awards made under this solicitation, pending availability of funds. Limits for funding requests of AISL proposals are as follows: (1) Collaborative Planning projects: up to $150,000 with duration of one year; (2) Exploratory Pathways projects: up to $300,000 with duration up to two years; (3) Research in Service to Practice projects: from $300,000 to $2,000,000 with a duration from two to five years; (4) Innovations in Development projects: $500,000 to $3,000,000 with duration from two to five years; (5) Broad Implementation projects from $500,000 to $3,000,000 with a duration from two to five years; (6) Conference projects up to $250,000 with a duration of up to two years; and (7) up to one Informal STEM Learning Resource Center award up to $5 million with a duration of five years. If the Resource Center is funded in 2016, there will not be a competition for a Resource Center in 2017.

Letter of Intent: Not required

Deadlines: Full Proposal: November 04, 2015

Contact: Address Questions to the Program, telephone: (703)292-8616, DRLAISL@nsf.gov

Grant Program: Ideas Lab: Measuring "Big G" Challenge
Agency: National Science Foundation NSF 15-591
RFP Website: http://nsf.gov/pubs/2015/nsf15591/nsf15591.htm
Brief Description: The gravitational constant, G, describes the strength of gravitation, the weakest of the four fundamental interactions in nature. Although several hundred measurements of this constant have been performed over the last two and a quarter centuries, recent experiments differ by as much as 0.05%, about 40 times the uncertainty of the most precise experiment.

Motivations to resolve the current discrepancy with better measurements are two-fold. First, the search for a theory that unifies gravitation with quantum electrodynamics is an active area of research. Such a theory may be able to predict the value of G, and an experimental result may become important to test such theories. Second, understanding the subtleties involved in precisely and absolutely measuring a small force is important for many fields of physics and metrology, including the Casimir effect, spring constants of atomic force microscopy (AFM) cantilever, intermolecular forces in DNA.

This solicitation describes an Ideas Lab on "Measuring Big G" Ideas Labs are intensive meetings focused on finding innovative solutions to grand challenge problems. The ultimate aim of this Ideas Lab organized by the Physics Division of the Mathematical and Physical Sciences Directorate at the National Science Foundation (NSF), in collaboration with experts in the field, is to facilitate the development of new experiments designed to measure Newton's gravitational constant G with relative uncertainties approaching or surpassing one part in 100,000. The aspiration is that mixing researchers from diverse scientific backgrounds will engender fresh thinking and innovative approaches that will provide a fertile ground for new ideas on how to measure G that can be used to validate and extend current calculations.US researchers may submit preliminary proposals for participation in the Ideas Lab only via FastLane. The goal is to develop multidisciplinary ideas that eventually will be submitted as full proposals.
Awards: Up to 5 awards will be made in FY 2016 pending availability of funds and the type, scale, and variety of project ideas developed at the Ideas Lab.
Anticipated Funding Amount: $1,000,000 to $2,000,000
Up to $2,000,000 will be available for US researchers in 2016-2017 for successful proposals through the Ideas Lab, pending availability of funds and compelling proposals.
Letter of Intent: Not required but Preliminary Proposal required
Preliminary-Proposal Deadline: September 21, 2015
Full Proposal Deadlines: January 14, 2016
Contacts:

- Pedro Marronetti,1015 N, telephone: (703) 292-7372, email: pmarrone@nsf.gov
- John Gillaspy,1015 N, telephone: (703) 292-7173, email: jgillasp@nsf.gov

