Foundations of Data and Visual Analytics   (FODAVA)

PROGRAM SOLICITATION
NSF 09-525

REPLACES DOCUMENT(S):
NSF 07-583

National Science Foundation

Directorate for Computer & Information Science & Engineering
  Division of Computing and Communication Foundations
  Division of Information & Intelligent Systems

Directorate for Mathematical & Physical Sciences
  Division of Mathematical Sciences

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):

April 02, 2009

January 20, 2010

Third Wednesday in January, Annually Thereafter

REVISION NOTES

Please be advised that the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) includes revised guidelines to implement the mentoring provisions of the America COMPETES Act (ACA) (Pub. L. No. 110-69, Aug. 9, 2007.)   As specified in the ACA, each proposal that requests funding to support postdoctoral researchers must include a description of the mentoring activities that will be provided for such individuals. Proposals that do not comply with this requirement will be returned without review (see the PAPP Guide Part I: *Grant Proposal Guide* Chapter II for further information about the implementation of this new requirement).

This solicitation is the successor to solicitation, NSF 07-583 . This new solicitation differs from NSF 07-583 in the following **major** ways:

1. It provides multiple year deadlines for Foundations of Data and Visual Analytics (FODAVA) proposals and describes new award size limits.

2. This solicitation requests only FODAVA-Partner proposals. The FODAVA-Lead institution was established at the Georgia Institute of Technology following the FY 2008 competition. It is anticipated that the Georgia Institute of Technology will serve as the FODAVA-Lead for five years. An initial set of FODAVA–Partner awards were also made following the FY 2008 FODAVA competition. More information on the FODAVA program and existing FODAVA-Lead and FODAVA-Partner awards is available at http://fodava.gatech.edu/node/5

3. This solicitation describes a requirement that proposals be submitted by interdisciplinary teams that demonstrate the relevance of the proposed research to the core challenges of data and visual analytics.

DHS personnel will assist NSF program officers in the merit review process for proposals submitted in response to this solicitation. Therefore, DHS personnel will have access to both submitted proposals and subsequent reviews. All DHS personnel involved in this review will be bound by NSF confidentiality policies.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Foundations of Data and Visual Analytics (FODAVA)

Synopsis of Program:

Individuals working in areas as diverse as science, engineering, finance, medicine, and national security all face

the challenge of synthesizing information and deriving insight from massive, dynamic, ambiguous and possibly conflicting digital data. The goal of collecting and examining these data sets is not to merely acquire information, but to derive increased understanding from them and to facilitate effective decision-making. To capitalize on the opportunities provided by these data sets, research in Data and Visual Analytics seeks to facilitate analytical reasoning through the use of interactive visual interfaces. To be successful, this research must extend beyond traditional scientific and information visualization to include statistics, mathematics, knowledge representation, management and discovery technologies, cognitive and perceptual sciences, decision sciences, and more.

With this solicitation, the National Science Foundation (NSF) and the Department of Homeland Security (DHS) invite research proposals whose outcomes will enable data stakeholders to detect the expected and discover the unexpected in massive data sets. Research outcomes will be applicable across broad application areas, establishing a solid scientific foundation for visual analytics systems of the future.

Proposals should focus on creating fundamental research advances that will be widely applicable across scientific, engineering, commercial, and governmental domains that utilize visualization and analytics to gain insight and derive knowledge from massive, often streaming, dynamic, ambiguous and possibly conflicting, data sets. Research activities proposed should emphasize novel data transformations, while also demonstrating research relevance to visual analytics systems by including a research component in areas such as, but not limited to, visualization, human-computer interaction, and cognitive psychology.

Cognizant Program Officer(s):

- Lawrence Rosenblum (CS Contact), Program Director, Directorate for Computer & Information Science & Engineering, CCF Division, 1115 N, telephone: (703) 292-8910, email: lrosenbl@nsf.gov

- Tie Luo (Math Contact), Program Director, Directorate for Mathematical and Physical Sciences, DMS Division, 1025 N, telephone: (703) 292-8448, email: tluo@nsf.gov

- Sankar Basu, Program Director, Directorate for Computer & Information Science & Engineering, CCF Division, 1115N, telephone: (703) 292-7843, email: sabasu@nsf.gov

