

# **Collaborative Research in Computational Neuroscience (CRCNS)**

## **Innovative Approaches to Science and Engineering Research on Brain Function**

**PROGRAM SOLICITATION**  
**NSF 24-XXX**

**REPLACES DOCUMENT(S):**  
**NSF 20-609**  
**NSF 20-022**



**National Science Foundation**

Directorate for Computer and Information Science and Engineering

Directorate for Biological Sciences

Directorate for Social, Behavioral and Economic Sciences

Directorate for Mathematical and Physical Sciences

Directorate for Engineering

Office of International Science and Engineering



**National Institutes of Health**

National Institute of Neurological Disorders and Stroke

National Institute of Mental Health

National Institute on Drug Abuse

National Eye Institute

National Institute on Deafness and Other Communication Disorders

National Institute of Biomedical Imaging and Bioengineering

National Institute on Alcohol Abuse and Alcoholism

National Center for Complementary and Integrative Health

National Institute on Aging

Eunice Kennedy Shriver National Institute of Child Health and Human  
Development



U.S. Dept. of Energy

Office of Science, Office of Advanced Scientific Computing Research



Federal Ministry of Education and Research, Germany



French National Research Agency



United States-Israel Binational Science Foundation



National Institute of Information and Communications Technology, Japan



State Research Agency, Spain

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

March 7, 2024

Deadline for FY 2024 competition

November 13, 2024

Deadline for FY 2025 competition

November 12, 2025

Deadline for FY 2026 competition

## **IMPORTANT INFORMATION AND REVISION NOTES**

This solicitation extends the Collaborative Research in Computational Neuroscience program for three years, with the following modifications:

- The introduction and program description, including the description of scientific topics and approaches, have been updated in Sections I and II of this solicitation;
- Cloud computing and high-throughput computing resources may be requested for new proposals and for active awards;
- Agency contacts, agency-specific instructions, and allowable multilateral proposals have been updated in Section VIII of this solicitation;
- Information on Results from Prior Support is required for each PI or co-PI who has received funding from any of the CRCNS participating funding organizations within the past five years; note that sharing of data, software, and/or other resources under prior support must be addressed;
- Letters of collaboration must conform to the format described in Section V.A. of this solicitation;
- Proposers are advised to review agency-specific budget limitations described in Sections III and VIII of this solicitation. Proposals with budget requests exceeding applicable limits may be returned without review; and
- A proposal preparation checklist, supplementing the checklist provided in the PAPPG, is provided at the end of Section V.A. of this solicitation.

Any proposal submitted in response to this solicitation should be submitted in accordance with the NSF Proposal & Award Policies & Procedures Guide (PAPPG) that is in effect for the relevant due date to which the proposal is being submitted. The NSF PAPPG is regularly revised and it is the responsibility of the proposer to ensure that the proposal meets the requirements specified in this solicitation and the applicable version of the PAPPG. Submitting a proposal prior to a specified deadline does not negate this requirement.

## **SUMMARY OF PROGRAM REQUIREMENTS**

### **General Information**

#### **Program Title:**

Collaborative Research in Computational Neuroscience (CRCNS)  
Innovative Approaches to Science and Engineering Research on Brain Function

#### **Synopsis of Program:**

Computational neuroscience provides a theoretical foundation and a rich set of technical approaches for understanding the nervous system at all levels, building on the theory, methods, and findings of computer science, neuroscience, and numerous other disciplines to accelerate the understanding of nervous system structure and function, mechanisms underlying nervous system disorders, and computational strategies used by the nervous system.

Through the CRCNS program, the participating funding organizations support collaborative activities that span a broad spectrum of computational neuroscience research, as appropriate to the missions and strategic objectives of each agency.

Two classes of proposals will be considered in response to this solicitation:

**Research Proposals** describing collaborative research projects, and

**Data Sharing Proposals** to support sharing of data and other resources.

Domestic and international projects will be considered, including proposals seeking parallel international funding. As detailed in the solicitation, opportunities for parallel funding are available for bilateral US-German, US-French, US-Israeli, US-Japanese, and US-Spanish projects, and multilateral projects involving the United States and two or more CRCNS partner countries (see Section VIII of the solicitation for country-specific limitations). **Collaborating PIs from outside of the United States are referred to Section VIII of this solicitation** for further instructions from the appropriate partner funding agency.

Questions concerning a particular project's focus, direction, and relevance to a participating funding organization should be addressed to the appropriate person in the list of agency contacts in Section VIII of the solicitation.

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

**Cognizant Program Officer(s):**

*Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.*

- Kenneth Whang, CRCNS Program Coordinator - NSF; Program Director, Division of Information and Intelligent Systems, National Science Foundation, telephone: (703) 292-5149, fax: (703) 292-9073, email: [kwhang@nsf.gov](mailto:kwhang@nsf.gov)
- Jeffrey Anderson, CRCNS Administrative Coordinator - NSF; Program Analyst, Division of Information and Intelligent Systems, National Science Foundation, telephone: (703) 292-7342, fax: (703) 292-9073, email: [janderso@nsf.gov](mailto:janderso@nsf.gov)

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

- 47.041 --- Engineering
- 47.049 --- Mathematical and Physical Sciences
- 47.070 --- Computer and Information Science and Engineering
- 47.074 --- Biological Sciences
- 47.075 --- Social Behavioral and Economic Sciences
- 47.079 --- Office of International Science and Engineering
- 81.049 --- Office of Science Financial Assistance Program
- 81.049 --- Office of Science Financial Assistance Program
- 93.173 --- National Institute on Deafness and Other Communication Disorders
- 93.213 --- National Center for Complementary and Integrative Health
- 93.242 --- National Institute of Mental Health
- 93.273 --- National Institute on Alcohol Abuse and Alcoholism
- 93.279 --- National Institute on Drug Abuse
- 93.286 --- National Institute of Biomedical Imaging and Bioengineering
- 93.853 --- National Institute of Neurological Disorders and Stroke
- 93.865 --- Eunice Kennedy Shriver National Institute of Child Health and Human Development
- 93.866 --- National Institute on Aging
- 93.867 --- National Eye Institute

**Award Information**

**Anticipated Type of Award:** Standard Grant or Continuing Grant

**Estimated Number of Awards:** 20 to 30

per year

**Anticipated Funding Amount:** \$5,000,000 to \$30,000,000

per year, subject to availability of funds

## **Eligibility Information**

### **Who May Submit Proposals:**

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.
- Non-profit, non-academic organizations: Independent museums, observatories, research laboratories, professional societies and similar organizations located in the U.S. that are directly associated with educational or research activities.
- For-profit organizations: U.S.-based commercial organizations, including small businesses, with strong capabilities in scientific or engineering research or education and a passion for innovation.
- U.S. Department of Energy National Laboratories are eligible to submit proposals in response to this solicitation.

### **Who May Serve as PI:**

There are no restrictions or limits.

### **Limit on Number of Proposals per Organization:**

There are no restrictions or limits.

### **Limit on Number of Proposals per PI or co-PI: 2**

In response to this solicitation, an investigator may participate as PI or co-PI in **no more than two proposals** per review cycle. In the event that a PI or co-PI does appear in either of these roles on more than two proposals, all proposals that include that person as a PI or co-PI will be returned without review. This limit applies to all PIs and co-PIs, based inside or outside of the United States.

## Proposal Preparation and Submission Instructions

### A. Proposal Preparation Instructions

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required
- **Full Proposals:**
  - Full Proposals submitted via Research.gov: *NSF Proposal and Award Policies and Procedures Guide* (PAPPG) guidelines apply. The complete text of the PAPPG is available electronically on the NSF website at: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg).
  - Full Proposals submitted via Grants.gov: *NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov* guidelines apply (Note: The *NSF Grants.gov Application Guide* is available on the Grants.gov website and on the NSF website at: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=grantsgovguide](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)).

### B. Budgetary Information

- **Cost Sharing Requirements:**

Inclusion of voluntary committed cost sharing is prohibited.
- **Indirect Cost (F&A) Limitations:**

Not Applicable
- **Other Budgetary Limitations:**

Other budgetary limitations apply. Please see the full text of this solicitation for further information.

### C. Due Dates

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

[SEE SOLICITATION COVER PAGE]

Deadline for FY 2024 competition

[SEE SOLICITATION COVER PAGE]

Deadline for FY 2025 competition

[SEE SOLICITATION COVER PAGE]

Deadline for FY 2026 competition

## **Proposal Review Information Criteria**

### **Merit Review Criteria:**

National Science Board approved criteria. Additional merit review criteria 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

Computational neuroscience provides a theoretical foundation and a rich set of technical approaches for understanding the principles and dynamics of the nervous system at all levels. Building on the theory, methods, and findings of computer science, neuroscience, biology, the mathematical and physical sciences, the social and behavioral sciences, engineering, and other fields, computational neuroscience embraces a wide range of innovative approaches to accelerate the understanding of nervous system structure and function, mechanisms underlying nervous system disorders, and computational strategies used by the nervous system.

Furthering these advances, collaboration plays a pivotal role. Collaborative research enables investigators with complementary experience and training, and deep understanding of multiple scholarly fields, to tackle otherwise intractable scientific and technical challenges. Close collaborations enable dynamic development and refinement of models, theories, and analytical or experimental methods, and in-depth interdisciplinary exchange and training. Sharing of data, models, software, and other resources facilitates collaboration at a larger scale, enabling integration and re-use of data and code, development and training of models, rigorous evaluation of models and methods, and alignment of efforts across research communities. International collaborations offer unique opportunities to further expand research perspectives and partnerships, and to develop a community of globally engaged scientists and engineers.