---

National Institutes of Health

Grant Program: Imaging - Science Track Award for Research Transition (I/START) (R03)
Agency: National Institutes of Health PAR-15-326
RFP Website: http://grants.nih.gov/grants/guide/pa-files/PAR-15-326.html
Brief Description: The goal of this Funding Opportunity Announcement (FOA) is to facilitate the entry of investigators to the area of brain imaging research, including both new

investigators and established investigators seeking to add brain imaging to their research programs. Accordingly, this FOA invites applications for the Imaging - Science Track Award for Research Transition (I/START) program, a continuing program developed by NIDA and NIBIB to foster the entry of investigators into the areas of brain imaging and drug abuse research. The application of brain imaging technology that can be used in humans is becoming more widespread; however, it is often difficult for new investigators or even established investigators wishing to incorporate such brain imaging methods in their research program to obtain independent funding to generate preliminary data in this area or for more established investigators to identify a source of funding that would allow them to explore the potential application of imaging to their research. In many research domains, investigators are often able to identify sources of support sufficient to conduct preliminary studies. In contrast, the cost of obtaining preliminary data using brain imaging methods that can be used in humans (e.g., PET and MRI scans) often serves as a significant barrier to research, particularly for more translational efforts.

This FOA will allow for study design and collection of "proof of concept" brain imaging data that can then be used as pilot data for the transition to more extensive research applications.

For NIDA, proposed studies should have the potential to add significantly to knowledge of the possible effects of drugs of abuse on the CNS, CNS dysfunction that promotes drug use initiation and continuation; promotes or impedes recovery and abstinence; or adds to the imaging tools that can be used in the pursuit of that goal. The brain imaging studies proposed in applications from established investigators should have the potential to substantively contribute to the significance of the applicant's research program. All areas of research dealing with the clinical neurobiology of drug abuse and addiction and encompassing a wide array of research studies that incorporate brain imaging are sought under this announcement. Areas of interest that would allow preliminary data to be obtained within the I/START time and budget requirements include, but are not limited to: (a) the neurobiology of addiction and the assessment of structural, functional or chemical alterations due to drug abuse and the addiction process; (b) neurobiological effects on development/maturation due to prenatal, child or adolescent drug exposure; (c) neural mechanisms underlying cognitive processes that are altered by drugs of abuse; (d) neurobiological mechanisms underlying brain reward, motivated behaviors, and related processes; (e) neural mechanisms that promote or impede recovery and abstinence; (f) neurobiological basis of individual differences in response to drug of abuse including differences in transition from drug use to addiction (g) neural mechanisms of cognitive or behavioral processes that may contribute to the initiation, progression/maintenance, or relapse to drug abuse/addiction; (h) neural mechanism that promote drug use initiation or continuation, or relapse; (i) assessment of neurobiological changes resulting from pharmacological and/or behavioral treatment for drug abuse/addiction; (j) neurobiological and neurobehavioral factors underlying comorbid mental and addictive disorders; (k) characterization of interactions between drug abuse/addiction and HIV infection in the brain; and (l) neurobiological processes involved in human pain and analgesia.

It is important to note that research proposed under the I/START program need not be conducted in drug-abusing populations or involve drug administration; however, the potential relevance to understanding drug abuse must be clearly delineated.

For NIBIB, NIBIB is dedicated to improving health by leading the development and accelerating the application of biomedical technologies (http://www.nibib.nih.gov/About). The Institute is committed to integrating the physical and engineering sciences with the life sciences to advance basic research and medical care. Specific topics that would be appropriate

to this FOA and of interest to NIBIB include, but are not limited to: 1) development of multimodal, multiplexed or multiscale imaging technologies and contrast agents which will lead to new ways of studying neurobiology, 2) development of neuromodulation technologies and progress in understanding their mechanism of action, 3) the fusion and analysis of imaging data, clinical data and genomic data, and 4) development of appropriate clinical technologies for imaging development in children.
Awards: Budgets for direct costs of up to $150,000 per year and is for a period of one year only.
Letter of Intent: 30 days before the due date
Deadline: Standard dates apply, by 5:00 PM local time of applicant organization. All types of non-AIDS applications allowed for this funding opportunity announcement are due on these dates.
Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

Grant Program: U.S.-India Collaborative Vision Research Program (R01)
Agency: National Institutes of Health PAR-15-320
RFP Website: http://grants.nih.gov/grants/guide/pa-files/PAR-15-320.html
Brief Description:

Background

Eye diseases and visual disorders including diabetic retinopathy as well as other genetic diseases are prevalent in the U.S. and India, and have been the focus of research for over 40 years. Researchers have recently shown that studies using the genetic populations in India provide a unique resource that offers many advantages for studying genetic ophthalmic diseases. India has a relatively large number of people with intracommunity and consanguineous marriages whose vision impairment can be traced to genetic or environmental causes, whereas, the U.S. excels in genomics, informatics, the execution of large-scale research, and observational studies. The identification of factors that can affect susceptibility to these diseases and/or infection will provide critical information regarding the biology of the disease as well as provide the basis for accurate methods of diagnosis and new and specific therapies.

There are also several eye conditions such as ocular inflammation that affect the Indian population to a much greater extent than the U.S. population, making studies on them a good source for learning more about visual restoration as well as their pathogenesis and pathophysiology. Detailed medical and social histories have been maintained on many of these patients and their families, and in some cases, biological tissues have been obtained. In addition, collaborations with scientists or a research groups in India that have unique expertise in a technology needed for studying ocular diseases are encouraged.
Scientific collaborations between the U.S. and India have been successfully conducted for several years under a variety of bilateral agreements. The National Eye Institute (NEI) and the Indian Department of Biotechnology (DBT) agreed that collaborative efforts between the two countries could lead to significant advances in science and technology important to understanding, preventing, and treating visual disorders, which would be of mutual benefit to both countries.

On May 8, 2013, the NEI, the DBT, and the U.S.-Indo Joint Working Group (JWG) met to develop a strategic plan for collaborations and to facilitate the expedited review and clearance of proposed projects. This group also identified opportunities for collaboration in high priority areas such as the genetics of ophthalmic diseases including diabetic retinopathy.

Collaborations

Applications may be derived from existing collaborations with an established history of interaction, or from new partnerships developed in response to this FOA. The collaboration must be based on interactive relationships that maximize the expertise of the individual U.S. and Indian research teams and interactions between their parent institutions and granting agencies.

U.S. and Indian collaborating investigators should work together to develop and submit corresponding applications to National Institutes of Health (NIH) and the DBT. U.S. investigators will respond to this announcement from NIH, and Indian investigators will respond in parallel to a separate funding announcement from the DBT. If an application is selected for funding, the NIH will only provide funds to support the U.S. component; the Indian component will be supported by the DBT. By sending an application to NIH, the applicant agrees to provide a complete copy of their submitted NIH application and summary statement to their Indian counterpart and, upon request, the DBT, to facilitate interactions between the NIH and the DBT in making funding decisions. Both the U.S. and the Indian application must be determined to be meritorious (in the parallel processes conducted by the NIH and the DBT) to be considered for funding under this program.

It is anticipated that funding from the Indian component will support research activities within India, salaries of Indian research personnel, and other expenses. NIH funding will similarly support salaries of U.S. personnel and research activities within the U.S. U.S. applicants should not request support for direct contact with research subjects in India including collection of DNA samples, medical histories and records as well as any measurements or other activities with the potential to incur subject harm. All research in India must be conducted in accordance with both U.S. and Government of India regulations for the protection of human subjects.

Research Objectives

This FOA is intended to support collaborations between the U.S. and India that focus on the basic biology and/or genetics of **ophthalmic diseases including** diabetic retinopathy and ocular inflammation, using the unique resources that exist in India, such as large families with extensive pedigrees. **Research examples include, but are not limited to:**

- Family based genome wide association studies (GWAS) on cohorts of consanguineous families from India to identify genetic factors that predispose to both Mendelian and complex forms of eye diseases.
- Deep sequencing to examine existing genetic variants identified in other populations;
- Validation of novel GWAS findings in appropriate animal models;
- Identification of biomarkers that predict and/or assess risk and response to interventions;
- Define the contributions of specific genetic risk factors and environmental exposures that underlie eye diseases;
- Studies on birth cohorts in India to determine the effects of the environment on the development of factors that predict risk influencing eye diseases such as imprinting and other epigenetic effects.

