



Research Announcement
Young Faculty Award
DSO
DARPA-RA-12-12
DECEMBER 6, 2011

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Part II: Overview Information

- **Federal Agency Name** – Defense Advanced Research Projects Agency (DARPA), Defense Science Office (DSO)
- **Funding Opportunity Title** – Young Faculty Award (YFA)
- **Announcement Type** – Initial Announcement
- **Funding Opportunity Number** – Research Announcement (RA) DARPA-RA-12-12
- **Catalog of Federal Domestic Assistance Numbers (CFDA)** – 12.910 Research and Technology Development
- **Dates**
 - Posting Date: December 6, 2011
 - **Full Proposals Due by 4:00pm ET, January 19, 2012**
 - Closing Date: January 19, 2012 (4:00pm ET)
- **Concise description of the funding opportunity** – This RA solicits ground-breaking single-investigator proposals from junior faculty for research and development in the areas of Physical Sciences, Engineering, Mathematics, Medicine, Biology, Information and Social Sciences of interest to DARPA’s Defense Sciences Office (DSO), Microsystems Technology Office (MTO), and Information Innovation Office (I2O).
- **Anticipated individual awards** - Multiple awards are anticipated.
- **Types of instruments that may be awarded** – DARPA intends to award grants to eligible university faculty; each grant will be a maximum level of \$300,000 for 24 months (specifically, a 12-month base period and 12-month option period each a maximum of \$150,000).
- **Agency contact**

The RA coordinator for this effort can be reached via electronic mail:
DARPA-RA-12-12@darpa.mil

DARPA/DSO
ATTN: DARPA-RA-12-12
3701 North Fairfax Drive
Arlington, VA 22203-1714
Fax: (703) 807-9982

Solicitations can be viewed at:

http://www.darpa.mil/Opportunities/Solicitations/DSO_Solicitations.aspx

Part III:

Full Text of Announcement

Sec. I: FUNDING OPPORTUNITY DESCRIPTION

The Defense Advanced Research Projects Agency (DARPA) often selects its research efforts through the Research Announcement (RA) process. The RA will appear on the Grants.gov website at <http://www.grants.gov/>. The following information is for those wishing to respond to the RA.

The DARPA Young Faculty Award (YFA) program aims to identify and engage rising stars in junior faculty positions in academia and expose them to Department of Defense (DoD) needs. In particular, YFA will provide high-impact funding to the elite junior faculty early in their careers in order to develop their research ideas in the context of DoD issues. The long term goal of the program is to develop the next generation of academic scientists, engineers, biologists and mathematicians in key disciplines of interest to DARPA who will focus a significant portion of their career on DoD and National Security issues.

The proposal should clearly describe the DoD problem being addressed, the current state-of-the-art technology, new insights to address the problem, a credible research plan and schedule, and critical milestones to be pursued over each 12 month period.

This RA solicits ground-breaking single investigator proposals for research and development in the areas of Physical Sciences, Engineering, Mathematics, Medicine, Biology, Information and Social Sciences of interest to DARPA's Defense Sciences Office (DSO), Microsystems Technology Office (MTO), and Information Innovation Office (I2O). Further detail regarding technical areas of interest can be found in the Technical Areas topics list. Proposed research should focus on innovations that will enable revolutionary advances in the selected topic area. High-risk/high-payoff ideas are strongly encouraged. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice.

Proposals that offer only incremental advances upon existing technologies will be deemed nonresponsive to this RA.

This solicitation is limited to participation by young investigators as defined in the Eligibility Information, Section III. The RA seeks proposals for a 24-month research activity consisting of a 12-month base period and a 12-month option period, with a maximum funding level of \$150,000 per year (\$300,000 maximum total funding).

During the 12-month base period, a number of visits/exercises at a variety of military sites and facilities will be scheduled. These briefings and visits will provide YFA recipients a unique, first-hand exposure to our war fighters, current DoD technologies in the field, and issues being faced by the Services in execution of their missions. It is expected that YFA recipients will participate in a subset of the visit/exercises made available to them. Participation in all such

opportunities is not a requirement; however, lack of participation may impact the execution of the follow-on option period. Proposers are expected to include funds for such visits within the total budget of their proposal.

The proposals will be reviewed by panels of Government experts. The proposal review process is expected to be very competitive and highly selective.

Technical Topic Areas:

This RA solicits single investigator proposals for research and development in the areas of Physical Sciences, Engineering, Mathematics, Medicine, Biology, Information and Social Sciences of interest to DARPA's Defense Sciences Office (DSO), Microsystems Technology Office (MTO), and Information Innovation Office (I2O). **Proposers must specify ONE and only one of these topic areas, and ONE subtopic area if applicable, for their proposal and identify this on the cover page.** Note that DARPA reserves the right to assign proposals to a different topic and/or subtopic areas than that which was indicated by the proposer.

Applicants who have questions about specific topic areas should email DARPA-RA-12-12@darpa.mil with the topic area stated in the subject line. Your question will be distributed to the appropriate contact.

1. ***Quantum Science and Technology:*** DARPA is interested in experimental and/or theoretical research to advance our understanding of quantum sciences and technology. Proposed research should exploit uniquely quantum properties to develop technologies that will help to address outstanding challenges in physics, computer science, materials, and biological sciences. Research topics of interest include, but are not limited to, metrology and sensors, information processing, communications, materials, and novel applications of quantum properties.
2. ***New Physical Methods for Applied Biology:*** DARPA seeks unconventional approaches for modulating and recording system-level biological properties. Technical areas below are of particular interest for addressing unmet challenges in medicine, materials, manufacturing and other areas of biotechnology. Applicants must choose one subtopic technical area, describe unmet needs to which their approach can be applied, evaluate the approach relative to the state of the art, and propose future collaborators that will help transition their approach toward application.
 - a. ***Modulation and measurement of biological networks and signaling pathways:*** Proposals should address novel methods that go beyond traditional chemical inducers, such as photonic, magnetic, mechanical, or electrical stimulation and feedback, to introduce, modulate and measure behaviors and functions. Approaches that are complementary to current efforts in synthetic biology are encouraged, such as providing unique environmental conditions or stimuli that act synergistically with synthetic modifications.

- b. *Hybrid biotic-abiotic interfaces:*** The common failure of technologies seeking to integrate with biological systems (e.g., the human body) demonstrates shortcomings in the current approach to biotic-abiotic interfaces, particularly at the micro to nanometer length scale. Innovation in nano to micro scale system properties leading to complementary interactions with biological systems are of interest.
 - c. *Minimally invasive recording and modulation:*** Advances in technology are enabling unprecedented recording of high density mechanical, electrical and other information from the human body. New physical approaches combined with a mechanistic understanding may lead to new capabilities in human performance monitoring, therapeutics and regenerative medicine.
- 3. *Mathematics:*** DARPA is interested in both theoretical mathematics that provides the foundations for advanced science and technology programs, as well as applied and computational mathematics that will help ensure continued technical superiority. Areas of interest include, but are not limited to algorithms, geometric, and topological methods, combinatorics, graph theory and network analysis, probability and stochastic processes, inverse methods, multiresolution analysis, and advanced computation. Potential applications should encompass interdisciplinary efforts that target and clarify the mathematical aspects of the other core technologies listed in this RA.
 - 4. *Strongly Correlated Materials:*** As defense needs grow to require ever greater system functionality and performance, new materials with previously unrealized physical, electronic, and magnetic properties will be required, and fundamental research must meet these emerging needs. Experimental and theoretical research efforts that leverage or enable exciting results from strongly correlated materials are of interest to DARPA. Broad areas of interest include materials development, novel tools or techniques for synthesis and characterization, and novel theoretical techniques. Specific areas of interest include, but are not limited to low-dimensional materials, high temperature superconductivity, metal-insulator transitions, topological insulators, computational modeling and gauge/gravity duality.
 - 5. *Predictive Materials Science:*** DARPA is interested in research to speed the development of new materials and to enable improved predictive control over material performance, longevity, and failure. Research in modeling, metrology, and combinations of these two areas is of interest. Computational methods to facilitate development of new materials and to improve existing materials are of interest. Modeling or computational approaches to design materials with properties based on composition, structure, order/disorder, and periodicity are of interest. Research to advance metrology, testing, or modeling and to develop techniques that predict material failure or performance may also be of interest. Topics of interest may also include revolutionary characterization techniques that forecast material failure and longevity.
 - 6. *New Engineered Materials:*** DARPA is interested in the development of materials with new and revolutionary functionality to enable continued high performance as military systems and missions demand ever greater performance in challenging environments. Future defense needs will require materials that feature as-yet unrealized capabilities or combinations of

properties. Specific areas of interest include, but are not limited to: high-strength and light-weight materials, high-stiffness and high-loss materials, as well as materials capable of actuated changes in structural, electronic, or optical properties. New materials synthesis and processing techniques that utilize extreme conditions to attain new materials are also of interest, as well as materials and composites that obtain their properties not just from composition but from their structure.