Through the Collaborative Research in Computational Neuroscience (CRCNS) program, the U.S. National Science Foundation (NSF), National Institutes of Health (NIH), and Department of Energy (DOE); the German Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung, BMBF); the French National Research Agency (Agence Nationale de la Recherche, ANR); the United States-Israel Binational Science Foundation (BSF); Japan's National Institute of Information and Communications Technology (NICT); and the Spanish State Research Agency (Agencia Estatal de Investigación, AEI) support collaborative activities spanning a broad spectrum of computational neuroscience research, as appropriate to the missions and strategic objectives of each agency. The participating funding organizations have released parallel documents with further agency-specific information, referenced in Section VIII of this solicitation.

### II. PROGRAM DESCRIPTION

Following from the above motivations, two classes of proposals will be considered in response to this solicitation: **Research Proposals** describing collaborative research projects, and **Data Sharing Proposals** to support sharing of data and other resources. Domestic and international projects will be considered, including proposals seeking parallel international funding as detailed in Sections V.A. and VIII of this solicitation.

**Research Proposals** should describe innovative, collaborative projects focused on challenging interdisciplinary problems in computational neuroscience. The scope of computational

neuroscience is defined inclusively, encompassing structure, function, organization, and computation across all levels of the nervous system, and including theory, modeling, and analysis, disease and normal function, and implications for biological as well as engineered systems.

Collaborative efforts are required. No particular combination of disciplinary backgrounds or scientific approaches is prescribed. Proposers should determine and convincingly demonstrate the complementary expertise and close collaborations needed to make significant interdisciplinary advances.

Examples of potential approaches and topics are given at the end of this section. Proposals selected for funding by this program must be responsive to the mission of a participating funding organization. Questions concerning a particular project's focus, direction, and relevance to a participating funding organization should be addressed to the appropriate person in the list of agency contacts in Section VIII of this solicitation.

**Data Sharing Proposals** should focus on the preparation and deployment of data, software, code bases, stimuli, models, or other resources in a manner that will enable wide-ranging research advances in computational neuroscience. Data sharing projects are expected to respond to the needs of an identified broad community of researchers, representing any of the scientific areas that would be appropriate for Research Proposals under this solicitation. The major innovation of a data sharing project could relate to the breadth, depth, or importance of the resources being shared. Technical innovations and novel approaches to community development and continuous improvement are encouraged as needed to maximize the effectiveness and impact of shared resources.

Support for data sharing under this solicitation focuses primarily on data and other resources, not more general infrastructure development, or research to acquire the data. Proposers of data sharing projects are strongly encouraged to build on existing facilities and services where possible. A significant data sharing effort may also be proposed as a major component of a Research Proposal. All CRCNS investigators are encouraged to coordinate with other data sharing projects and related activities, including national and international efforts to develop sustainable, extensible neuroscience resources.

**Innovative educational and training opportunities** are strongly encouraged in all CRCNS proposals to develop research capacity in computational neuroscience, broaden participation in research and education, and increase the impact of computational neuroscience research. Activities at all levels of educational and career development are welcome under this solicitation. International research experiences for students and early-career researchers, described in terms of explicit plans and goals, are strongly encouraged in all projects involving international collaborations.

**A broad range of approaches and topics** is welcome under this solicitation. The list of examples below illustrates some areas of research that are appropriate under this solicitation. **The following list is not intended to be exhaustive or exclusive:**

- Explanatory, predictive, and informative models and simulations of normal and abnormal structures and functions of the nervous system and related disorders;
- Mathematical, statistical, and other quantitative analyses of research related to genetic, epigenetic, molecular, sub-cellular, cellular, network, systems, behavioral, and/or cognitive neuroscience;
- Theoretical and computational approaches to delineate and understand the structures and functions of neural circuits and networks;
- High-Performance Computing (HPC) enabled modeling and simulation approaches for extreme-scale research and understanding;
- Theoretical and computational approaches that relate nervous system processes to learning algorithms and architectures, probabilistic representations, estimation, prediction, information theory, and inference;
- Data-driven and informatics-based approaches that exploit large-scale, high-throughput, heterogeneous, and/or complex data;
- Theory and algorithms for designing experiments and integrating and analyzing data related to imaging, electrophysiological, optogenetic, multi-omic, and other methods;
- Artificial intelligence and machine learning (AI/ML) approaches that provide new insights into neural data, neural systems, and behavior, and neuroscience that can inform AI/ML;
- Methods combining AI/ML, statistics, dynamical systems, and/or control theory;
- Modeling approaches that efficiently assimilate new information, apply existing knowledge to new data, or optimize new data acquisition or closed-loop system performance;
- Computational strategies for human neuroscience that reduce model bias towards underrepresented groups and improve data coverage, access, equity, and fairness;
- Computational models examining the mechanisms whereby social determinants of health interact with biological factors, including genetics, to influence risk or resilience for diseases in the nervous system;
- Methods for measuring and analyzing connectivity, dynamics, information, and causation in neural systems;
- Integration and modeling of data across levels of analysis, from molecular to circuit level mechanisms implicated with behavior;
- Explanatory models of spatiotemporal brain dynamics across multiple scales;
- Approaches that integrate neural and cognitive models;
- Data-intensive approaches to modeling and analysis, and integrated theory- and data-driven models at different levels of abstraction;
- Theoretical and computational methods that can be applied to: common pathways, circuits, and mechanisms underlying multiple diseases in the nervous system; integrating brain measures across levels of analysis; and translational research; and

- Computational approaches in translational research aimed at addressing one or more phases (e.g., target identification) of drug discovery for nervous system disorders, including mechanistic neurobiological models of drug target engagement.

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

- Neurodevelopment, neurodegeneration, neuroinflammation and repair;
- Pattern recognition and perception, learning, representation, and encoding;
- Motor control mechanisms and sensorimotor integration;
- Memory and attention;
- Cognitive and decision-making functions and dysfunction (including, e.g., impulse control and disinhibition, and addiction, broadly construed);
- Neural origins of risk and time preference;
- Judgment, choice formation, and social-behavioral phenomena such as trust, competitiveness, and cooperation, including the role of emotion;
- Language and communication;
- Intellectual and developmental disabilities;
- Neural interface decoding and analysis, control, and modeling of processes affecting neural interfaces and neuroprostheses;
- Application of knowledge of brain computation to devices;
- Normal and abnormal sensory processing (vision, audition, olfaction, taste, balance, proprioception, and somatic sensation);
- Neural mechanisms of adaptation to environmental constraints or disease;
- Neurological, neuromuscular, and neurovascular disorders;
- Mental health, mental illness, and related disorders;
- Alcohol and substance use disorders, including their interaction with eating disorders and other psychiatric and neurological disorders, and the effects of these conditions on cognitive processes;
- Emergent and state-space properties of dynamic neural networks and ensembles; and
- Modulation of central and/or peripheral neural processes by complementary and integrative health approaches.

**Cloud Computing and High-Throughput Computing Resources (for new proposals and for active funded awards):** Many CRCNS projects face data- and computationally-intensive challenges that may benefit from accessing cloud computing or high-throughput computing resources, which provide robust, agile, reliable, and scalable infrastructure. The [Cloud Access Program](#) (NSF) and the [STRIDES Initiative](#) (NIH) have established partnerships with commercial cloud service providers to provide awardees with cost-effective, flexible access to cloud-based resources. The Partnership to Advance Throughput Computing ([PATh](#)) facilitates access to distributed high throughput computing technologies and services. The US PIs of new proposals or active funded awards may request these resources according to the instructions at the end of Section V.A. of this solicitation.

**Community Input:** The participating funders encourage interdisciplinary, community-driven efforts to map out new frontiers at the interface of neuroscience and other disciplines that could

reshape brain research and its applications. Inquiries regarding potential workshops, synthesis papers, or similar activities may be sent to [brain-frontiers@nsf.gov](mailto:brain-frontiers@nsf.gov) and/or the agency contacts listed in Section VIII of this solicitation.

### III. AWARD INFORMATION

It is anticipated that a minimum of \$5 million will be available each year for this competition, with potentially \$20 to \$30 million annually, depending on the quality of proposals and availability of funds.

Award sizes for CRCNS projects (including all CRCNS-funded project components, inside and outside of the United States) have typically ranged from approximately \$100,000 to \$250,000 (USD) per year, with durations of three to five years. **Proposers contemplating projects with higher budget requirements (e.g., multilateral projects) are advised to consult in advance with the CRCNS Program Coordinator-NSF.**

**Additional agency-specific limitations, including maximum award budgets and durations,** are described in Section VIII of this solicitation. All proposers are advised to review the additional limitations that apply to projects funded by the U.S. Department of Energy and National Institutes of Health and, if applicable, funding limitations specified by other national funding organizations from which parallel funding is requested. **Proposals with budget requests exceeding applicable limits may be returned without review.**

Estimated program budget, number of awards, and average award size and duration are subject to the availability of funds.

Upon conclusion of the review process, meritorious research proposals may be recommended for funding by one or more of the participating funding organizations, at the option of the funders, not the proposer. Subsequent grant administration procedures will be in accordance with the individual policies of the awarding agency.

Further information about agency processes and agency-specific award information is provided in Section VI.B. and Section VIII of this solicitation.

## IV. ELIGIBILITY INFORMATION

### Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.
- Non-profit, non-academic organizations: Independent museums, observatories, research laboratories, professional societies and similar organizations located in the U.S. that are directly associated with educational or research activities.
- For-profit organizations: U.S.-based commercial organizations, including small businesses, with strong capabilities in scientific or engineering research or education and a passion for innovation.
- U.S. Department of Energy National Laboratories are eligible to submit proposals in response to this solicitation.