Awards: Application budgets are limited to $250,000 annual direct cost, but need to reflect the actual needs of the proposed project.

Letter of Intent: Not Required

Deadline: November 9, 2015; November 9, 2016; November 9, 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 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.

DoD/US Army/Office OF Naval Research/Air Force Office of Scientific Research

Grant Program: Information Innovation Office (I2O) Office-wide
Agency: Department of Defense; DARPA-BAA-15-54
Translational Award: W81XWH-15-RTR-TRA
Concept Award: W81XWH-15-RTR-CA
RFP Website: file:///Users/atamdhawan/Downloads/DARPA-BAA-15-54_(I2O_Office_Wide).pdf
https://www.fbo.gov/index?s=opportunity&mode=form&id=e4d3d172b371fba885269cc3e3aeff94&tab=core&_cview=0
Brief Description: The Defense Advanced Research Projects Agency (DARPA) is soliciting innovative research proposals of interest to the Information Innovation Office (I2O). I2O develops high-payoff information science and technology to provide a decisive information advantage for the U.S. and its allies. I2O invites research proposals in its thrust areas, described below. I2O may also consider submissions outside these areas if the proposal involves the development of novel software-based capabilities having promise to provide decisive information advantage for the U.S. and its allies.

• Empower the human within the information ecosystem: Exponential improvements in computing power, network bandwidth, and storage density combine with pervasive sensing and measurement technologies to provide new and powerful ways to gain insight into adversary activities and enable quantitative decision making. Realizing this potential requires the development of highly complex yet highly reliable applications, and so I2O creates technologies that empower developers in building and maintaining mission-critical software systems. I2O is also creating techniques, tools, and systems that enable users to obtain the value in data to gain deep understanding of the world around us. Toward this end, I2O develops technologies to enable computing systems to understand human speech and other modes of human communication; derive information contained in diverse media; learn, reason and apply knowledge gained through experience; and respond intelligently to new and unforeseen events. Incorporating these technologies in military systems will enable warfighters to make better decisions in complex, time-critical, battlefield environments; intelligence analysts to make sense of massive, incomplete, and contradictory information; and autonomous systems to operate with high degrees of assurance. I2O empowers the human by creating new ways for humans and computers to work together to achieve levels of performance beyond what either can achieve individually.

• Guarantee trustworthy computing and information: As much of the world's economy has moved into cyberspace, protecting and assuring information flows over networks and across enterprise information systems has become a priority. The current approach to maintaining security relies on the discovery of vulnerabilities and the deployment of patches. This is problematic as new vulnerabilities are often introduced in successive releases and may even be introduced by the patches themselves. I2O aims to change this paradigm through the creation of software that is inherently resilient to attack and computing architectures that can be rapidly restored following an attack. To accomplish this, I2O is supporting research in areas such as formal methods, software diversity,

transparency/causality/information flow tracking, and automated cyber response. I2O interests span military systems, embedded systems, critical infrastructure, industrial systems, vehicular systems, the Internet of Things, and enterprise networks. In addition to the availability and reliability of computing systems, I2O is also concerned with the integrity and confidentiality of information. I2O develops privacy-preserving technologies to ensure that the collective security benefits of big data do not come at the expense of personal privacy, and to protect the proprietary and sensitive information of enterprises and coalition partners. In all of these areas, exploration of offensive methods expands and informs our defensive work by providing a deeper understanding of current and emerging threats, giving realism to our efforts to develop information technologies and systems that we can trust.

I2O seeks unconventional approaches that are outside the mainstream, challenge accepted assumptions, and have the potential to radically change established practice. Proposed research should investigate innovative approaches that enable revolutionary advances in science, devices, or systems. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of the art.