7. ***Advanced Electronics:*** DARPA is interested in innovative fundamental and applied research in next-generation semiconductor devices, integrated circuit technologies, circuit architectures and design methodologies for future DoD electronic systems. Research topics of interest include, but are not limited to: end-of-roadmap-and-beyond nanoscale devices; spintronic devices; high-power RF/microwave devices; power electronics; sub-mm-wave and THz electronics; power electronics; emerging memory technologies; high-speed mixed-signal circuits; adaptive and reconfigurable circuits; linearization; ultra-low-power electronics; radiation hard electronics; system-on-chip (SoC), heterogeneous, and 3D integration strategies; computer-aided-design and modeling; and co-design of hardware and algorithms. Integrated microsystems, incorporating components from other domains such as MEMS/NEMS and photonics are also of great interest.
8. ***MEMS/NEMS:*** DARPA is interested in innovative research addressing fundamentals, technologies, and devices based on the unique phenomena, properties and structures available at the micro and nanoscale. Microelectromechanical and nanoelectromechanical systems (MEMS/NEMS) with applications for improved energy capture and conversion; navigation; communication; thermal management; and sensing of chemical, biological, optical, infrared, acoustic, magnetic, and many other signals are areas of interest. DARPA is also interested in capabilities to predict the behavior and failure of micro and nano-mechanical structures based on theoretical and/or experimental studies. In addition, the integration of such devices and structures with signal processing and communications electronics to realize complex microsystems is of great interest.
9. ***Photonics and Lasers:*** DARPA seeks innovative research to develop and demonstrate future generations of photonic materials, devices and applications. This includes fundamental and applied research in novel photonic materials and devices, devices for photonic integrated circuits, and research applicable to future DoD systems related to communications, sensing and targeting, signal processing, directed energy and defensive countermeasures. DARPA is interested in a wide range of research topics including, but not limited to: nanostructured materials and devices; high-performance photonic materials; revolutionary concepts and devices for chip-scale photonic communications, RF/microwave photonic signal processing, and multispectral focal plane sensors; and novel concepts for lasers such as chip-scale frequency-stable low-noise lasers, high brightness laser diode arrays, high power coherently-combinable fiber lasers, and lasers for operation in MWIR, LWIR, visible, UV and X-ray spectral ranges.

10. Digital Direct Manufacturing: DARPA is interested in innovative research on topics addressing affordable production of structural components including, but not limited to exploiting additive and/or subtractive digital manufacturing methods. Processes are desired that are capable of producing parts directly from digital files and with properties comparable to or better than mass manufacturing. The goal is to use cloud-like resources to unite the physical and information content of components across a geographically dispersed manufacturing network. Methods are also desired to "print" components that are not easily fabricated conventionally, especially when these processes enable improved spatial control of composition, crystal texture, or macrostructure. Proposals combining integrated computational materials engineering (ICME) approaches with manufacturing are also desired as an approach to qualify lot sizes as small as a single part.

11. Neuroscience: DARPA is seeking cutting-edge neuroscience proposals to enable breakthrough science and technology for improved human performance, and more specifically, to enable members of our armed forces to thrive within a broad spectrum of operational missions and conditions. The areas for research may span fundamental, computational, and applied neuroscience. Applicants must choose one of the two subtopic technical areas listed below.

- a. Operational Neuroscience:** DARPA seeks novel approaches to quantitatively analyze, model, stimulate and sense the psycho-physiological impact of soldier engagement in the field. Of particular interest is operational neuroscience, or the use of neuroscience tools and techniques to design systems, train individuals, and measure cognitive state in military settings. The technical areas below are of particular interest to address unmet challenges in understanding and preparing for the impact of deployment and engagement events. Proposals designed to inform the future development of low-profile tools, training methodologies and assistive devices are highly desired. Topics of interest include, but are not limited to: (1) Neuro-cognitive analysis tools designed to quantify the influence of societal and/or organizational constructs and activities on the subsequent beliefs and actions of individuals. (2) Neuro-sensing tools that enable prediction and quantification of behavioral changes resulting from environmental exposure or personal interactions. (3) Neuroscience tools that quantitatively measure the adaptability and resilience of individuals to high stress environments. (4) Impact studies that explore on-line or avatar mediated behaviors in real-world scenarios. Exploration of these activities on the theory of the mind, learning, and executive function in order to inform training and testing evaluations are of interest.
- b. Brain-Machine Interfaces (BMI):** DARPA seeks novel approaches for reliably and effectively recording, decoding, encoding, and stimulating the neural activity of cognitive processes with the intent of controlling extracorporeal systems and accelerating learning. Proposals designed to capture neural-control signals from non-central nervous system (CNS) sources (e.g., peripheral nervous system, neuro-musculature system, etc.) are encouraged. Technical areas of particular interest that address unmet challenges in neuroscience, medicine, materials, and engineering include, but are not limited to: (1) Novel, reliable, and scalable biotic-abiotic

interfaces for recording neural signals. Technologies developed to integrate with biological tissues do not withstand the test of time and, therefore, are not adopted and used to their fullest extent. Innovation in tissue-interface systems that demonstrate high-levels of neural-information extraction, low levels of error, and long functional lifetimes are highly encouraged. (2) Reliable, effective, and clinically viable algorithms for decoding limb-control signals. In order to interact with and control complex abiotic systems to their fullest extent, BMI algorithms must be able to reliably decode control signals (e.g., peripheral nervous system, neuro-musculature system, etc.). New algorithmic approaches that maximize the amount and rate of limb-control information while reducing the error, degree of pre-processing, and need for recalibration over time are highly encouraged. (3) Novel, reliable, and scalable biotic-abiotic interfaces for stimulating neural signals. Since existing neural stimulation systems designed to modulate or communicate with the nervous system lack resolution and/or effective operational lifetime, the range of appropriate applications is limited. Proposals should address novel methods that go beyond conventional neural stimulation approaches in order to extend the clinical applications of neural stimulation. Approaches may include, but are not limited to electronic, photonic, tactile, ultrasonic, or chemical stimulation platforms. Applications may include, but are not limited to: machine control, pain relief, and clinical therapy. (4) BMI training and testing methods: Existing training and testing methods typically rely on extensive cycles of training in order to calibrate the system, at which time the system is able to perform only under a specific set of tasks for a relatively short period of time. This reliance questions the transferability of functionality across individual subjects and applications. New methods that greatly reduce the need for training or are not dependent on training prior to use, would greatly improve BMI adoption across multiple applications.