### Who May Serve as PI:

There are no restrictions or limits.

### Limit on Number of Proposals per Organization:

There are no restrictions or limits.

### Limit on Number of Proposals per PI or co-PI: 2

In response to this solicitation, an investigator may participate as PI or co-PI in **no more than two proposals** per review cycle. In the event that a PI or co-PI does appear in either of these roles on more than two proposals, all proposals that include that person as a PI or co-PI will be returned without review. This limit applies to all PIs and co-PIs, based inside or outside of the United States.

### Additional Eligibility Info:

**Proposal Limit:** Proposals submitted in response to this solicitation may not duplicate or be substantially similar to other proposals concurrently under consideration by other programs or study sections of the participating agencies. **Duplicate or substantially similar proposals will be returned without review.**

## V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

### A. Proposal Preparation Instructions

**Full Proposal Preparation Instructions:** Proposers may opt to submit proposals in response to this Program Solicitation via Research.gov or Grants.gov.

- Full Proposals submitted via Research.gov: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the *NSF Proposal and Award Policies and Procedures Guide* (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg). Paper copies of the PAPPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov). The Prepare New Proposal setup will prompt you for the program solicitation number.
- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the *NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov*. The complete text of the *NSF Grants.gov Application Guide* is available on the Grants.gov website and on the NSF website at: ([https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=grantsgovguide](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov).

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via Research.gov. PAPPG Chapter II.D.3 provides additional information on collaborative proposals.

See PAPPG Chapter II.C.2 for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions provided in this program solicitation may deviate from the PAPPG instructions.

**The following information supplements the PAPPG and the NSF Grants.gov Application Guide.**

Proposals submitted in response to this solicitation should be prepared according to the general guidelines contained in the PAPPG, as modified by the following additional specific instructions for **Research Proposals** or **Data Sharing Proposals**. Additional instructions for **International Proposals Seeking Parallel Funding** apply only to proposals for projects involving collaborations among organizations in the United States and organizations in other countries, to be funded in parallel by participating agencies of the corresponding countries. Proposals involving other types of international collaboration may also be submitted, for consideration under standard U.S. funding mechanisms. Proposers are advised to discuss such projects with the appropriate agency contact(s) before submitting. The instructions for specific classes of proposals are cumulative, as indicated in the table below:

If you are applying for the following class of proposal:	Refer to the following instructions:					
	NSF Proposal & Award Policies & Procedures Guide (PAPPG)	CRCNS Proposal Preparation Instructions (Section V.A.) for...			CRCNS Agency-Specific Information including budget limitations (Section VIII) for...	
		Research Proposals	Data Sharing Proposals	International Proposals Seeking Parallel Funding	DOE, NIH, NSF	AEI, ANR, BMBF, BSF, NICT
US Research Proposal	X	X			X	
US Data Sharing Proposal	X		X		X	
US-Germany, US-France, US-Israel, US-Japan, US-Spain, or Multilateral Research Proposal	X	X		X	X	X
US-Germany, US-France, US-Israel, US-Japan, US-Spain, or	X		X	X	X	X



Multilateral Data Sharing Proposal						
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## Research Proposals

The following additional instructions apply to all Research Proposals submitted in response to this solicitation. If the proposal seeks parallel funding for an international collaboration, please also refer to the instructions below for International Proposals Seeking Parallel Funding.

1. **Title:** Titles for research proposals should begin with the phrase, “CRCNS Research Proposal:” Additional title prefixes (e.g., “Collaborative Research:” or “RUI:”) may be included as applicable. Although all CRCNS Research Proposals must describe scientific collaborations involving two or more investigators, they do not need to be collaborative proposals in the administrative sense, i.e., separately submitted proposals from multiple organizations seeking U.S. funding on a unified project. (See PAPPG Chapter II.E.3. for more information.)
2. **Project Summary:** The project summary should convey both the interdisciplinary problem(s) of interest and the methods to be employed. For projects with medical relevance, the statement on broader impacts should include a summary of the project's potential contributions to understanding, preventing, and managing disease, and enhancing public health. Proposers requesting cloud computing and/or high-throughput computing resources as part of the proposal should include the keyword “CloudAccess” and/or “HTCAccess” (one word without space) at the end of the Overview section (before the section on Intellectual Merit).
3. **Project Description:** In addition to the guidance specified in the PAPPG, including the requirement for a separate section labeled “Broader Impacts,” Project Descriptions for research projects must include a Coordination Plan. **Up to two additional pages are permitted in the Project Description for this purpose only, allowing a maximum of 17 pages total.** The Coordination Plan must include: 1) the specific roles of the collaborating PIs, co-PIs, other Senior Personnel and paid consultants at all organizations involved; 2) how the project will be managed across organizations and disciplines; 3) identification of the specific coordination mechanisms that will enable cross-organization and/or cross-discipline scientific integration (e.g., workshops, graduate student exchange, project meetings at conferences, communication tools, software repositories, etc.), and 4) specific references to the budget line items that support these coordination mechanisms. **Information on Results from Prior Support is required for each PI or co-PI identified on the project who has received funding from any of the CRCNS participating funding organizations with an end date in the past five years, or any current funding, including no-cost extensions. Sharing of data, software, and/or other resources under prior support must be addressed.** In cases where the PI or any co-PI has received more than one award (excluding amendments to existing awards), they need only report on the one award that is most closely related to the proposal. For recipients of BSF funding, the prior reporting requirement applies only to funding through NSF-BSF joint programs, not the BSF regular research programs. **If the Project Description, excluding the Coordination Plan, exceeds 15 pages, or is missing required**

**information on Results from Prior Support, the proposal will be returned without review.**

4. **Supplementary Documents:** Supplementary documents are limited to the specific types of documentation listed in the PAPPG or other applicable solicitation guidance (e.g., *Facilitating Research at Primarily Undergraduate Institutions*), with the following exceptions:

*Human Subjects Protection.* Proposals involving human subjects should include a supplementary document, no more than two pages in length, summarizing potential risks to human subjects; plans for recruitment and informed consent; inclusion of women, minorities, and children; and planned procedures to protect against or minimize potential risks. **Only one Human Subjects Protection document, covering all collaborative components of the project within the two-page limit, may be submitted per project.**

*Vertebrate Animals.* Proposals involving vertebrate animals should include a supplementary document, no more than two pages in length, that addresses the following points:

- Detailed description of the proposed use of the animals, including species, strains, ages, sex, and number to be used;
- Justification for the use of animals, choice of species, and numbers to be used;
- Description of procedures for minimizing discomfort, distress, pain, and injury; and
- Method of euthanasia and the reasons for its selection.

**Only one Vertebrate Animals document, covering all collaborative components of the project within the two-page limit, may be submitted per project.**

*Data Management Plan.* All proposals must include a supplementary document on data management as specified in the PAPPG and CISE Guidance for Data Management Plans ([https://www.nsf.gov/cise/cise\\_dmp.jsp](https://www.nsf.gov/cise/cise_dmp.jsp)). As needed, the Data Management Plan should also address possible differences between U.S. and applicable non-U.S. data protection requirements. **Only one Data Management Plan, covering all collaborative components of the project within the two-page limit, may be submitted per project.** Costs associated with Data Management Plans (e.g., for making data accessible and reusable for other researchers) may be included in the proposal budget.

*Letters of Collaboration.* Letters to document collaborative arrangements are limited to stating the intent to collaborate and **may not contain endorsements or**

**evaluation of the proposed project.** These letters must conform to the following format:

“If the proposal submitted by Dr. [insert the full name of the Principal Investigator] entitled [insert the proposal title] is selected for funding, it is my intent to [describe tasks and/or resource commitments in 20 words or fewer] as detailed in the Project Description or the Facilities, Equipment or Other Resources section of the proposal.”

*Cloud Computing and High-Throughput Computing Resources.* Proposals requesting cloud computing and/or high-throughput computing (HTC) resources should include a supplementary document, no more than two pages in length, that includes the following information:

- (1) the title of the proposal and name(s) of the US PI(s) and institution(s) requesting the resources;
- (2) a technical description and justification for the requested cloud computing and/or HTC resources;
- (3) for cloud computing requests, specific cloud computing providers that will be used;
- (4) for HTC requests, information regarding (a) the expected number of self-contained tasks per ensemble – note that each task can be packaged into one or more batch job; (b) the resource requirements for each task type in the ensemble – for example, requirements for cores, memory, wall-time, and scratch space; (c) the expected number of ensembles; (d) the expected input and output data requirements for each task type; and (e) the expected number and size of shared input files within an ensemble – expected number of times each file is read per ensemble; and
- (5) the anticipated annual and total costs for accessing the desired cloud computing and/or HTC resources. This cost should not be included in the NSF proposal budget.

PIs may refer to the [CloudBank](#) or [STRIDES](#) websites for information on estimating the budget for cloud computing resources. PIs may refer to the [PATH](#) website or contact [credit-accounts@path-cc.io](mailto:credit-accounts@path-cc.io) with questions about HTC resources, using HTC, or estimating credit needs.

The NSF proposal budget should not include the anticipated cost of accessing these resources; that should be reflected in item e of the supplementary document. Proposers should include the keyword “CloudAccess” and/or “HTCAccess” (one

word without space) at the end of the Overview section (before the section on Intellectual Merit) of the Project Summary.