- Ephraim Glinert, Program Director, Directorate for Computer & Information Science & Engineering, IIS Division, 1125 N, telephone: (703) 292-8930, email: eglinert@nsf.gov

- Leland Jameson, Program Director, Directorate for Mathematical and Physical Sciences, DMS Division, 1025N, telephone: (703) 292-4883, email: ljameson@nsf.gov

- Maria Zemankova, Program Director, Directorate for Computer & Information Science & Engineering, IIS Division, 1125 N, telephone: (703) 292-8930, email: mzemanko@nsf.gov

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.049 --- Mathematical and Physical Sciences
- 47.070 --- Computer and Information Science and Engineering

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 4 to 5 - Four to five, two- or three-year FODAVA-Partner grants totaling $300,000 to $500,000 each will be made each year.

Anticipated Funding Amount: $1,725,000 It is anticipated that approximately $1,725,000 will be available for funding new FODAVA-Partner grants in FY 2009, pending the availability of funds. DHS will provide approximately $500,000 and NSF will provide approximately $1,225,000. It is anticipated that similar funding levels will be available for the FY 2010, 2011 and 2012 competitions.

Eligibility Information

Organization Limit:

> None Specified

PI Limit:

> None Specified

Limit on Number of Proposals per Organization:

> None Specified

Limit on Number of Proposals per PI: 2

> An individual may appear as PI, co-PI, Senior Personnel, or Consultant on no more than two FODAVA-Partner proposals submitted to any annual FODAVA competition.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable

- **Preliminary Proposal Submission:** Not Applicable

- **Full Proposal Preparation Instructions:** NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal

Guide (GPG) proposal preparation guidelines apply.

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required under this solicitation.

- **Indirect Cost (F&A) Limitations:** Not Applicable

- **Other Budgetary Limitations:** Not Applicable

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

    April 02, 2009

    January 20, 2010

    Third Wednesday in January, Annually Thereafter

Proposal Review Information Criteria

Merit Review Criteria: National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions: Additional award conditions apply. Please see the full text of this solicitation for further information.

Reporting Requirements: Standard NSF reporting requirements apply.

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I. INTRODUCTION

There was a time when lack of data was a problem in many fields. Today, the contrary is true – to make progress in science, engineering, commerce, medicine, and homeland security, researchers and other data stakeholders face the difficult task of deriving increased understanding and facilitating effective decision-making from extremely large, often dynamic, digital data sets.

The interdisciplinary field of Data and Visual Analytics is emerging to address this challenge. Defined as the science of analytical reasoning facilitated by interactive visual interfaces, Data and Visual Analytics is the synthesis of ideas from otherwise disparate fields, including scientific and information visualization, statistics, mathematics, knowledge representation, management and discovery technologies, cognitive and perceptual sciences, decision sciences, and more.

Providing better data and visual analytics systems requires research on numerous underlying scientific issues. The different

representations of raw data (e.g., numeric, text, audio, image, and geometric) have many characteristics (e.g., heterogeneous, multimodal, dynamic, uncertain, and high dimensional) that make effective analysis difficult.   The techniques that can be applied to the various data types include computational statistics, data mining, geospatial techniques, machine learning, mathematical modeling, metric embedding and dimensionality reduction. These in turn draw upon many areas of mathematics and computer science.

II. PROGRAM DESCRIPTION

The National Science Foundation (NSF) and the Department of Homeland Security (DHS) are both interested in the science that underlies the ability to extract knowledge from large structured and unstructured data sets using data and visual analytics. Accordingly, the two organizations have initiated a five-year research program focused on the Foundations of Data and Visual Analytics (FODAVA) and will co-fund the research sought in this solicitation. DHS interests in Data and Visual Analytics are motivated by homeland security applications, while NSF interests are motivated by the broader applications of data and visual analytics to science, engineering, medicine, commerce, and other societal areas.

In FY 2008, NSF and DHS agreed to support a five-year, $3,000,000 FODAVA-Lead award to the Georgia Institute of Technology. The FODAVA-Lead serves as the focal research organization for the FODAVA effort. In addition, seven FODAVA-Partner awards were made to other organizations to support additional basic research. The FODAVA-Partners work closely with the FODAVA-Lead and with the DHS-funded National Visualization and Analytics Center (NVAC) to develop the Data and Visual Analytics field. The NVAC home page provides information on research issues of interest to this program (presented within a DHS context) - see Chapter 4 of Illuminating the Path – The Research and Development Agenda for Visual Analytics (J. Thomas and K. Cook, editors), DHS NVAC.