12. *Computational and Quantitative Social, Decision, and Behavioral Sciences:* DARPA is interested in combining social, behavioral and decision sciences with advanced computational methods such as statistics, natural language processing, deductive and inductive reasoning, knowledge representation, and modeling and simulation. Of great interest are interdisciplinary approaches that develop, test, and apply social science theory to real world issues with national security implications and that formalize "practical logics" within statistical and computational frameworks. In addition, DARPA wants explorations of innovative computer-based approaches to capturing and analyzing data traditionally available only through qualitative research methods (interviews, ethnography, oral histories, historical comparative analysis, etc.). Proposals should clearly identify research questions, a plan to extract insights through novel quantitative, statistical, and computational methods, and to validate the proposed theoretical solution(s) across multiple empirical cases. Topics of interest include, but are not limited to: substantive issues related to violence, security, counterinsurgency, terrorism, to the statistical and quantitative study of cultures, social cognition, social relationships and social practices, to political and group dynamics, to human geography, the study of institutions, organizations, and other social formations. Applicants are encouraged to explore and develop new or under-utilized interdisciplinary perspectives to these research questions. With regards to methodology, DARPA is interested in automating as much as possible the formalization and instantiation of social science theories for testing

and integration in simulations and in predictive and descriptive models. Applicants may propose to develop efficient, effective ways to identify data or modeling requirements for specific types of social science theories. Applicants must faithfully work with and through social science and not take strictly computational, engineering or mathematical approaches that are: 1) distanced from social science thought and theory; or 2) disconnected from empirical social science. Finally, social science modeling and simulation platforms that can generate enormous amounts of data and new methodologies for exploring this rich data space are encouraged.

13. Robotics: DARPA seeks research in robotics science and systems. Specific areas of interest include, but are not limited to: autonomy, including perception, planning, and task-level control; design tools; human-robot interaction and human-robot symbiosis; manipulation and mobile manipulation; mobility, including legged, tracked, wheeled, snake, and hybrid locomotion; as well as vehicle-terrain interaction modeling and model validation

Proposers are encouraged to review the DARPA mission statement, and current program descriptions at the DARPA website <http://www.darpa.mil/> to view examples of current DARPA investments in the topic areas outlined above. This is not meant as instruction to duplicate those efforts, but rather to illustrate that current programs are aimed at research which will substantially advance our capabilities in these areas. Proposers are encouraged to propose novel, high-risk, high-impact efforts. Once awards are made, each YFA performer will be assigned a DARPA Program Manager with interests closely related to their research topic. The Program Manager will act as project manager and mentor to the YFA performer.

Sec. II: AWARD INFORMATION

The amount of resources made available under this RA will depend on the quality of the proposals received and the availability of funds. Multiple awards are anticipated, each at a maximum of \$300,000 (\$150,000 maximum per year for a one year base period and a one year option period).

The Government reserves the right to select for negotiation all, some, one, or none of the proposals received in response to this solicitation, and to make awards without discussions with proposers. The Government also reserves the right to conduct discussions if it is later determined to be necessary. If warranted, portions of resulting awards may be segregated into pre-priced options. Additionally, DARPA reserves the right to accept proposals in their entirety or to select only portions of proposals for award. In the event that DARPA desires to award only portions of a proposal, negotiations may be opened with that proposer. The Government reserves the right to fund proposals in phases with options for continued work at the end of one or more of the phases.

Awards under this RA will be made to proposers on the basis of the evaluation criteria listed below (see section labeled “Application Review Information”, Sec. V.), and program balance to provide overall value to the Government. Proposals identified for negotiation may result in a

procurement contract, grant, cooperative agreement, or other transaction depending upon the nature of the work proposed, the required degree of interaction between parties, and other factors. The Government reserves the right to request any additional, necessary documentation once it makes the award instrument determination. Such additional information may include but is not limited to Representations and Certifications. The Government also reserves the right to remove proposers from award consideration should the parties fail to reach agreement on award terms, conditions and cost/price within a reasonable time or the proposer fails to provide timely requested additional information.

As of the date of publication of this RA, DARPA expects that program goals for this RA may be met by proposers intending to perform 'fundamental research,' i.e., basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from industrial development, design, production, and product utilization the results of which ordinarily are restricted for proprietary or national security reasons. Notwithstanding this statement of expectation, DARPA is not prohibited from considering and selecting research proposals that, while perhaps not qualifying as 'fundamental research' under the foregoing definition, still meet the RA criteria for submissions. In all cases, the contracting officer shall have sole discretion to select award instrument type and to negotiate all instrument provisions with selectees.

Sec. III: ELIGIBILITY INFORMATION

A. Eligible Applicants

This RA solicits single investigator proposals for research and development in the areas of Physical Sciences, Engineering, Mathematics, Medicine, Biology, Information and Social Sciences of interest to DARPA's Defense Sciences Office (DSO), Microsystems Technology Office (MTO), and Information Innovation Office (I2O) as outlined in Section I.

Participation is limited to untenured Assistant or Associate Professors within five (5) years of appointment to a tenure-track position at a U.S. institution of higher education.

Previous YFA recipients are not eligible to apply to this or any future YFA program. Applicants are limited to a maximum of three (3) applications to the DARPA YFA program during their term of eligibility. As this was a new requirement as of the 2009 YFA program, previous unsuccessful submissions to the program prior to 2009 will NOT be counted against the limit. Applicants should clearly state on the cover sheet any prior YFA submissions. Applicants are also limited to ONE submission to this RA.

Proposers should provide in their proposal a listing of past, current, and pending support, including sponsor, funding level, performance dates, and level of all federally funded research efforts. DARPA is particularly interested in identifying outstanding researchers who have previously not been performers on DARPA programs, but the program is open to all qualified

applicants with innovative research ideas. If you have been or currently are a performer on a DARPA program, please list this clearly on the cover sheet as indicated in Section IV.

All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA. Applicants from Historically Black Colleges and Universities (HBCUs) and Minority Institutions (MIs) are encouraged to submit proposals.

Foreign participants and/or individuals may participate to the extent that such participants comply with any necessary Non-Disclosure Agreements, Security Regulations, Export Control Laws, and other governing statutes applicable under the circumstances.

The Government anticipates that full proposals submitted under this RA will be UNCLASSIFIED. Applicants considering classified submissions (or requiring access to classified information during the life-cycle of the program) shall ensure all industrial, personnel, and information system processing security requirements are in place and at the appropriate level (e.g., Facility Clearance (FCL), Personnel Security Clearance (PCL), certification and accreditation (C&A) and any Foreign Ownership Control and Influence (FOCI) issues are mitigated prior to such submission or access). Additional information on these subjects can be found at: <http://www.dss.mil>.

1. Procurement Integrity, Standards of Conduct, Ethical Considerations, and Organizational Conflicts of Interest

Current federal employees are prohibited from participating in particular matters involving conflicting financial, employment, and representational interests (18 U.S.C. 203, 205, and 208.). The DARPA Program Manager for this RA is Dr. William Casebeer. Once the proposals have been received, and prior to the start of proposal evaluations, the Government will assess potential conflicts of interest and will promptly notify the proposer if any appear to exist. (Please note the Government assessment does NOT affect, offset, or mitigate the proposer's own duty to give full notice and planned mitigation for all potential organizational conflicts, as discussed below.)

All Proposers and proposed subcontractors must affirm whether they are providing scientific, engineering, and technical assistance (SETA) or similar support to any DARPA technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the Proposer supports and identify the prime contract numbers. Affirmations shall be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest (FAR 9.5) must be disclosed. The disclosure shall include a description of the action the Proposer has taken or proposes to take to avoid, neutralize, or mitigate such conflict. In accordance with FAR 9.503 and without prior approval or a waiver from the DARPA Director, a Contractor cannot simultaneously be a SETA and Performer. Proposals that fail to fully disclose potential conflicts of interests and/or do not have plans to mitigate this conflict will be rejected without technical evaluation and withdrawn from further consideration for award.

If a prospective Proposer believes that any conflict of interest exists or may exist (whether organizational or otherwise), the Proposer should promptly raise the issue with DARPA by sending Proposer's contact information and a summary of the potential conflict by email to the mailbox address for this RA DARPA-RA-12-12@darpa.mil, before time and effort are expended in preparing a proposal and mitigation plan. If, in the sole opinion of the Government after full consideration of the circumstances, any conflict situation cannot be effectively mitigated, the proposal may be rejected without technical evaluation and withdrawn from further consideration for award under this RA.

B. Other Eligibility Criteria

1. Collaborative Efforts

This solicitation is for single author proposals only. After final selection and prior to issuance of award, the authors will be given the opportunity to discuss teaming, should it be required. Should DARPA and a selected author agree that it is necessary to team, potential team members must also be university professors, with preference given to faculty fitting the proposer eligibility guidelines. Specific content, communications, networking, and team formation will be the sole responsibility of the participants.