**Proposals containing special information or supplementary documentation that has not been explicitly allowed above, such as article reprints or preprints, or appendices, will be returned without review.**

## Data Sharing Proposals

The following additional instructions apply to all Data Sharing Proposals submitted in response to this solicitation. If the proposal seeks parallel funding for an international collaboration, please also refer to the further instructions below for International Proposals Seeking Parallel Funding.

1. **Title:** Titles for data sharing proposals should begin with the phrase, “CRCNS Data Sharing Proposal.” Additional title prefixes (e.g., “Collaborative Research:” or “RUI:”) may be included as applicable. (See PAPPG Chapter II.E.3. for more information about collaborative proposals.)
2. **Project Summary:** As with Research Proposals, the statement on broader impacts should address medical relevance if appropriate, and the keyword “CloudAccess” and/or “HTCAccess” should be used to indicate a request for cloud computing and/or high-throughput computing resources as part of the proposal.
3. **Project Description:** In addition to the guidance specified in the PAPPG, including the requirement for a separate section labeled “Broader Impacts,” Project Descriptions for Data Sharing Proposals should address the following points:
  - Description and significance of the data, software, code bases, stimuli, models, or other resources, including their quality, scientific importance, structure, format, and scale;
  - Relationship to similar data or other resources, relevant standards, coordination with relevant related activities and infrastructure, and potential for integration with other resources;
  - Anticipated range of uses for research and education in computational neuroscience or other fields;
  - Plan for preparation and deployment, including technical plans, metadata and documentation, and plans for outreach and community input; and
  - Anticipated implementation timetable and strategy for evaluation and management over the course of the award period.

For proposals involving multiple collaborators, organizations, or collaborating contributors, a Coordination Plan, as described above for Research Proposals, is allowed but not required. As with Research Proposals, up to two additional pages are permitted in the Project Description for the Coordination Plan, for a maximum of 17 pages total. **Information on Results from Prior Support – including sharing of data, software, and/or other resources under prior support – must be included for each PI or co-PI identified on the project who has received**

**funding from any of the CRCNS participating funding organizations** with an end date in the past five years, or any current funding, including no-cost extensions. For recipients of BSF funding, the prior reporting requirement applies only to funding through NSF-BSF joint programs, not the BSF regular research programs. **If the Project Description, excluding the Coordination Plan, exceeds 15 pages, or is missing required information on Results from Prior Support, the proposal will be returned without review.**

4. **Supplementary Documents:** Data management issues are integral to data sharing projects and should be addressed within the project description; the required *Data Management Plan* supplementary document may refer the reader to the project description. Proposals should include a supplementary document on *Human Subjects Protection*, as described above for Research Proposals, if sharing of the data or other resources raises potential human subjects issues (e.g., confidentiality). *Letters of Collaboration* must conform to the format described above for Research Proposals. Other supplementary documents, as described above for Research Proposals, may be included as applicable.

**Proposals containing special information or supplementary documentation that has not been explicitly allowed in the PAPPG or this solicitation, such as article reprints or preprints, or appendices, will be returned without review.**

### **International Proposals Seeking Parallel Funding**

The following special instructions apply to proposals for projects involving bilateral or multilateral collaborations among organizations in the United States and organizations in other countries, to be funded in parallel by participating agencies of the corresponding countries. US investigators should prepare a proposal according to the instructions below. **Collaborating PIs from outside of the United States are referred to Section VIII of this solicitation** for further instructions from the appropriate partner funding agency. Non-US partners seeking parallel funding from partner agencies should not request funding in the US budget: they should not request subawards from the US proposer, nor should they submit a lead or non-lead collaborative proposal to NSF.

1. A proposal to NSF should be prepared according to the guidelines above for Research Proposals or Data Sharing Proposals, as appropriate, except as follows. Proposal titles should begin with “CRCNS” followed by a phrase describing the countries involved and the type of proposal, such as “CRCNS US-German Research Proposal:” The countries and proposal types that will be considered for parallel funding are described in Section VIII of this solicitation. The NSF proposal should be submitted by the US partner in the collaboration. The NSF proposal should describe the combined collaborative activities, across all participating countries and investigators, as a unified project.
2. The collaborating PIs, co-PIs, and senior personnel, **from all participating countries**, must be listed in full at the top of the first page of the Project Description, along with their departmental and organizational affiliations. The NSF Cover Sheet and biographical

sketches will include only the investigators affiliated with US organizations. Biographical sketches for PIs, co-PIs, and senior personnel from outside of the United States must be included as supplementary documents in the NSF proposal. They do not need to be in NSF-approved format so long as they are consistent with the length and content requirements specified in the PAPPG.

3. All International Proposals Seeking Parallel Funding must include a Coordination Plan, which should include specific plans for exchange of students and researchers, including timing, duration, and logistical arrangements for visits, and roles of specific project personnel. NSF specifically encourages US students and early-career researchers to spend substantive time abroad collaborating with researchers in foreign organizations. (As with domestic proposals, up to two additional pages are permitted in the Project Description for the Coordination Plan, for a maximum of 17 pages total. **If the Project Description, excluding the Coordination Plan, exceeds 15 pages, or is missing required information on Results from Prior Support, the proposal will be returned without review.**)
4. The NSF budget pages (in US Dollars) should not include any of the costs of components of the project outside of the United States that are to be funded by partner agencies. Budgets for the non-US components of the project (in the currencies used by the partner agencies) must be prepared according to the instructions of partner agencies, referenced in Section VIII of this solicitation, and included as a supplementary document in the NSF proposal. The range of award sizes described in Section III of this solicitation applies to the combined direct costs of the full project (summed over all CRCNS-funded components of the project, inside and outside of the United States).
5. Statements of current and pending support for investigators outside of the United States; and statements of their facilities, equipment, and other resources should be submitted as supplementary documents in the NSF proposal. They do not need to be in NSF-approved format so long as they are consistent with the length and content requirements specified in the PAPPG.
6. Supplementary documents pursuant to Data Management Plans and, as needed, Postdoctoral Mentoring Plans, Human Subjects Protection, and Vertebrate Animals, should cover all components of the collaborative project, inside and outside of the United States. **No more than one document of each of these types may be submitted per collaborative project. Page limits for these documents are specified above and in the PAPPG.**
7. Information on Collaborators & Other Affiliations for PIs, co-PIs, and senior personnel from outside of the United States should be submitted under *Additional Single Copy Documents*.

### **Cloud Computing and High-Throughput Computing Resources (for active funded awards)**

US PIs of active funded CRCNS awards are eligible to request cloud computing and/or high-throughput computing (HTC) resources in support of their funded projects as follows:

- NSF- and NIH-funded PIs may request cloud computing resources to use public clouds such as Amazon Web Services, Google Cloud Platform, IBM Cloud, and Microsoft

Azure. NSF-funded PIs may apply for cloud computing resources via CloudBank, an external cloud access entity supported by NSF's [Cloud Access](#) program. NIH-funded PIs may apply for resources via STRIDES, an initiative of the NIH Office of Data Science Strategy (ODSS), part of a plan for implementing the NIH Strategic Plan for Data Science.

- All US PIs (funded by NSF, NIH, or DOE) may request HTC resources through the Partnership to Advance Throughput Computing (PATH) project supported by NSF. HTC supports the automated execution of workloads that consist of large ensembles of self-contained inter-dependent tasks that may require large amounts of computing power over long periods of time to complete. Available resources include large-scale compute and GPU servers and nearline storage, as described further on the PATH credit accounts web page.

NSF- or NIH-funded PIs requesting cloud computing resources should contact the NSF or NIH cognizant program officer of their CRCNS project by e-mail with a description of their cloud computing request. The description should include, in no more than two pages, items (1), (2), (3), and (5) as described above for the *Cloud Computing and High-Throughput Computing Resources* supplementary document. Please include "CRCNS CloudAccess" and the NSF award number, or "CRCNS STRIDES" and the NIH award number, in the e-mail subject line. Cloud computing requests will be internally reviewed. As appropriate, the PI(s) will be contacted with further instructions on how to submit an administrative action on their NSF award to access CloudBank, or how to request an administrative supplement to their NIH award for STRIDES.

PIs requesting HTC resources should contact the NSF, NIH, or DOE cognizant program officer of their CRCNS project by e-mail with a description of their HTC request. The description should include, in no more than two pages, items (1), (2), (4), and (5) as described above for the *Cloud Computing and High-Throughput Computing Resources* supplementary document. Please include "CRCNS HTCAccess" and the award number for the funded project in the e-mail subject line. HTC resource requests will be internally reviewed. NSF will work directly with PATH to provision credits for approved requests.

### **Proposal Preparation Checklist**

Prior to submission, applicants are strongly encouraged to review the proposal preparation checklist provided in the PAPPG, Exhibit II-1, as well as the following list of items specific to the CRCNS program:

#### **[ ] General:**

- [ ] The proposal is not a duplicate of, or substantially similar to, a proposal concurrently under consideration by other programs or study sections of the participating agencies.

#### **[ ] Cover Sheet:**

Proposal title includes “CRCNS Research Proposal:” or “CRCNS Data Sharing Proposal:” or, for International Proposals Seeking Parallel Funding, a similar prefix identifying the countries involved and the type of proposal, such as “CRCNS US-German Research Proposal:”

Collaborative proposal status reflects whether or not two or more organizations are seeking US funding to collaborate on a unified project.

**Project Summary:**

The statement on broader impacts addresses medical relevance if appropriate.

Proposers seeking cloud computing and/or high-throughput computing resources include the keyword “CloudAccess” and/or “HTCAccess” (one word without space) at the end of the Overview section (before the section on Intellectual Merit).