Through this solicitation, the FODAVA program will make four to five new FODAVA-Partner awards in each of FYs 2009, 2010, 2011 and 2012, pending the availability of funds. These new FODAVA-Partner projects will explore novel algorithms and methods that will 1). fundamentally advance the theory and practice of transforming discrete data into new scalable representations suitable for computer manipulation that faithfully represent the content of the underlying data, and 2). synthesize information of different types and from different sources into a unified data representation. Competitive research proposals will also contain a research component taken from a topic area such as, but not limited to, visualization, human-computer interaction, and perceptual psychology that explore how novel algorithms and methods will enhance future visual analytics systems.

Within the above guidelines, topics of interest include:

- Synergistic combinations of data transformation techniques to create more meaningful representations with semantic richness and validity;

- Iterative approaches that will tightly couple novel data transformations with visualization systems, including methods to capture and represent information quality and uncertainty;

- Novel transformations to facilitate dynamic identification of new or unanticipated events which may also include measures of usefulness;

- Computational and mathematical algorithms that will enable the unified representation of dynamic data of multiple types and sources; and

- Fundamentally new approaches to identifying changes in massive data sets.

This solicitation seeks proposals that will develop data transformation algorithms for Data and Visual Analytics that will be applicable across broad application areas of science, engineering, health, commerce, and homeland security, and will lay the scientific base for visual analytics systems of the future. While testbed data from specific application areas will likely be needed, proposals should focus on fundamental research advances and not specific application domains.

Each proposal must be from a collaborative, interdisciplinary team where the lead PI has expertise in a topic area relating to the mathematical and computational transformation of data as described above, and at least one of the co-PIs has expertise in a topic area that assures the relevance of the research proposed to a visual analytics system.

In addition to describing the intellectual merit and broader impacts of the proposed activities, proposers must describe how they will accomplish the following tasks:

1. Obtain and utilize testbed data sets such as those provided by the FODAVA-Lead institution, DHS NVAC (http://nvac.pnl.gov), and/or other sources.

2. Interact with the FODAVA-Lead to advance the program's goals.

3. Participate in annual program reviews and educational events.

FODAVA-Partner grant recipients will be required to interact with the FODAVA-Lead and to participate as appropriate in events arranged by this organization and/or by the DHS NVAC. Proposal budgets should include travel funding for this purpose. Interaction with the FODAVA-Lead is not expected to take place until after any award is made, thus, proposed plans to interact with the FODAVA-Lead need not be detailed. The FODAVA website http://fodava.gatech.edu/ provides information about the FODAVA-Lead.

Research that is out of the scope of this solicitation

Research not applicable to this solicitation include data transformation algorithms that emphasize automated approaches to analytics or otherwise fail to demonstrate their applicability to visual analytics systems, geometric transformations such as mesh simplification, and (because of funding limitations) image and video processing and transformations. These areas are supported by other CISE and Division of Mathematical Sciences (DMS) programs. In CISE, projects in graphics and visualization are funded by the Computing and Communication Foundations (CCF) and Intelligent Systems (IIS) Divisions, projects in user interfaces and human-computer interaction in the Human-Centered Computing (HCC) program of IIS, image and video processing in the Information Integration and Informatics (III) and Robust Intelligence (RI) programs of IIS, mesh simplification in the Algorithmic Foundations program of CCF, and data mining and other automated methods for analyzing data by the III and RI programs of IIS. Mathematics proposals on these topics are supported by the DMS Programs that contains the underlying mathematical topic area of the proposal.

This list of topics is non-inclusive. Potential proposers are strongly encouraged to discuss ideas with a cognizant program officer prior to submission.

III. AWARD INFORMATION

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds. Together, NSF and DHS expect to support four to five, new FODAVA-Partners each year, with awards totaling $300,000 to $500,000 each for durations of two or three years.

IV. ELIGIBILITY INFORMATION

Organization Limit:

> None Specified

PI Limit:

> None Specified

Limit on Number of Proposals per Organization:

> None Specified

Limit on Number of Proposals per PI: 2

> An individual may appear as PI, co-PI, Senior Personnel, or Consultant on no more than two FODAVA-Partner proposals submitted to any annual FODAVA competition.