Sec. IV: APPLICATION AND SUBMISSION INFORMATION

A. Address to Request Application Package

This solicitation contains all information required to submit a proposal. No additional forms, kits, or other materials are needed. This notice constitutes the total RA. No additional information is available, nor will a formal Request for Proposal (RFP) or additional solicitation regarding this announcement be issued. Requests for same will be disregarded.

B. Content and Form of Application Submission

1. Security and Proprietary Issues

The Government anticipates proposals submitted under this RA will be UNCLASSIFIED.

Proprietary Data: All proposals containing proprietary data should have the cover page and each page containing proprietary data clearly marked as containing proprietary data. It is the Proposer's responsibility to clearly define to the Government what is considered proprietary data.

Security classification guidance via a DD Form 254, "DoD Contract Security Classification Specification," will not be provided at this time since DARPA is soliciting ideas only. After reviewing the incoming proposals, if a determination is made that the award instrument may result in access to classified information; a DD Form 254 will be issued and attached as part of the award.

2. Proposal Information

The YFA proposal process consists of a full-proposal submission only. There will not be a proceeding abstract phase. The technical volume of the proposal will consist of a one (1) page cover sheet, a one (1) page transmittal letter, a one (1) page executive summary slide (example available in Appendix B), a five (5) page technical proposal and statement of work (SOW), a one (1) page biosketch, and a list of references.

Proposers are required to submit full proposals by the time and date specified in the RA. **Early submissions of full proposals are strongly encouraged. Applicants are strongly encouraged to discuss their YFA submission with their Office of Sponsored Research (or equivalent) several weeks in advance of the submission deadline.** DARPA will review all full proposals submitted using the published evaluation criteria in Section V. The typical proposal should express a consolidated effort in support of one or more related technical concepts or ideas. Disjointed efforts should not be included into a single proposal.

DARPA intends to use electronic mail and fax for correspondence regarding DARPA-RA-12-12. **Proposals may not be submitted by fax or email;** any proposals sent via these methods will be disregarded.

Restrictive notices notwithstanding, proposals may be handled, for administrative purposes, by a support contractor. This support contractor is prohibited from competition in DARPA technical research and is bound by appropriate non-disclosure requirements.

All administrative correspondence and questions about this solicitation, including requests for information on how to submit a full proposal to this RA, should be directed to the RA Administrator at DARPA-RA-12-12@darpa.mil. DARPA intends to use electronic mail and fax only for all correspondence regarding DARPA-RA-12-12. DARPA encourages use of the internet for retrieving the RA and any other related information that may subsequently be provided, including but not limited to a FAQ page.

For Proposers Posting to Grants.Gov:

Grants may only be submitted to DARPA through Grants.gov or in hard-copy. Grants may not be submitted through any other means (including <https://dsobaa.sainc.com> and other comparable systems). If proposers intend to use Grants.gov as their means of submission, then they must submit their entire proposal through Grants.gov; applications cannot be submitted in part to Grants.gov and in part as a hard-copy. Proposers using the Grants.gov APPLY do not submit paper proposals in addition to the Grants.gov APPLY electronic submission.

Proposers must complete the following steps in the order listed below before submitting proposals on Grants.gov (these steps are also detailed at http://www.grants.gov/applicants/get_registered.jsp):

- Proposers must obtain a DUNS number
- Proposers must register their organization in the Central Contractor Registration (CCR) <https://www.bpn.gov/ccr/default.aspx>)
- Proposers must register the Authorized Organization Representative (AOR) in Grants.gov
- Proposers must have the organization's E-BIZ point of contact authorize the AOR to submit applications.

Once Grants.gov has received a proposal submission, Grants.gov will send two e-mail messages to advise proposers as to whether or not their proposals have been validated or rejected by the system; IT MAY TAKE UP TO TWO DAYS TO RECEIVE THESE E-MAILS. The first e-mail will confirm receipt of the proposal by the Grants.gov system; this e-mail only confirms receipt, not acceptance, of the proposal. The second will indicate that the application has been successfully validated by the system prior to transmission to the grantor agency or has been rejected due to errors. If the proposal is validated, then the proposer has successfully submitted their proposal. If the proposal is rejected, the proposer will have to resubmit their proposal. Once the proposal is retrieved by DARPA, the proposer will receive a third e-mail from Grants.gov. To avoid missing deadlines, proposers should submit their proposals in advance of the final proposal due date with sufficient time to receive confirmations and correct any errors in the submission process through Grants.gov. For more information on submitting proposals to Grants.gov, visit the Grants.gov submissions page at: http://grants.gov/applicants/apply_for_grants.jsp.

Upload two separate documents, Volume I, Technical and Management Proposal and Volume II, the Cost Proposal as attachments to the application package. **No other Grants.gov forms are required.** Please note that Grants.gov does not accept zipped or encrypted proposals. More detailed instructions for using Grants.gov can be found on the Grants.gov website.

Proposers electing to submit grant or cooperative agreement proposals as hard copies must complete the SF 424 R&R form (Application for Federal Assistance, Research and Related) available on the Grants.gov website http://www.grants.gov/agencies/aapproved_standard_forms.jsp#2.

Technical support for Grants.gov submissions may be reached at 1-800-518-4726 or support@grants.gov.

Please note that due to the new DARPA security policies, submitters to grants.gov will still need to visit <https://dsobaa.sainc.com> to register their organization concurrently and are also required to send in a password form via e-mail to ensure the DSO BAA office can verify the security of their submission.

3. Full Proposal Format

All full proposals must be in the format given below. Nonconforming proposals will be rejected without review. Proposals submitted to Grants.gov must adhere to guidelines outlined on the grants.gov website but shall contain a clearly identifiable Technical and Cost Volumes as identified in the previous section (Section IV.B.2). All proposals pages shall be printable on

single-spaced, 8-1/2 by 11 inch paper with type not smaller than 12 point font. Smaller font may be used for figures, tables, and charts. The page limitation for full proposals includes all figures, tables and charts. Volume I, Technical Management Proposal, may include an attached bibliography of relevant technical papers or research notes (published and unpublished), which document the technical ideas and approaches upon which the proposal is based. Intellectual Property/Patents Requirements and the bibliography are not included in the page counts. The submission of other supporting materials along with the proposal is strongly discouraged and will not be considered for review. Not including the attached bibliography, **Volume I shall not exceed 9 pages**. This page limit includes the one (1) page required cover sheet described in Section I. Maximum page lengths for each section are shown in braces { } below. All full proposals must be written in English.

4. Volume I: Technical and Management Proposal – (9 Page Limit)

Section I. Administrative

- A. {1} Cover sheet to include:
- (1) RA number;
 - (2) Technical topic area (proposers may only submit to ONE topic area, and ONE subtopic area if applicable);
 - (3) Organization submitting proposal;
 - (4) Contractor's reference number (if any);
 - (5) Proposal title;
 - (6) Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available);
 - (7) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available), total funds requested from DARPA, and the amount of cost share (if any);
 - (8) Date proposal was submitted;
 - (9) Total proposed cost separated by basic award and options (if any);
 - (10) Number of previous submissions to YFA RA and submission date(s);
 - (11) Date of Tenure-track appointment position; and
 - (12) List of any and all current and past involvement with DARPA as a performer.
- B. {1} Official transmittal letter.

Section II. Summary of Proposal

This section provides an overview of the proposed work as well as an introduction to the associated technical and management issues. Further elaboration will be provided in Section III.

Volume I (Technical Volume) outlined below shall not exceed seven (7) pages.

- A. {1} Executive summary slide to include the following (see Appendix B for template format):
 - Key insight/innovation
 - Scientific/technical impact
 - Potential Department of Defense application
 - Breakout of Budget for Base (Year 1) and Option (Year 2)
- B. {5} Technical proposal and Statement of Work (SOW)
- C. {1} Biosketch

Section III. Additional Information

- A. {No page limit} A brief bibliography of relevant technical papers and research notes (published and unpublished) which document the technical ideas upon which the proposal is based.
- B. {No page limit} Listing of past, current, and pending support, including sponsor, funding level, performance dates, and level of effort.