I2O collaborates with other DARPA technical offices, in some cases acting as the recipient of significant emerging technologies and, in other cases, serving as a catalyst by identifying relevant new external technology trends. Novel methods are sought to build technical communities and tap into sources of innovation both inside and outside traditional Department of Defense (DoD) performer communities. However, proposers may not propose work: (1) they have already completed, nor (2) for which they have already received funding or a positive funding decision (whether by DARPA or another Government agency). I2O encourages efforts that are creative and agile both in terms of the technologies proposed and in the structure of the approach (e.g., shorter periods of performance).

For the purposes of this solicitation, only submissions deemed relevant will receive a detailed Scientific Review. Relevance first and foremost requires that submissions address one or more of the focus areas described herein. Additional factors considered in determining relevance include: the overall goal of the proposed effort, if achieved, would convey technology significantly beyond the state of the art; the timetable for achieving results is appropriate for a mission agency such as DARPA; and the scope of work is commensurate with I2O priorities.

Submission of abstracts in advance of full proposals is strongly encouraged to ascertain I2O interest in the proposed effort. I2O will respond to abstracts with a letter encouraging or discouraging the submission of a full proposal based on a preliminary assessment of the proposed effort's scientific or technical merit and interest in the technology concept. Abstracts that are not determined to be relevant per the above definition will receive a "No Interest" letter. See Section IV.B.1 for further information related to abstracts.

Awards: DARPA anticipates funding a limited number of proposals under this solicitation. The level of funding for individual awards made under this solicitation has not been predetermined and will depend on the quality of the proposals received and the availability of funds. Awards will be made to proposers whose proposals are determined to be the most advantageous and provide the best value to the Government, all factors considered, including the potential contributions of the proposed work, overall funding strategy, and availability of funding. See Section V for further information.

Letter of Intent: Proposers are highly encouraged to submit an abstract in advance of a proposal to minimize effort and reduce the potential expense of preparing an out of scope proposal. The abstract provides a synopsis of the proposed project, including brief answers to the following questions: – What is the proposed work attempting to accomplish or do? –

How is it done today, and what are the limitations? – Who will care and what will the impact be if the work is successful? – How much will it cost, and how long will it take?

DARPA will respond to abstracts with a letter encouraging or discouraging the submission of a full proposal based on a preliminary assessment of the proposed effort's scientific or technical merit and interest in the technology concept. Abstracts that are not determined to be relevant to I2O will receive a "No Interest" letter. If DARPA does not recommend submission of a full proposal, "Discourage" responses will include detailed feedback regarding the rationale for this decision. Responses will be sent by email to the technical point of contact listed on the cover sheet. DARPA will attempt to reply within 30 calendar days of receipt. A favorable response to an abstract is not an assurance that a full proposal on the abstract's topic will ultimately be selected for award negotiation. All proposals will be reviewed irrespective of comments or feedback provided in response to the abstract.

Application Submission Deadline:

Abstract Due Date: June 10, 2016, 12:00 noon (ET)

Proposal Due Date: August 2, 2016, 12:00 noon (ET)

Grant Program: FY15/16 Defense Medical Research and Development Program (DMRDP) DoD DMRDP JPC-1/MSIS

Agency: Department of Defense; Defense Health Program: W81XWH-15-DMRDP-MSIS-ATUMN

RFP Website: http://cdmrp.army.mil/funding/dmrdp.shtml
http://cdmrp.army.mil/funding/pa/16dmrdpmsisatumn_pa.pdf
https://cdmrp.org/Program_Announcements_and_Forms/