Additional Eligibility Info:

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Instructions: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the guidelines specified in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-PUBS (7827) or by e-mail from nsfpubs@nsf.gov.

Proposers are reminded to identify the program solicitation number (NSF 09-525) in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

B. Budgetary Information

Cost Sharing: Cost sharing is not required under this solicitation.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

    April 02, 2009

    January 20, 2010

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D. FastLane Requirements

Proposers are required to prepare and submit all proposals for this program solicitation through use of the NSF FastLane system. Detailed instructions regarding the technical aspects of proposal preparation and submission via FastLane are available at: http://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

Submission of Electronically Signed Cover Sheets. The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Further instructions regarding this process are available on the FastLane Website at: https://www.fastlane.nsf.gov/fastlane.jsp.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program where they will be reviewed if they meet NSF proposal preparation requirements. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with the oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal.

A. NSF Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board (NSB)-approved merit review criteria: intellectual merit and the broader impacts of the proposed effort. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two NSB-approved merit review criteria are listed below. The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which the reviewer is qualified to make judgements.

What is the intellectual merit of the proposed activity?
How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?
How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

Examples illustrating activities likely to demonstrate broader impacts are available electronically on the NSF website at: http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf.

Mentoring activities provided to postdoctoral researchers supported on the project, as described in a one-page supplementary document, will be evaluated under the Broader Impacts criterion.

NSF staff also will give careful consideration to the following in making funding decisions:

Integration of Research and Education
One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

Integrating Diversity into NSF Programs, Projects, and Activities
Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

Additional Review Criteria:

Within the context of the Intellectual Merit and Broader Impacts criteria, reviewers will be asked to comment on the degree to which the proposed activities will help to develop FODAVA as an interdisciplinary research community.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (GC-1); * or Research Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

Special Award Conditions: PIs are required to attend an annual program review at a location and time to be determined by NSF and DHS.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period. (Some programs or awards require more frequent project reports). Within 90 days after expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report will delay NSF review and processing of any future funding increments as well as any pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through FastLane, for preparation and submission of annual and final project reports. Such reports provide information on activities and findings, project participants (individual and organizational) publications; and, other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system. Submission of the report via FastLane constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

VIII. AGENCY CONTACTS

General inquiries regarding this program should be made to:

- Lawrence Rosenblum (CS Contact), Program Director, Directorate for Computer & Information Science & Engineering, CCF Division, 1115 N, telephone: (703) 292-8910, email: lrosenbl@nsf.gov

- Tie Luo (Math Contact), Program Director, Directorate for Mathematical and Physical Sciences, DMS Division, 1025 N, telephone: (703) 292-8448, email: tluo@nsf.gov

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- Ephraim Glinert, Program Director, Directorate for Computer & Information Science & Engineering, IIS Division, 1125 N, telephone: (703) 292-8930, email: eglinert@nsf.gov

- Leland Jameson, Program Director, Directorate for Mathematical and Physical Sciences, DMS Division, 1025N, telephone: (703) 292-4883, email: ljameson@nsf.gov

- Maria Zemankova, Program Director, Directorate for Computer & Information Science & Engineering, IIS Division, 1125 N, telephone: (703) 292-8930, email: mzemanko@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.

IX. OTHER INFORMATION

The NSF Website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this Website by potential proposers is strongly encouraged. In addition, National Science Foundation Update is a free e-mail subscription service designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Regional Grants Conferences. Subscribers are informed through e-mail when new publications are issued that match their identified interests. Users can subscribe to this service by clicking the "Get NSF Updates by Email" link on the NSF web site.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this new mechanism. Further information on Grants.gov may be obtained at http://www.grants.gov.

Researchers with interest in visual analytics may also wish to consider submitting proposals to the Science of Science and Innovation Policy (SciSIP) program, NSF 08-586.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 40,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at http://www.nsf.gov

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230

- **For General Information** (NSF Information Center)**:** (703) 292-5111

- **TDD (for the hearing-impaired):** (703) 292-5090

- **To Order Publications or Forms:**

    Send an e-mail to: nsfpubs@nsf.gov

    or telephone: (703) 292-7827

- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records, " 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton
Reports Clearance Officer
Division of Administrative Services
National Science Foundation
Arlington, VA 22230

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