5. Volume II: Cost Proposal – {No Page Limit}

A. Cover sheet to include:

- (1) RA number;
- (2) Technical topic area (proposers may only submit to ONE topic area, and ONE subtopic area if applicable);
- (3) Organization submitting proposal;
- (4) Contractor's reference number (if any);
- (5) Proposal title;
- (6) Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available);
- (7) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), and electronic mail (if available);
- (8) Place(s) and period(s) of performance;
- (9) Total proposed cost separated by basic award and option(s) (if any);
- (10) Name, address, and telephone number of the proposer's cognizant ONR office;
- (11) Proposal Date;
- (12) DUNS number;
- (13) TIN number;

- (14) Cage Code; and
- (15) Proposal validity period.

The Government requests and recommends that tables included in the cost proposal also be provided in MS Excel™ format with calculations formulae intact to allow traceability of the cost proposal numbers across the performer. If the PDF submission differs from the Excel submission, the PDF will take precedence. Each copy must be clearly labeled with the DARPA RA number, proposer organization, and proposal title (short title recommended).

The Government also requests and recommends that the Cost Proposal include MS Excel file(s) that provide traceability between the Bases of Estimate (BOEs) and the proposed costs across all elements and phases. This includes the calculations and adjustments that are utilized to generate the Summary Costs from the source labor hours, labor costs, material costs, etc. input data. It is requested that the costs and Subcontractor proposals be readily traceable to the Prime Cost Proposal in the provided MS Excel file(s). The Government prefers receiving cost data as Excel files; however, this is not a requirement.

Detailed cost breakdown to include:

- (1) Total program cost breakdown by major cost items:
 - a. Direct Labor – Including individual labor categories with associated labor hours and direct labor rates;
 - b. Indirect Costs – Including Fringe Benefits, Overhead, General and Administrative Expense, Cost of Money, Fee, etc. (must show base amount and rate);
 - c. Travel – Provide the purpose of the trip, number of trips, number of days per trip, departure and arrival destinations, number of people, etc.;
 - d. Other Direct Costs – Itemized with costs; Back-up documentation is to be submitted to support proposed costs;
 - e. Equipment Purchases – Itemization with costs, including quantities, unit prices, proposed vendors (if known), and the basis of estimate (e.g., quotes, prior purchases, catalog price lists, etc.); Any item that exceeds \$3,000 must be supported with back-up documentation such as a copy of catalog price lists or quotes prior to purchase; (NOTE: For equipment purchases, include a letter stating why the proposer cannot provide the requested resources from its own funding);
 - f. Materials – Itemization with costs, including quantities, unit prices, proposed vendors (if known), and the basis of estimate (e.g., quotes, prior purchases, catalog price lists, etc.); Any item that exceeds \$3,000 must be supported with back-up documentation such as a copy of catalog price lists or quotes prior to purchase; and
 - g. Major program tasks by month.

- (2) A summary of total program costs by phase and calendar fiscal year;
- (3) A priced Bill-of-Materials (BOM) clearly identifying, for each item proposed, the source of the unit price (i.e., vendor quote, engineering estimate, etc.) and the type of property (i.e., material, equipment, special test equipment, plant equipment, information technology (IT), for each computer hardware cost, computer software cost, and other related costs such as computer maintenance fees or support services costs). (NOTE: If you propose materials DARPA expects that you are able to defend it.);
- (4) Identification of pricing assumptions of which may require incorporation into the resulting award instrument (e.g., use of Government Furnished Property/Facilities/Information, access to Government Subject Matter Expert(s), etc.); and
- (5) A copy of the proposing organizations approved rate agreement;
- (6) A copy of the proposing organizations approved rate agreement.

NOTE 1: The government intends to use 6.1 Fundamental Research Funding for the Young Faculty Award 2012.

NOTE 2: Proposers are cautioned that evaluation ratings may be lowered and/or proposals rejected if submittal instructions are not followed.

6. Submission Dates and Times

Full Proposal Date

FULL PROPOSALS MUST BE RECEIVED ON OR BEFORE 4:00 PM ET on JANUARY 19, 2012 IN ORDER TO BE CONSIDERED. Early submissions are strongly encouraged. A proposal received after this date and time will not be reviewed.

DARPA will acknowledge receipt of complete submissions via e-mail and confirm control numbers that should be used in all further correspondence regarding proposals. If no confirmation is received within two business days, please contact the BAA Administrator at DARPA-RA-12-12@darpa.mil to ensure the proposal was submitted properly. DARPA will post a consolidated FAQ, which will be posted on http://www.darpa.mil/Opportunities/Solicitations/DSO_Solicitations.aspx. In order to receive a response to your question, submit your question to DARPA-BAA-12-12@darpa.mil.

DARPA will acknowledge receipt of complete submissions via e-mail and assign control numbers that should be used in all further correspondence regarding proposals.

7. Intergovernmental Review

Not applicable.

8. Funding Restrictions

This RA seeks proposals for a 24 month research activity consisting of a 12 month base period and a 12 month option period, with a maximum funding level of \$150,000 per year (\$300,000 maximum total funding).

9. Other Submission Requirements

All proposals should clearly indicate limitations on the disclosure of their contents. Proposers who include in their proposals data that they do not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes, shall do the following:

- (1) Mark the title page with the following legend: “This proposal includes data that shall not be disclosed – in whole or in part – for any purpose other than to evaluate this proposal.” If, however, a contract is awarded to this proposer as a result of, or in connection with, the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government’s right to use information contained in this data if it is obtained from another source without restriction; and
- (2) Mark each sheet of data they wish to restrict with the following legend: “Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.”

Markings such as “Company Confidential” or other phrases that may be confused with national security classifications should be avoided. The proposer may be required to remove such markings before the proposal will be accepted. “Proprietary” or “Company Proprietary” are acceptable notations.

Sec. V: APPLICATION REVIEW INFORMATION

A. Evaluation Criteria

Evaluation of proposals will be accomplished through a scientific/technical review of each proposal using the following mandatory criteria listed in descending order of importance:

(a) Overall Scientific and Technical Merit; (b) Potential Contribution and Relevance to the DARPA Mission; (c) Cost Realism; and (d) Realism of Proposed Schedule. Proposals will not be evaluated against each other since they are not submitted in accordance with a common work statement. DARPA’s intent is to review proposals as soon as possible after the due date; however, proposals may be reviewed periodically for administrative reasons.

The following are descriptions of the evaluation criteria:

(a) Overall Scientific and Technical Merit

The proposed technical approach is feasible, achievable, complete and supported by a proposed technical team that has the expertise and experience to accomplish the proposed tasks. Task descriptions and associated technical elements provided are complete and in a logical sequence with all proposed deliverables clearly defined such that a final outcome that achieves the goal can be expected as a result of award. The proposal identifies major technical risks and planned mitigation efforts are clearly defined and feasible.

(b) Potential Contribution and Relevance to the DARPA Mission

The potential contributions of the proposed effort with relevance to the national technology base will be evaluated. Specifically, DARPA's mission is to maintain the technological superiority of the U.S. military and prevent technological surprise from harming our national security by sponsoring revolutionary, high-payoff research that bridges the gap between fundamental discoveries and their application.

(c) Cost Realism

The objective of this criterion is to establish that the proposed costs are realistic for the technical and management approach offered, as well as to determine the proposer's practical understanding of the effort. The proposal will be reviewed to determine if the costs proposed are based on realistic assumptions, reflect a sufficient understanding of the technical goals and objectives of the RA, and are consistent with the proposer's technical approach (to include the proposed Statement of Work). At a minimum, this will involve review of the type of personnel planned to perform each task as well as the types and kinds of materials, equipment and fabrication costs proposed. It is expected that the effort will leverage all available relevant prior research in order to obtain the maximum benefit from the available funding. The evaluation criterion recognizes that undue emphasis on cost may motivate proposers to offer low-risk ideas with minimum uncertainty and to staff the effort with junior personnel in order to be in a more competitive posture. DARPA discourages such cost strategies.