**Project Description:**

The Project Description, excluding the Coordination Plan of up to two additional pages, does not exceed 15 pages.

Results of prior support are included for all applicable PIs and co-PIs, and address sharing of data, software, and/or other resources under prior support.

**Proposal Budget:**

The requested budget does not exceed the applicable limits described in Section VIII of this solicitation.

For International Proposals Seeking Parallel Funding, the NSF budget pages do not include any of the costs of components of the project outside of the United States that are to be funded by partner agencies.

**Special Information and Supplementary Documentation:**

For International Projects Seeking Parallel Funding, budgets for any components of the project outside of the United States, to be funded by partner agencies, are included in supplementary documents, in the currencies and according to the instructions of the partner agencies.

Biographical sketches for PIs, co-PIs, and senior personnel from outside of the United States are included as supplementary documents (if applicable).

Letters of collaboration conform to the solicitation-prescribed format (if applicable).



[ ] Proposals involving human subjects include a supplementary document, no more than two pages in length.

[ ] Proposals involving vertebrate animals include a supplementary document, no more than two pages in length.

[ ] Proposals requesting cloud computing or HTC resources include a supplementary document, no more than two pages in length.

## **B. Budgetary Information**

### **Cost Sharing:**

Inclusion of voluntary committed cost sharing is prohibited.

### **Other Budgetary Limitations:**

Budgets should include travel funds for the PI to attend an annual CRCNS Principal Investigators' meeting.

## **C. Due Dates**

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

[SEE SOLICITATION COVER PAGE]

Deadline for FY 2024 competition

[SEE SOLICITATION COVER PAGE]

Deadline for FY 2025 competition

[SEE SOLICITATION COVER PAGE]

Deadline for FY 2026 competition

## **D. Research.gov/Grants.gov Requirements**

### **For Proposals Submitted Via Research.gov:**

To prepare and submit a proposal via Research.gov, see detailed technical instructions available at: [https://www.research.gov/research-portal/appmanager/base/desktop?\\_nfpb=true&\\_pageLabel=research\\_node\\_display&\\_nodePath=/researchGov/Service/Desktop/ProposalPreparationandSubmission.html](https://www.research.gov/research-portal/appmanager/base/desktop?_nfpb=true&_pageLabel=research_node_display&_nodePath=/researchGov/Service/Desktop/ProposalPreparationandSubmission.html). For Research.gov user support, call the Research.gov Help Desk at 1-800-673-6188 or e-mail [rgov@nsf.gov](mailto:rgov@nsf.gov). The Research.gov Help Desk answers general technical questions related to the use of the Research.gov systems. 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.

### **For Proposals Submitted Via Grants.gov:**

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: <https://www.grants.gov/web/grants/applicants.html>. In addition, the NSF Grants.gov Application Guide (see link in Section V.A) provides instructions regarding the technical preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: [support@grants.gov](mailto:support@grants.gov). The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

***Submitting the Proposal:*** Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

Proposers that submitted via Research.gov may use Research.gov to verify the status of their submission to NSF. For proposers that submitted via Grants.gov, until an application has been received and validated by NSF, the Authorized Organizational Representative may check the status of an application on Grants.gov. After proposers have received an e-mail notification from NSF, Research.gov should be used to check the status of an application.

## **VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES**

**NSF will coordinate and manage the review of proposals jointly with participating domestic and foreign funding organizations, through a joint panel review process used by all participating funders.** Relevant information about proposals and reviews of proposals will be shared between the participating organizations as appropriate. Further information on the

processes and requirements of participating funding organizations is detailed in this Section and in Section VIII of this solicitation.

Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements, for review. 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 either as ad hoc reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with 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. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in PAPPG Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: [https://www.nsf.gov/bfa/dias/policy/merit\\_review/](https://www.nsf.gov/bfa/dias/policy/merit_review/).

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Leading the World in Discovery and Innovation, STEM Talent Development and the Delivery of Benefits from Research - NSF Strategic Plan for Fiscal Years (FY) 2022 - 2026*. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the strategic objectives in support of NSF's mission is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which 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.

## **A. Merit Review Principles and Criteria**

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

### **1. Merit Review Principles**

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

### **2. Merit Review Criteria**

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. **Both** criteria are to be given **full consideration** during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (PAPPG Chapter II.C.2.d(i). contains additional information for use by proposers in development of the Project Description section of the proposal). Reviewers are strongly encouraged to review the criteria, including PAPPG Chapter II.C.2.d(i), prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
  - a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
  - b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals

in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

### **Additional Solicitation Specific Review Criteria**

For this solicitation, clinical and technological applications are specifically included among the societally relevant outcomes that could be related to a project's Broader Impacts, in addition to the potential outcomes listed above. An NIH Plan for Enhancing Diverse Perspectives (PEDP) should not be submitted; however, specific plans for fostering diversity, inclusivity, and accessibility are strongly encouraged as part of the Broader Impacts section of the Project Description.

**The following additional review criterion reflects this solicitation's central goal of enabling high-quality collaborative research.**

#### ***Quality and value of collaboration***

Factors to be considered are as follows: Is the expertise of the proposers complementary and well-suited to the problems being addressed? Does the collaboration productively bring together new combinations of investigators? Are there new approaches or resources facilitated as a result of the collaboration? Are the specific roles of each collaborating investigator clear? Is the collaborative activity coordinated efficiently and effectively? To what extent will it contribute to the advancement of multiple collaborating disciplines? To what extent will it lead to the development of high-quality resources that will be useful to the research community at large? To what extent will it provide unique collaborative research experiences for participating students and early-career researchers?

For proposals involving international collaborations, reviewers will additionally consider: mutual benefits; true intellectual collaboration with the foreign partner(s); benefits to be realized from the expertise and specialized skills, facilities, sites, and/or resources of the international counterpart; and active research engagement of U.S. students and early-career researchers, where such individuals are engaged in the research.

### **NIH Review Criteria**

The mission of the NIH is to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability. In their evaluations of **Intellectual Merit**, reviewers will be asked to consider the following criteria that are used by NIH:

**Overall Impact.** Reviewers will provide an overall impact score to reflect their assessment of the likelihood for the project to exert a sustained, powerful influence on the research field(s) involved, in consideration of the following five core review criteria, and additional review criteria (as applicable for the project proposed).

**Significance.** Does the project address an important problem or a critical barrier to progress in the field? Is the prior research that serves as the key support for the proposed project rigorous? If the aims of the project are achieved, how will scientific knowledge, technical capability, and/or clinical practice be improved? How will successful completion of the aims change the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field?

**Investigator(s).** Are the PIs, collaborators, and other researchers well suited to the project? If Early Stage Investigators or those in the early stages of independent careers, do they have appropriate experience and training? If established, have they demonstrated an ongoing record of accomplishments that have advanced their field(s)? If the project is collaborative or multi-PD/PI, do the investigators have complementary and integrated expertise; are their leadership approach, governance, and organizational structure appropriate for the project?

**Innovation.** Does the application challenge and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions? Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense? Is a refinement, improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions proposed?

**Approach.** Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project? Have the investigators included plans to address weaknesses in the rigor of prior research that serves as the key support for the proposed project? Have the investigators presented strategies to ensure a robust and unbiased approach, as appropriate for the work proposed? Are potential problems, alternative strategies, and benchmarks for success presented? If the project is in the early stages of development, will the strategy establish feasibility and will particularly risky aspects be managed? Have the investigators presented adequate plans to address relevant biological variables, such as sex, for studies in vertebrate animals or human subjects?

If the project involves clinical research, are the plans for 1) protection of human subjects from research risks, and 2) inclusion of minorities and members of both sexes/genders, as well as the inclusion of individuals of all ages (including children and older adults), justified in terms of the scientific goals and research strategy proposed?

**Environment.** Will the scientific environment in which the work will be done contribute to the probability of success? Are the institutional support, equipment and other physical resources available to the investigators adequate for the project proposed? Will the project benefit from

unique features of the scientific environment, subject populations, or collaborative arrangements?

Where applicable, the following items will also be considered:

***Protections for Human Subjects.*** For research that involves human subjects but does not involve one of the categories of research that are exempt under 45 CFR Part 46, the committee will evaluate the justification for involvement of human subjects and the proposed protections from research risk relating to their participation according to the following five review criteria: 1) risk to subjects, 2) adequacy of protection against risks, 3) potential benefits to the subjects and others, 4) importance of the knowledge to be gained, and 5) data and safety monitoring for clinical trials.

For research that involves human subjects and meets the criteria for one or more of the six categories of research that are exempt under 45 CFR Part 46, the committee will evaluate: 1) the justification for the exemption, 2) human subjects involvement and characteristics, and 3) sources of materials.

***Inclusion of Women, Minorities, and Individuals Across the Lifespan.*** When the proposed project involves human subjects and/or NIH-defined clinical research, the committee will evaluate the proposed plans for inclusion (or exclusion) of individuals on the basis of sex/gender, race, and ethnicity, as well as the inclusion (or exclusion) of individuals of all ages (including children and older adults) to determine if it is justified in terms of the scientific goals and research strategy proposed.

***Vertebrate Animals.*** The committee will evaluate the involvement of live vertebrate animals as part of the scientific assessment according to the following criteria: (1) description of procedures involving animals including species, strains, ages, sex, and total number to be used; (2) justifications for the use of animals and for the appropriateness of the species proposed; (3) interventions to minimize discomfort, distress, pain and injury; and (4) justification for euthanasia method if NOT consistent with the American Veterinary Medical Association (AVMA) Guidelines for the Euthanasia of Animals. Reviewers will assess the use of chimpanzees as they would any other application proposing the use of vertebrate animals. For additional information, see <https://grants.nih.gov/grants/olaw/VASchecklist.pdf>.