Brief Description: The FY16 JPC-1/MSIS ATUMN is seeking research, development, and testing on compensatory/adaptive medical tutor prototype(s). This includes evidence-based sustained learning methodologies that decrease the need for future technology dependence to retain the details of the cognitive processes that assist with patient assessment, clinical reasoning, clinical judgment, and clinical diagnosis and treatment. The tutor must accurately and appropriately understand where the learner is within the learning curve versus the course curricula, objectives, and anticipated outcomes, and understand where the learner needs to go versus the course curricula, objectives, and anticipated outcomes. The tutor must identify viable and course-appropriate route(s) on how to navigate from current position to end position. The proposed tutor needs to continuously evaluate the progress and re-plan/re-route as appropriate versus the course curricula, objectives, and anticipated outcomes. The compensatory/adaptive medical tutor prototype needs to be modular, flexible, robust, and reliable, and needs to incorporate open source/license/architecture. The modularity, flexibility, robustness, and reliability does NOT have to be demonstrated in the prototype, but these capabilities MUST be incorporated into the designs and architecture of the anticipated platform. The pre-proposal/pre-application and proposal/application must disclose any background intellectual property interest in the proposal solution, including but not limited to, current ownership status of the intellectual property, the existence and type of license the applicant holds, or whatever name exists. The proposal/application may disclose the capability and interest in licensing arrangements with the Government if the project is successful. Refer to the General Submission Instructions, Appendix 3 for additional information. This compensatory/adaptive medical tutor prototype must demonstrate sustainment of the cognitive information that was gained. The content may be domain-specific

per the desire of the PI and team, but the PI needs to select a domain that can be related to the military, such as the assessment of shock, traumatic brain injury, mental health assessment, (i.e., post-traumatic stress, substance abuse), musculoskeletal diagnosis and treatment, wound management/debridement, external fixation of fractures, shock management, ventilator management, and advanced emergency care (i.e., lateral canthotomy, cranial decompression). The PI must outline a pilot study concept of the compensatory/adaptive medical tutor prototype in the pre-proposal/pre-application. A detailed protocol must be provided in the full proposal/application, including but not limited to, proposed methodologies, type of recruits, recruitment numbers, anticipated drop-out rate, assessment criteria, inter-rater reliability, intended medical domain(s) (or discipline[s]), control groups, and statistical protocols. 1. The anticipated outcomes of research supported by the FY16 JPC-1/MSIS ATUMN Project are as follows, in no particular order:

• A validated list supported by contacts, references, and sources that support the proposed recommendation for sustainment of cognitive knowledge, patient assessment, clinical reasoning, clinical judgment, and clinical diagnosis and treatment intended to be integrated/incorporated into the compensatory/adaptive medical tutor prototype. • A report, document, and/or list of the terminology and respective definitions used for the compensatory/adaptive medical tutor prototype including, but not limited to, the chosen domain, the proposed metrics/evaluation criteria and how they are used to determine where the learner is within the learning curve versus the course curricula, objectives, and anticipated outcomes and understand where the learner needs to go versus the course curricula, objectives, and anticipated outcomes.

• A report or document with the information of the open source/license/architecture versus intellectual property components. The report needs to provide information on items such as hardware and software requirements to support the respective components and provide a listing of the most common issues with the proposed components, anticipated updates (if applicable), typical maintenance issues with the proposed components, and intended maintenance fees and schedules with the proprietary components (if applicable). A report or document that describes in detail the fully integrated design that includes items such as modularity, flexibility, robustness, and reliability and provides the proposed timeline that would be needed if such additional modularity, flexibility, robustness, and reliability were indeed added.

• The pilot study-specific aims, methodologies, sample and sample size, inter-rater reliability, assessment criteria, analyzed results, conclusions, and potential next-step recommendations. Indicate the proposed duration of sustained cognitive knowledge, patient assessment, clinical reasoning, clinical judgment, and clinical diagnosis and treatment.

• A demonstration of the compensatory/adaptive medical tutor prototype; anticipate the demonstration to occur in the National Capital Area/Maryland/Northern Virginia area, but it could occur at a Government organization located in the contiguous United States.

• A submitted or presented abstract or a draft or accepted publication.

Award: Various; Available Funding: $3,000,000

Pre-Proposal/Pre-Application Deadline: 5:00 p.m. Eastern time (ET), September 10, 2015

Invitation to Submit a Proposal/Application: October 21, 2015

Proposal/Application Submission Deadline: 11:59 p.m. ET, December 17, 2015