(d) Realism of Proposed Schedule

The proposer's abilities to aggressively pursue performance metrics in the timeframe indicated in this RA and to accurately account for that timeframe will be evaluated, as well as proposer's ability to understand, identify, and mitigate any potential risk in schedule.

B. Review and Recommendation Process

Award(s) will be made to proposers whose proposals are determined to be the most advantageous to the Government, all factors considered, including the potential contributions of the proposed work to the overall research program and the availability of funding for the effort.

It is the policy of DARPA to ensure impartial, equitable, comprehensive proposal evaluations and to select the source (or sources) whose offer meets the Government's technical, policy, and programmatic goals. Pursuant to FAR 35.016, the primary basis for selecting proposals for acceptance shall be technical, importance to agency programs, and fund availability. In order to provide the desired evaluation, qualified Government personnel will conduct reviews and (if necessary) convene panels of experts in the appropriate areas.

Proposals will not be evaluated against each other since they are not submitted in accordance with a common work statement. For evaluation purposes, a proposal is the document described in "Proposal Information", Section IV.B. Other supporting or background materials submitted with the proposal will be considered for the reviewer's convenience only and not considered as part of the proposal.

Restrictive notices notwithstanding, proposals may be handled for administrative purposes by support contractors. These support contractors are prohibited from competition in DARPA technical research and are bound by appropriate non-disclosure requirements.

Subject to the restrictions set forth in FAR 37.203(d), input on technical aspects of the proposals may be solicited by DARPA from non-Government consultants /experts who are strictly bound by the appropriate non-disclosure requirements.

It is the policy of DARPA to treat all proposals as competitive information and to disclose their contents only for the purpose of evaluation. No proposals will be returned. After proposals have been evaluated and selections made, the original of each proposal received will be retained at DARPA and all other copies will be destroyed.

Sec. VI: AWARD ADMINISTRATION INFORMATION

A. Award Notices

As soon as the evaluation of a proposal is complete, the proposer will be notified that: 1) the proposal has been selected for funding pending negotiations with the Grants Officer, or 2) the proposal has not been selected. These official notifications will be sent via email and/or letter to the Technical POC identified on the proposal coversheet.

B. Administrative and National Policy Requirements

1. Meeting and Travel Requirements

There will be a program kickoff meeting and all key participants are required to attend. In addition, during the 12 month base period a number of visits/exercises at a variety of military sites and facilities will be scheduled. Participation in all such opportunities are not required, but lack of participation may impact the execution of the of the follow-on option period. Proposers are expected to include funds for two program review meetings and at least one three-day military visit within the total budget of their proposal.

2. Human Use

All research involving human subjects, to include use of human biological specimens and human data, selected for funding must comply with the federal regulations for human subject protection. Further, research involving human subjects that is conducted or supported by the DoD must comply with 32 CFR 219, *Protection of Human Subjects* (http://www.access.gpo.gov/nara/cfr/waisidx_07/32cfr219_07.html) and DoD Directive 3216.02, *Protection of Human Subjects and Adherence to Ethical Standards in DoD-Supported Research* (<http://www.dtic.mil/whs/directives/corres/pdf/321602p.pdf>).

Institutions awarded funding for research involving human subjects must provide documentation of a current Assurance of Compliance with Federal regulations for human subject protection, for example a Department of Health and Human Services, Office of Human Research Protection Federal Wide Assurance (<http://www.hhs.gov/ohrp>). All institutions engaged in human subject research, to include subcontractors, must also have a valid Assurance. In addition, personnel involved in human subjects research must provide documentation of completing appropriate training for the protection of human subjects.

For all proposed research that will involve human subjects in the first year or phase of the project, the institution must provide evidence of or a plan for review by an Institutional Review Board (IRB) upon final proposal submission to DARPA. The IRB conducting the review must be the IRB identified on the institution's Assurance. The protocol, separate from the proposal, must include a detailed description of the research plan, study population, risks and benefits of study participation, recruitment and consent process, data collection, and data analysis. Consult the designated IRB for guidance on writing the protocol. The informed consent document must comply with federal regulations (32 CFR 219.116). A valid Assurance along with evidence of appropriate training all investigators should all accompany the protocol for review by the IRB.

In addition to a local IRB approval, a headquarters-level human subjects regulatory review and approval is required for all research conducted or supported by the DoD. The Army, Navy, or Air Force office responsible for managing the award can provide guidance and information about their component's headquarters-level review process. Note that confirmation of a current Assurance and appropriate human subjects protection training is required before headquarters-level approval can be issued.

The amount of time required to complete the IRB review/approval process may vary depending on the complexity of the research and/or the level of risk to study participants. Ample time should be allotted to complete the approval process. The IRB approval process can last between one to three months, followed by a DoD review that could last between three to six months. No DoD/DARPA funding can be used towards human subjects research until ALL approvals are granted.

3. Animal Use

Any Recipient performing research, experimentation, or testing involving the use of animals shall comply with the rules on animal acquisition, transport, care, handling, and use in: (i) 9 CFR parts 1-4, Department of Agriculture rules that implement the Laboratory Animal Welfare Act of 1966, as amended, (7 U.S.C. 2131-2159); (ii) the guidelines described in National Institutes of Health Publication No. 86-23, "Guide for the Care and Use of Laboratory Animals"; (iii) DoD Directive 3216.01, "Use of Laboratory Animals in DoD Program."

For submissions containing animal use, proposals should briefly describe plans for Institutional Animal Care and Use Committee (IACUC) review and approval. Animal studies in the program will be expected to comply with the PHS Policy on Humane Care and Use of Laboratory Animals, available at <http://grants.nih.gov/grants/olaw/olaw.htm>.

All Recipients must receive approval by a DoD certified veterinarian, in addition to an IACUC approval. No animal studies may be conducted using DoD/DARPA funding until the USAMRMC Animal Care and Use Review Office (ACURO) or other appropriate DoD veterinary office(s) grant approval. As a part of this secondary review process, the Recipient will be required to complete and submit an ACURO Animal Use Appendix, which may be found at https://mrmc-www.army.mil/index.cfm?pageid=Research_Protections.acuro&rn=1.

4. Publication Approval

It is the policy of the Department of Defense that the publication of products of fundamental research will remain unrestricted to the maximum extent possible. The definition of Contracted Fundamental Research is:

Contracted Fundamental Research includes [research performed under] grants and contracts that are (a) funded by budget category 6.1 (Basic Research), whether performed by universities or industry or (b) funded by budget category 6.2 (Applied Research) and performed on-campus at a university. The research shall not be considered fundamental in those rare and exceptional circumstances where the applied research effort presents a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense, and where agreement on restrictions have been recorded in

the contract or grant. Such research is referred to by DARPA as ‘Restricted Research.’

Pursuant to DoD policy, research performed under grants and contracts that are: (a) funded by budget category 6.2 (Applied Research) and NOT performed on-campus at a university or (b) funded by budget category 6.3 (Advanced Research) does not meet the definition of fundamental research. Publication restrictions will be placed on all such research.

Research to be performed as a result of this RA is expected to be Fundamental. DARPA does not anticipate applying publication restrictions of any kind.

Proposers are advised if they propose grants or cooperative agreements, DARPA may elect to award other award instruments due to the need to apply publication or other restrictions. DARPA will make this election if it determines that the research resulting from the proposed program will present a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense. Any award resulting from such a determination will include a requirement for DARPA permission before publishing any information or results on the program and will be considered Restricted Research.

The following same or similar provision will be incorporated into any resultant Restricted Research or Non-Fundamental Research procurement contract or other transaction:

There shall be no dissemination or publication, except within and between the Contractor and any subcontractors, of information developed under this contract or contained in the reports to be furnished pursuant to this contract without prior written approval of DARPA’s Public Release Center (DARPA/PRC). All technical reports will be given proper review by appropriate authority to determine which Distribution Statement is to be applied prior to the initial distribution of these reports by the Contractor. With regard to subcontractor proposals for Contracted Fundamental Research, papers resulting from unclassified contracted fundamental research are exempt from prepublication controls and this review requirement, pursuant to DoD Instruction 5230.27 dated October 6, 1987.