***Biohazards.*** Reviewers will assess whether materials or procedures proposed are potentially hazardous to research personnel and/or the environment, and if needed, determine whether adequate protection is proposed.

***Budget and Period of Support.*** Reviewers will consider whether the budget and the requested period of support are fully justified and reasonable in relation to the proposed research.

## **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 evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will generally be completed and submitted by each reviewer and/or panel. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

**NSF Process:** Those proposals selected for funding by NSF will be handled in accordance with standard NSF procedures. 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 date of receipt. 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.

**NIH Process:** For those proposals that are selected for potential funding by participating NIH Institutes or Centers, the PI will be required to resubmit the proposal in an NIH-approved format directly to the Center for Scientific Review (<http://www.csr.nih.gov/>) of the NIH. PIs invited to resubmit to NIH will receive further information on resubmission procedures from NIH.

An applicant will not be allowed to increase the proposed budget or change the scientific content of the application in the resubmission to the NIH. NIH budgets may not exceed \$250,000 in direct costs, and the total direct costs requested for all years may not exceed the total requested on the NSF application. However, in some cases, NIH Institutes may request that the budget request be reallocated across the years of the grant to conform to NIH modular budget practices. Indirect costs on any foreign subawards/subcontracts will be limited to eight (8) percent.

Applicants will be expected to utilize the Multiple Principal Investigator option at the NIH ([https://grants.nih.gov/grants/multi\\_PI/](https://grants.nih.gov/grants/multi_PI/)) as appropriate.

Proposals that are selected for potential funding by participating NIH Institutes or Centers will be subject to the NIH Data Management and Sharing policy (NIH NOT-OD-21-013, effective January 25, 2023) intended to promote the sharing of scientific data. Following the resubmission instructions provided by NIH, applicants planning research that results in the generation of scientific data will need to submit a Data Management and Sharing Plan, as described at <https://sharing.nih.gov/data-management-and-sharing-policy>. As outlined in the NIH Guide Notice Supplemental Policy Information: Allowable Costs for Data Management and Sharing (NIH NOT-OD-21-015), investigators may request funds toward data management and sharing in the budget and budget justification sections of their applications.

These NIH applications will be entered into the NIH IMPAC II system. The results of the review will be presented to the involved Institutes' or Centers' National Advisory Councils for the second level of review. Subsequent to the Council reviews, NIH Institutes and Centers will make their funding determinations and selected awards will be made. Subsequent grant administration procedures for NIH awardees, including those related to New and Early Stage Investigators ([https://grants.nih.gov/grants/new\\_investigators/](https://grants.nih.gov/grants/new_investigators/)), will be in accordance with the policies of NIH. Applications selected for NIH funding will use the NIH R01 funding mechanism.

At the end of the project period, renewal applications for projects funded by the NIH are expected to be submitted directly to the NIH as Renewal Applications, rather than as proposals to the CRCNS program. Principal Investigators should contact their NIH Program Officer for additional information. For informational purposes, NIH Principal Investigators may wish to consult the NIH Grants and Funding web site ([https://grants.nih.gov/grants/about\\_grants.htm](https://grants.nih.gov/grants/about_grants.htm)), which provides excellent generic information about all aspects of NIH grantsmanship, including Renewal Applications.

**DOE Process:** For proposals that are selected for funding consideration by DOE, the DOE will ask and provide guidance to the applicant(s) to resubmit the proposal in a DOE-approved format directly to the DOE via the DOE Portfolio Analysis and Management System (PAMS) or Grants.gov. Each of these DOE applications will be accompanied by a cover letter that associates the application with CRCNS. Applicants will not be allowed to increase the proposed budget or change the scientific content of the application in the resubmission to the DOE unless approved or negotiated by the DOE.

**BMBF Process:** On the basis of the evaluation, suitable project ideas will be selected for funding. Successful applicants will be informed in writing of the result of the selection procedure.

In the second phase of the procedure, applicants whose applications have received a positive evaluation will be invited to present a formal application for funding. A decision will be made after a final evaluation. Forms for funding applications, guidelines, leaflets, information and auxiliary terms and conditions are available on the Internet at <http://www.foerderportal.bund.de/>

or can be obtained from the project management organization. Applicants are strongly advised to use the electronic application system "easy" to draft (project outlines and) formal applications (<http://www.foerderportal.bund.de/>).

**ANR Process:** Taking into consideration the joint panel review recommendation outcome and consultation with the participating funding organizations, ANR will select the projects to be funded. ANR will inform the French applicants of the outcome of the selection through its usual online channel. The grant agreements of the selected projects will be issued in accordance with the ANR standard process and the call-specific funding regulations and requirements published on the ANR website.

**BSF Process:** BSF requires parallel submission of the proposal by the U.S. and Israeli PIs, according to its submission regulations and using an identical project description to that submitted to the NSF. However, BSF will not conduct an independent selection process, but rather will review the research programs selected for funding by the NSF and/or NIH and include Israeli PIs, and in most cases fund them if sufficient resources are available. BSF will notify all applicants of the results and online availability of the review material. BSF submission instructions can be found using the link: <https://www.bsf.org.il/funding-opportunities/nsf-bsf-joint-research-grants/the-programs/>

**NICT Process:** NICT and NSF will decide on projects to be selected after a consultation based on a proposal selection produced from the joint panel review. After this selection is officially approved by the NICT board of directors, NICT will inform Japanese applicants of the outcome. For successful applicants, a funding agreement will be entered in accordance with the standard NICT regulations on research funding.

**AEI Process:** Taking into consideration the joint panel review recommendation outcome and consultation with the participating funding organizations, AEI will select the projects that it wishes to fund. AEI will inform the Spanish applicants of the outcome of the selection. The national support to the Spanish parties will be implemented through the State Research Program Call on International Joint Programming R&D Projects [*Proyectos de I+D+I de Programación Conjunta Internacional (PCI)*]. Spanish researchers will abide by national rules according to the PCI call. The Granting Resolution (*Resolución Definitiva de Concesión*) formalizes the agreement between the AEI and the Spanish beneficiaries and for all intents and purposes this Resolution acts as a formal contract between the parties.

## VII. NSF AWARD ADMINISTRATION INFORMATION

### A. Notification of the Award

Notification of an NSF 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 notice, 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 notice; (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 notice. 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 [https://www.nsf.gov/awards/managing/award\\_conditions.jsp?org=NSF](https://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF). Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from [nsfpubs@nsf.gov](mailto: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 *Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg).

## **Administrative and National Policy Requirements**

### **Build America, Buy America**

As expressed in Executive Order 14005, [Ensuring the Future is Made in All of America by All of America's Workers](#) (86 FR 7475), it is the policy of the executive branch to use terms and conditions of Federal financial assistance awards to maximize, consistent with law, the use of goods, products, and materials produced in, and services offered in, the United States.

Consistent with the requirements of the Build America, Buy America Act (Pub. L. 117-58, Division G, Title IX, Subtitle A, November 15, 2021), no funding made available through this funding opportunity may be obligated for an award unless all iron, steel, manufactured products, and construction materials used in the project are produced in the United States. For additional information, visit NSF's [Build America, Buy America](#) webpage.

### **Special Award Conditions:**

Attribution of support in publications must acknowledge the joint program, as well as the funding organization and award number, by including a phrase such as, "as part of the NSF/NIH/DOE/ANR/BMBF/BSF/NICT/AEI Collaborative Research in Computational Neuroscience Program."

### **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 no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following 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 all identified PIs and co-PIs on a given award. 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 Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also 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.

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the NSF Proposal & Award Policies & Procedures Guide (PAPPG) Chapter VII, available electronically on the NSF Website at [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg).

## **VIII. AGENCY CONTACTS AND AGENCY-SPECIFIC INFORMATION**

*Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.*

General inquiries regarding this program should be made to:

- Kenneth Whang, CRCNS Program Coordinator - NSF; Program Director, Division of Information and Intelligent Systems, National Science Foundation, telephone: (703) 292-5149, fax: (703) 292-9073, email: [kwhang@nsf.gov](mailto:kwhang@nsf.gov)

- Jeffrey Anderson, CRCNS Administrative Coordinator - NSF; Program Analyst, Division of Information and Intelligent Systems, National Science Foundation, telephone: (703) 292-7342, fax: (703) 292-9073, email: [janderso@nsf.gov](mailto:janderso@nsf.gov)

For questions related to the use of FastLane or Research.gov, contact:

- FastLane and Research.gov Help Desk: 1-800-673-6188
- FastLane Help Desk e-mail: [fastlane@nsf.gov](mailto:fastlane@nsf.gov)
- Research.gov Help Desk e-mail: [rgov@nsf.gov](mailto:rgov@nsf.gov)

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: [support@grants.gov](mailto:support@grants.gov).

Questions concerning a particular project's focus, direction and relevance to a participating funding organization should be addressed to:

### ***AEI***

The Spanish Research Agency (AEI) will consider **US-Spanish Research Proposals** and **US-Spanish Data Sharing Proposals** submitted to NSF in response to this solicitation. All the information required for Spanish applicants to successfully submit a proposal can be found in the annex to this solicitation available on the AEI-MCIN webpage at <https://www.aei.gob.es/noticias/anuncio-convocatoria-proyectos-bilaterales-estados-unidos-participacion-aei-marco>. AEI strongly encourages Spanish applicants contact the national point of contact before the proposal is submitted.