5. Subcontracting

This RA solicits single-investigator proposals only.

6. Electronic and Information Technology

All electronic and information technology acquired through this solicitation must satisfy the accessibility requirements of Section 508 of the Rehabilitation Act (29 U.S.C. 794d) and FAR Subpart 39.2. Each proposer who submits a proposal involving the creation or inclusion of electronic and information technology must ensure that Federal employees with disabilities will

have access to and use of information that is comparable to the access and use by Federal employees who are not individuals with disabilities. Also, members of the public with disabilities seeking information or services from DARPA will have access to and use of information and data that is comparable to the access and use of information and data by members of the public who are not individuals with disabilities.

7. Central Contractor Registration (CCR) and Universal Identifier Requirements

Unless the proposer is exempt from this requirement, as per FAR 4.1403-a or DoDGARs Part 25.110, as applicable, all proposers must be registered in the Central Contractor Registration (CCR) and have a valid Data Universal Numbering System (DUNS) number prior to submitting a proposal. Information on CCR registration is available at <http://www.ccr.gov>. All proposers must maintain an active CCR registration with current information at all times during which they have an active Federal award or proposal under consideration by DARPA. All proposers must provide the DUNS number in each proposal they submit.

DARPA cannot make an assistance award to a proposer until the proposer has provided a valid DUNS number and has maintained an active CCR registration with current information.

8. Reporting Executive Compensation and First-Tier Subcontract Awards

The following clause will be used in all procurement contracts regarding the reporting of executive compensation and first-tier subawards. A similar award term will be used in all grants.

Reporting Executive Compensation and First-Tier Subcontract Awards (Jul 2010)

(a) *Definitions.* As used in this clause:

“Executive” means officers, managing partners, or any other employees in management positions.

“First-tier subcontract” means a subcontract awarded directly by a Contractor to furnish supplies or services (including construction) for performance of a prime contract, but excludes supplier agreements with vendors, such as long-term arrangements for materials or supplies that would normally be applied to a Contractor’s general and administrative expenses or indirect cost.

“Total compensation” means the cash and noncash dollar value earned by the executive during the Contractor’s preceding fiscal year and includes the following (for more information see 17 CFR 229.402(c)(2)):

(1) Salary and bonus.

(2) Awards of stock, stock options, and stock appreciation rights. Use the dollar amount recognized for financial statement reporting purposes with respect to the fiscal year in accordance with the Statement of Financial Accounting Standards No. 123 (Revised 2004) (FAS 123R), Shared Based Payments.

(3) Earnings for services under non-equity incentive plans. This does not include group life, health, hospitalization or medical reimbursement plans that do not discriminate in favor of executives, and are available generally to all salaried employees.

(4) Change in pension value. This is the change in present value of defined benefit and actuarial pension plans.

(5) Above-market earnings on deferred compensation which is not tax-qualified.

(6) Other compensation, if the aggregate value of all such other compensation (e.g., severance, termination payments, value of life insurance paid on behalf of the employee, perquisites or property) for the executive exceeds \$10,000.

(b) Section 2(d) of the Federal Funding Accountability and Transparency Act of 2006 (Pub. L. No. 109-282), as amended by section 6202 of the Government Funding Transparency Act of 2008 (Pub. L. 110-252), requires the Contractor to report information on subcontract awards. The law requires all reported information be made public, therefore, the Contractor is responsible for notifying its subcontractors that the required information will be made public.

(c)(1) Unless otherwise directed by the contracting officer, by the end of the month following the month of award of a first-tier subcontract with a value of \$25,000 or more, (and any modifications to these subcontracts that change previously reported data), the Contractor shall report the following information at <http://www.fsr.gov> for each first-tier subcontract. (The Contractor shall follow the instructions at <http://www.fsr.gov> to report the data.)

(i) Unique identifier (DUNS Number) for the subcontractor receiving the award and for the subcontractor's parent company, if the subcontractor has a parent company.

(ii) Name of the subcontractor.

(iii) Amount of the subcontract award.

(iv) Date of the subcontract award.

(v) A description of the products or services (including construction) being provided under the subcontract, including the overall purpose and expected outcomes or results of the subcontract.

(vi) Subcontract number (the subcontract number assigned by the Contractor).

(vii) Subcontractor's physical address including street address, city, state, and country. Also include the nine-digit zip code and congressional district.

(viii) Subcontractor's primary performance location including street address, city, state, and country. Also include the nine-digit zip code and congressional district.

(ix) The prime contract number, and order number if applicable.

(x) Awarding agency name and code.

(xi) Funding agency name and code.

(xii) Government contracting office code.

(xiii) Treasury account symbol (TAS) as reported in FPDS.

(xiv) The applicable North American Industry Classification System code (NAICS).

(2) By the end of the month following the month of a contract award, and annually thereafter, the Contractor shall report the names and total compensation of each of the five most highly compensated executives for the Contractor's preceding completed fiscal year at <http://www.ccr.gov> , if—

(i) In the Contractor's preceding fiscal year, the Contractor received—

(A) 80 percent or more of its annual gross revenues from Federal contracts (and subcontracts), loans, grants (and subgrants) and cooperative agreements; and

(B) \$25,000,000 or more in annual gross revenues from Federal contracts (and subcontracts), loans, grants (and subgrants) and cooperative agreements; and

(ii) The public does not have access to information about the compensation of the executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at <http://www.sec.gov/answers/excomp.htm> .)

(3) Unless otherwise directed by the contracting officer, by the end of the month following the month of a first-tier subcontract with a value of \$25,000 or more, and annually thereafter, the Contractor shall report the names and total compensation of each of the five most highly compensated executives for each first-tier subcontractor for the subcontractor's preceding completed fiscal year at <http://www.fsr.gov> , if—

(i) In the subcontractor's preceding fiscal year, the subcontractor received—

(A) 80 percent or more of its annual gross revenues from Federal contracts (and subcontracts), loans, grants (and subgrants) and cooperative agreements; and

(B) \$25,000,000 or more in annual gross revenues from Federal contracts (and subcontracts), loans, grants (and subgrants) and cooperative agreements; and

(ii) The public does not have access to information about the compensation of the executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at <http://www.sec.gov/answers/excomp.htm> .)

(d)(1) If the Contractor in the previous tax year had gross income, from all sources, under \$300,000, the Contractor is exempt from the requirement to report subcontractor awards.

(2) If a subcontractor in the previous tax year had gross income from all sources under \$300,000, the Contractor does not need to report awards to that subcontractor.

(e) Phase-in of reporting of subcontracts of \$25,000 or more.

(1) Until September 30, 2010, any newly awarded subcontract must be reported if the prime contract award amount was \$20,000,000 or more.

(2) From October 1, 2010, until February 28, 2011, any newly awarded subcontract must be reported if the prime contract award amount was \$550,000 or more.

(3) Starting March 1, 2011, any newly awarded subcontract must be reported if the prime contract award amount was \$25,000 or more.

C. Reporting

The number and types of reports will be specified in the award document, but will include as a minimum quarterly financial status reports. The reports shall be prepared and submitted in accordance with the procedures contained in the award document and mutually agreed on before award. Reports and briefing material will also be required as appropriate to document progress in accomplishing program metrics. A Final Report that summarizes the project tasks will be required at the conclusion of the performance period for the award, notwithstanding the fact that the research may be continued under a follow-on vehicle.

D. Electronic Systems

1. Representations and Certifications

Accepted proposers are required to complete representations and certifications as presented by the grants officer after selection.

2. Wide Area Work Flow (WAWF)

Unless using another approved electronic invoicing system, performers will be required to submit invoices for payment directly via the Internet/WAWF at <http://wawf.eb.mil>. Registration to WAWF will be required prior to any award under this RA.

3. i-Edison

The award document for each proposal selected for funding will contain a mandatory requirement for patent reports and notifications to be submitted electronically through i-Edison (<http://s-edison.info.nih.gov/iEdison>).