In response to this solicitation, an investigator may participate as PI or co-PI in **no more than one proposal involving Spain** per review cycle. AEI recommends the signature of a consortium agreement covering financial and intellectual property issues as well as the management and delivery of project activities to all partners involved in bilateral or multilateral projects. Resulting scientific data not subject to intellectual property rights must comply with FAIR principles (<http://doi.org/10.1038/sdata.2016.18>).

It is not necessary to submit a parallel proposal directly to AEI; nonetheless, a notification of submission should be sent, within one week following the NSF proposal deadline, to the national point of contact:

Esther Chacón, email: [esther.chacon@aei.gob.es](mailto:esther.chacon@aei.gob.es) or [neuron@aei.gob.es](mailto:neuron@aei.gob.es)

### ***ANR***



The French National Research Agency (ANR) will consider **US-French Research Proposals and US-French Data Sharing Proposals, Multilateral Research Proposals, and Multilateral Data Sharing Proposals** involving the United States and the partnering countries Israel and/or Japan, submitted to NSF in response to this solicitation. ANR will finance projects of maximum four years. The modalities of participation of the French applicants are presented in the annex to this solicitation available on the ANR website at ([UPDATE LINK](#)). ANR requires the signature of a consortium agreement covering financial and intellectual property issues as well as the management and delivery of project activities. It is not necessary to submit a parallel full proposal to ANR; nonetheless, **an annex for French Participants including a publishable lay summary of the project as well as a financial plan for the French partners should be submitted to NSF as supplementary material included in the proposal and in parallel sent to [NEUC\\_calls@anr.fr](mailto:NEUC_calls@anr.fr) within one week following the NSF proposal deadline.**

The French applicants are strongly encouraged to contact ANR prior to submission:

Sheyla Mejia, Scientific Coordinator, Biology and Health Department, telephone: +33 1 7809 8014, email: [Sheyla.MEJIA@agencerecherche.fr](mailto:Sheyla.MEJIA@agencerecherche.fr)

Maurice Tia, Scientific Officer, Information and Communication Sciences and Technologies Department, telephone: +33 1 7273 0690, email: [Maurice.TIA@agencerecherche.fr](mailto:Maurice.TIA@agencerecherche.fr)

### ***BMBF***

Germany's Federal Ministry of Education and Research will consider **US-German Research Proposals and US-German Data Sharing Proposals** submitted in response to this solicitation. The durations of these projects are expected to be no greater than three years. Investigators contemplating projects that would require longer durations are advised to discuss their project requirements with the appropriate agency contact(s) before submitting. Collaborating investigators in projects selected for funding that involve Germany will provide assurance to BMBF that a cooperation agreement, covering issues including intellectual property, has been established. It is not necessary to submit a parallel full proposal to BMBF; nonetheless, **a financial plan for the German partners must be submitted to NSF as supplementary material included in the proposal.** German applicants are referred to the BMBF *Richtlinien* (<https://www.gesundheitsforschung-bmbf.de/de/16749.php>) for further instructions, and are urged to contact the project management organization for advice on applications:

Katja Hüttner, DLR Projektträger für das BMBF, telephone: +49 228 3821 2177, email: [katja.huettner@dlr.de](mailto:katja.huettner@dlr.de), web: <http://www.dlr.de/pt>

Sophia Schach, DLR Projektträger für das BMBF, telephone: +49 228 3821 1743, email: [sophia.schach@dlr.de](mailto:sophia.schach@dlr.de), web: <http://www.dlr.de/pt>

### ***BSF***

The U.S.-Israel Binational Science Foundation will consider **US-Israeli Research Proposals, US-Israeli Data Sharing Proposals, Multilateral Research Proposals, and Multilateral Data Sharing Proposals** submitted in response to this solicitation. No more than five years of support may be requested. **A proposal with the same project description as the proposal to NSF must be submitted by the Israeli PI to the BSF.** The budget for the Israeli component of the project should be expressed in US Dollars. Submittal instructions are available at:

<https://www.bsf.org.il/funding-opportunities/nsf-bsf-joint-research-grants/the-programs/>

Questions should be directed to:

Yael Dressler, telephone: +972-2-5828239, email: [yael@bsf.org.il](mailto:yael@bsf.org.il)

Rachel Haring, telephone: +972-2-5828239, email: [heni@bsf.org.il](mailto:heni@bsf.org.il)

### ***DOE***

**DOE budgets may not exceed \$400,000 per year in total costs (including direct and indirect costs)** requested on the NSF application. The durations of these projects are expected to be no greater than three years.

Further questions may be directed to:

Robinson Pino, Program Manager, Office of Science, Advanced Scientific Computing Research, telephone: (301) 903-1263, email: [Robinson.Pino@science.doe.gov](mailto:Robinson.Pino@science.doe.gov)

### ***NICT***

Japan's National Institute of Information and Communications Technology (NICT) will consider **US-Japanese Research Proposals, US-Japanese Data Sharing Proposals, and Multilateral Research and Data Sharing Proposals** involving the United States and the partnering countries France and/or Israel, submitted in response to this solicitation. The durations of these projects are expected to be no greater than three years. In a supplementary document, investigators should provide assurance that an agreement covering issues such as intellectual property has been or will be established within a reasonable time after the notifications of awarded projects.

There are two types of US-Japanese projects: one is under NICT's extramural Commissioned ICT Research and Development Program, and the other is under NICT's intramural R&D funding program for NICT researchers. Projects may involve extramural or intramural Japanese investigators, but not both. **A proposal with the same project description as the proposal to NSF must be submitted by the Japanese PI to NICT.** Japanese applicants should refer to NICT's solicitation (Japanese language only) for more information.

### ***NIH***



CRCNS is affiliated with the NIH Blueprint for Neuroscience Research (<http://neuroscienceblueprint.nih.gov/>), and involves ten participating NIH Institutes and Centers. An NIH Notice (UPDATE LINK) is being issued in parallel with this solicitation. Proposals are selected for potential NIH funding on the basis of the common CRCNS joint review process; resubmission of proposals directly to NIH is by invitation only. **No NIH awards will exceed \$250,000 per year in direct costs.**

The CRCNS program supports human research projects such as observational studies and Basic Experimental Studies involving Humans (BESH), i.e., studies that meet both the definition of [basic research](#) and the NIH definition of a [clinical trial](#). However, [Phase I-IV clinical trials](#) with clinical outcomes as the primary outcomes to assess efficacy will not be accepted. Please be aware of NIH's definition of [clinical trials](#), which has [specific requirements](#) for applicants proposing BESH studies. For research projects that 1) involve human subjects and 2) have public health relevance, applicants are **strongly encouraged** to contact Dr. Siavash Vaziri ([siavash.vaziri@nih.gov](mailto:siavash.vaziri@nih.gov)) prior to submitting an application to determine whether it could be supported by NIH through this program.

A search for "CRCNS" in the NIH RePORTER system (<https://reporter.nih.gov/>) will show a list of CRCNS projects supported by NIH. Further questions may be directed to:

Siavash Vaziri (NIH Chair), Program Director, National Institute of Mental Health, telephone: (301) 443-1576, email: [siavash.vaziri@nih.gov](mailto:siavash.vaziri@nih.gov)

Wen Chen, Program Director, National Center for Complementary and Integrative Health, telephone: (301) 451-3989, email: [chenw@mail.nih.gov](mailto:chenw@mail.nih.gov)

Amanda DiBattista, Program Director, Neurobiology of Aging and Neurodegeneration Branch, Division of Neuroscience, National Institute on Aging, telephone: (301) 496-9350, email: [amanda.dibattista@nih.gov](mailto:amanda.dibattista@nih.gov)

Qi Duan, Program Director, National Institute of Biomedical Imaging and Bioengineering, telephone: (301) 451-4780, email: [qi.duan@nih.gov](mailto:qi.duan@nih.gov)

Marie Gill, Program Specialist, National Institute of Neurological Disorders and Stroke, telephone: (301) 451-1449, email: [gillml@ninds.nih.gov](mailto:gillml@ninds.nih.gov)

John A. Matochik, Program Director, National Institute on Alcohol Abuse and Alcoholism, telephone: (301) 451-7319, email: [jmatochi@mail.nih.gov](mailto:jmatochi@mail.nih.gov)

Brett Miller, Program Director, Eunice Kennedy Shriver National Institute of Child Health and Human Development, telephone: (301) 496-9849, email: [millerbre@mail.nih.gov](mailto:millerbre@mail.nih.gov)

Jessica Mollick, Program Officer, National Institute on Drug Abuse, telephone: (301) 827-2949, email: [jessica.mollick@nih.gov](mailto:jessica.mollick@nih.gov)

Leslie Osborne, Program Director, National Institute of Neurological Disorders and Stroke, telephone: (301) 496-9964, email: [leslie.osborne@nih.gov](mailto:leslie.osborne@nih.gov)

Amy Poremba, Program Director, Central Pathways for Hearing and Balance, National Institute on Deafness and Other Communication Disorders, telephone: (301) 496-1804, email: [amy.poremba@nih.gov](mailto:amy.poremba@nih.gov)

Merav Sabri, Program Director, Central Processing of Taste and Smell, National Institute on Deafness and Other Communication Disorders, telephone: (301) 827-0908, email: [merav.sabri@nih.gov](mailto:merav.sabri@nih.gov)

Coryse St Hillaire-Clarke, Program Director, Sensory and Motor Disorders of Aging, Division of Neuroscience, National Institute on Aging, telephone: (301) 496-9350, email: [coryse.sthillaire-clarke@nih.gov](mailto:coryse.sthillaire-clarke@nih.gov)