Sec. VII: AGENCY CONTACTS

Administrative, technical or contractual questions should be sent via e-mail to DARPA-RA-12-12@darpa.mil. If e-mail is not available, fax questions to fax number (703) 807-9982; Attention: DARPA-RA-12-12. All requests must include the name, email address, and phone number of a point of contact.

The technical POC for this effort is Dr. William Casebeer
DARPA/DSO
ATTN: DARPA-RA-12-12
3701 North Fairfax Drive
Arlington, VA 22203-1714
EMAIL: DARPA-RA-12-12@darpa.mil
Fax: (703) 807-9982

Sec. VIII: OTHER INFORMATION

A. Intellectual Property

1. Data Rights Restrictions

Proposers responding to this RA shall appropriately identify any potential restrictions on the Government's use of any Intellectual Property contemplated under the resulting assistance instrument (e.g., grant or cooperative agreement). This includes both Noncommercial Items and Commercial Items. Although not required, proposers may use a format similar to that described in Paragraphs 1.a and 1.b below. The Government may use the list during the evaluation process to evaluate the impact of any identified restrictions, and may request additional information from the proposer, as may be necessary, to evaluate the proposer's assertions. If no restrictions are intended, then the proposer should state "NONE." Failure to provide full information may result in a determination that the proposal is not compliant with the RA – resulting in nonselectability of the proposal.

a. Noncommercial Items (Technical Data and Computer Software)

Proposers responding to this RA shall identify all noncommercial technical data and noncommercial computer software that it plans to generate, develop, and/or deliver under any proposed award instrument in which the Government will acquire less than unlimited rights, and to assert specific restrictions on those deliverables. Proposers are recommended to follow the format under DFARS 252.227-7017 for this stated purpose. In the event that proposers do not submit the list, the Government will assume that it automatically has "unlimited rights" to all noncommercial technical data and noncommercial computer software generated, developed, and/or delivered under any award instrument, unless it is substantiated that development of the noncommercial technical data and noncommercial computer software occurred with mixed funding. If mixed funding is anticipated in the development of noncommercial technical data and noncommercial computer software generated, developed, and/or delivered under any award instrument, then proposers should identify the data and software in question, as subject to Government Purpose Rights (GPR). In accordance with DFARS 252.227-7013 Rights in Technical Data - Noncommercial Items, and DFARS 252.227-7014 Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation, the Government will automatically assume that any such GPR restriction is limited to a period of five (5) years in accordance with the applicable DFARS clauses, at which time the Government will acquire "unlimited rights" unless the parties agree otherwise. Proposers are admonished that the Government will use the list during the evaluation process to evaluate the impact of any identified restrictions and may request additional information from the proposer, as may be necessary, to evaluate the proposer's assertions. If no restrictions are intended, then the proposer should state "NONE." It is noted an assertion of "NONE" indicates that the Government has

“unlimited rights” to all noncommercial technical data and noncommercial computer software delivered under the award instrument, in accordance with the DFARS provisions cited above. Failure to provide full information may result in a determination that the proposal is not compliant with the RA – resulting in nonselectability of the proposal.

A sample list for complying with this request is as follows:

NONCOMMERCIAL

Technical Data Computer Software To be Furnished With Restrictions	Summary of Intended Use in the Conduct of the Research	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(NARRATIVE)	(LIST)	(LIST)	(LIST)

b. Commercial Items (Technical Data and Computer Software)

Proposers responding to this RA shall identify all commercial technical data and commercial computer software that may be embedded in any noncommercial deliverables contemplated under the research effort, along with any applicable restrictions on the Government’s use of such commercial technical data and/or commercial computer software. In the event that proposers do not submit the list, the Government will assume that there are no restrictions on the Government’s use of such commercial items. The Government may use the list during the evaluation process to evaluate the impact of any identified restrictions and may request additional information from the proposer, as may be necessary, to evaluate the proposer’s assertions. If no restrictions are intended, then the proposer should state “NONE.” Failure to provide full information may result in a determination that the proposal is not compliant with the RA – resulting in nonselectability of the proposal.

A sample list for complying with this request is as follows:

COMMERCIAL

Technical Data Computer Software To be Furnished With Restrictions	Summary of Intended Use in the Conduct of the Research	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(NARRATIVE)	(LIST)	(LIST)	(LIST)

B. All Proposers – Patents

Include documentation proving your ownership of or possession of appropriate licensing rights to all patented inventions (or inventions for which a patent application has been filed) that will be utilized under your proposal for the DARPA program. If a patent application has been filed for an invention that your proposal utilizes, but the application has not yet been made publicly available and contains proprietary information, you may provide only the patent number, inventor name(s), assignee names (if any), filing date, filing date of any related provisional application, and a summary of the patent title, together with either: 1) a representation that you own the invention, or 2) proof of possession of appropriate licensing rights in the invention.

C. All Proposers – Intellectual Property Representations

Provide a good faith representation that you either own or possess appropriate licensing rights to all other intellectual property that will be utilized under your proposal for the DARPA program. Additionally, proposers shall provide a short summary for each item asserted with less than unlimited rights that describes the nature of the restriction and the intended use of the intellectual property in the conduct of the proposed research.

Sec. IX: Appendix A

Grants Cost Element Summary Sheet

SUMMARY PROPOSAL BUDGET YEAR -

OFFEROR:									
PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR (PI/PD):									
A. SENIOR PERSONNEL, PI/PD, Co-PI's, Faculty and Other Senior Associates (List separately with title, A.7. show number in parentheses)				Man Hrs/Mos	Rates	Person Months		Funds Requested by Offeror	
						CAL	ACAD	SMR	
1.									\$
2.									\$
3.									\$
4.									\$
5.									\$
6.	OTHERS (LIST INDIVIDUALLY ON SEPARATE WORKSHEET)								\$
7.	0	TOTAL SENIOR PERSONNEL (1-6)							\$
B. OTHER PERSONNEL (SHOW NUMBERS)									
1.	POST DOCTORAL ASSOCIATES								
2.	OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)								
3.	GRADUATE STUDENTS								
4.	UNDERGRADUATE STUDENTS								
5.	SECRETARIAL – CLERICAL (if charged directly)								
6.	OTHER								
7.	TOTAL SALARIES AND WAGES								\$
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)									
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)									\$
D. PERMANENT EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.00. ATTACH ADDITIONAL EXPLANATION PAGES, IF NECESSARY.)									
1.						\$			
2.						\$			
3.						\$			
TOTAL PERMANENT EQUIPMENT									\$
E. TRAVEL (LIST DETAILS ON SEPARATE WORKSHEET)									
1. DOMESTIC (INCLUDE CANADA, MEXICO, AND U.S. POSSESSIONS)									
2. FOREIGN									\$
F. PARTICIPANT SUPPORT COSTS									
1. STIPENDS									
2. TRAVEL									
3. SUBSISTENCE									
4. OTHER									
TOTAL PARTICIPANT COSTS									\$
G. OTHER DIRECT COSTS (LIST DETAILS ON SEPARATE WORKSHEET)									
1. MATERIALS AND SUPPLIES									
2. PUBLICATIONS COSTS/DOCUMENTATION/DISSEMINATION									
3. CONSULTANT SERVICES									
4. COMPUTER (ADPE) SERVICES									
5. SUBAWARDS									
6. OTHER									
7. TOTAL OTHER DIRECT COSTS									
H. TOTAL DIRECT COSTS (A THROUGH G)									\$
I. INDIRECT COSTS		Rate	Base	Total					
Overhead			\$	\$					
G & A				\$					
Fringe				\$					
TOTAL INDIRECT COSTS		FCCM		\$					
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)									\$
K. FEE		0%	BASE	\$					\$
L. COST SHARING									\$
M. AMOUNT OF THIS REQUEST									\$
PI/PD NAME (TYPED) & SIGNATURE									DATE
OFFEROR'S AUTHORIZED REP. NAME (TYPED) & SIGNATURE									DATE

Sec. X: Appendix B

Executive Summary Slide Template