Cheri Wiggs, Program Director, Division of Extramural Research, National Eye Institute, telephone: (301) 451-2020, email: [wiggsc@nei.nih.gov](mailto:wiggsc@nei.nih.gov)

## ***NSF***

A search in the [NSF Award Search](#) will show a list of CRCNS projects supported by NSF. Further questions for NSF program officers may be directed to:

Kenneth Whang, Program Director, Division of Information and Intelligent Systems, telephone: (703) 292-5149, fax: (703) 292-9073, email: [kwhang@nsf.gov](mailto:kwhang@nsf.gov)

Zhilan Feng, Program Director, Division of Mathematical Sciences, telephone: (703) 292-7523, email: [zfeng@nsf.gov](mailto:zfeng@nsf.gov)

Dwight Kravitz, Program Director, Division of Behavioral and Cognitive Sciences, telephone: (703) 292-8740, email: [dkravitz@nsf.gov](mailto:dkravitz@nsf.gov)

Maija Kukla, Program Director, Office of International Science and Engineering, telephone: (703) 292-4940, email: [mkukla@nsf.gov](mailto:mkukla@nsf.gov)

Floh Thiels, Program Director, Division of Integrative Organismal Systems, telephone: (703) 292-8167, email: [ethiels@nsf.gov](mailto:ethiels@nsf.gov)

Steven Zehnder, Associate Program Director, Division of Chemical, Bioengineering, Environmental, and Transport Systems, telephone: (703) 292-7014, email: [szehnder@nsf.gov](mailto:szehnder@nsf.gov)

Lucy Zhang, Program Director, Division of Civil, Mechanical, and Manufacturing Innovation, telephone: (703) 292-5015, email: [luzhang@nsf.gov](mailto:luzhang@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, "NSF Update" is an information-delivery system 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 [Grants Conferences](#). Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. "NSF Update" also is available on [NSF's website](#).

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

## **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 55,000 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 Arctic 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 (FASSED) provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the NSF Proposal & Award Policies & Procedures Guide Chapter II.E.6 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.

## **ABOUT THE NATIONAL INSTITUTES OF HEALTH**

The National Institutes of Health (NIH) mission is to uncover new knowledge that will lead to better health for everyone. NIH works toward that mission by conducting research in its own laboratories; supporting the research of non-Federal scientists in universities, medical schools, hospitals, and research institutions throughout the country and abroad; helping in the training of research investigators; and fostering communication of medical information. The NIH institutes and centers participating in this program contribute to NIH's mission through research efforts aimed at understanding, treating, and preventing disease states that involve or are related to the nervous system.

- The mission of the National Institute of Neurological Disorders and Stroke (NINDS) is to seek fundamental knowledge about the brain and nervous system and to use that knowledge to reduce the burden of neurological disease. NINDS supports research projects that range from basic studies of the nervous system to Phase III clinical trials. Through the CRCNS program, NINDS will not support definitive clinical trials of therapeutic devices, such as a traditional feasibility study and/or pivotal trial (see <https://www.fda.gov/medical-devices> for the definition of an early feasibility study, feasibility study and pivotal trial). The NINDS is interested in supporting collaborative research in innovative computational analysis, simulation and modeling of physiological and pathological structures and functions of the nervous system, and mechanisms underlying neurological neuromuscular and neurovascular disorders.
- The mission of the National Institute of Mental Health (NIMH) is to transform the understanding and treatment of mental illnesses through basic and clinical research, paving the way for prevention, recovery, and cure. NIMH supports research programs in neuroscience and basic behavioral science, genomics, technology development, translational research, global mental health, and services and intervention, please see: <https://www.nimh.nih.gov/research-priorities/research-areas/index.shtml>. The [NIMH Strategic Plan for Research](#) provides a broad roadmap for the Institute's research priorities, encompassing a range from fundamental science of the brain and behavior to public health impact. For specifics about the NIMH strategic plan for research, please see: <http://www.nimh.nih.gov/research-priorities/index.shtml>.
- National Institute on Drug Abuse (NIDA) supported research is aimed at increasing the understanding of the causes and consequences of substance use disorders (SUDs), and in how to prevent and treat them. NIDA supports a broad research program in basic and clinical neuroscience research ranging from molecular biology to cognition, including studies investigating fundamental behavior and brain circuitry relevant to substance use. NIDA is also interested in research on the co-morbidity of SUDs with other psychiatric disorders, and understanding interactions between substance use and HIV. NIDA is also

interested in advancing research on the social determinants of health related to brain development, substance use, and addiction.

- The National Eye Institute (NEI) supports basic and clinical research aimed at increasing our understanding of the eye and the visual system in normal health and disease.
- The National Institute on Deafness and Other Communication Disorders (NIDCD) supports biomedical and behavioral research related to normal and disordered processes of hearing, balance, smell, taste, voice, speech and language. Basic and clinical studies of genetic, molecular, cellular, physiological, biochemical, and behavioral aspects of function in health and disease are encouraged.
- The National Institute of Biomedical Imaging and Bioengineering (NIBIB) supports research and development of new and novel computational methods for modeling, simulation and analysis for the purpose of detecting, treating, and preventing disease. For projects developing computational methods for image analysis and post-processing, where the computation is not linked to the direct testing or generation of a neuroscience hypothesis, please refer to the NIBIB program for image processing: <https://www.nibib.nih.gov/research-funding/image-processing-visual-perception-and-display>.
- The National Institute on Alcohol Abuse and Alcoholism (NIAAA) supports basic, clinical and behavioral research to increase the understanding of normal and abnormal biological functions and behavior relating to alcohol use, to improve the diagnosis, prevention, and treatment of alcohol use disorders, and to enhance quality health care to reduce the burden of alcohol abuse and addiction.
- The National Center for Complementary and Integrative Health (NCCIH) supports research using scientific methods and advanced technologies (e.g., fMRI) to study a diverse array of complementary medical and health care systems, practices (e.g., mindfulness-based stress reduction) and natural products with the goal of understanding their potential contribution to health, well-being, and symptom management. Inclusive in this goal is to support collaborative computational, genetic, molecular, and biological and behavioral based approaches that can be combined and brought to bear on understanding the underlying mechanisms of action of these complementary practices and products.
- The mission of the National Institute on Aging (NIA) is to seek to understand the nature of aging and the aging process, and diseases and conditions associated with growing older, in order to extend the healthy, active years of life. NIA supports and conducts genetic, biological, clinical, behavioral, social, and economic research on aging. [Aging Well in the 21st Century: Strategic Directions for Research on Aging](#) is NIA's roadmap for progress in aging research and outlines the Institute's goals and vision. The NIA Division of Neuroscience supports basic, clinical and epidemiological research to understand the neural and behavioral processes associated with the aging brain. Research on Alzheimer's disease and related dementias of aging is of particular interest.
- The Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) supports the full spectrum of basic, clinical, and translational research in the biomedical and behavioral neuroscience arenas, particularly as they affect developing systems and rehabilitation.

For the latest information about NIH programs, visit the NIH website at <http://www.nih.gov/>.

## **ABOUT THE U.S. DEPARTMENT OF ENERGY**

The mission of the Department of Energy (DOE) is to ensure America's security and prosperity by addressing its energy, environmental and nuclear challenges through transformative science and technology solutions. The DOE Office of Science (SC) mission is to deliver scientific discoveries and major scientific tools to transform our understanding of nature and advance the energy, economic and national security of the United States. SC is the Nation's largest Federal sponsor of basic research in the physical sciences and the lead Federal agency supporting fundamental scientific research for our Nation's energy future. Within SC, the Advanced Scientific Computing Research (ASCR) program's mission is to advance applied mathematics and computer science; deliver the most sophisticated computational scientific applications in partnership with disciplinary science; advance computing and networking capabilities; and develop future generations of computing hardware and software tools for science and engineering in partnership with the research community, including U.S. industry. ASCR supports state-of-the-art capabilities that enable scientific discovery through computation.

## **ABOUT THE FEDERAL MINISTRY OF EDUCATION AND RESEARCH (GERMANY)**

Research and development in areas such as chemistry and materials science, semiconductors, laser and plasma technology together with the latest production processes are the basis for new technological developments of tomorrow. The Federal Ministry of Education and Research (BMBF) provides financial support for innovative projects and ideas under targeted research funding programmes.

The range covers everything from basic scientific research, environmentally friendly sustainable development, new technologies, information and communication technologies, the life sciences, work design; structural research funding at institutions of higher education to innovation support and technology transfer.

Research funding supports scientific institutions and enterprises. The BMBF also funds individual researchers via special funding institutions.

## **ABOUT THE FRENCH NATIONAL RESEARCH AGENCY**

The French National Research Agency is a public organization devoted to competitive project-based funding in both fundamental and applied research. Its objectives are to promote scientific and technological development. The ANR mission is to concentrate the research efforts on national societal and economic priorities while maintaining a good balance between fundamental and applied research. It funds all science and technology areas.

## **ABOUT THE U.S.-ISRAEL BINATIONAL SCIENCE FOUNDATION**



The U.S.-Israel Binational Science Foundation (BSF) promotes scientific relations between the U.S. and Israel by supporting collaborative research projects in a wide area of basic and applied scientific fields, for peaceful and non-profit purposes. The foundation is owned equally by the two governments, and financed by endowments created by both governments. The BSF is an independent organization, and is governed by a board of governors consisting of equal numbers of U.S. and Israeli members. Since its creation in 1972, it has supported over 5000 joint U.S.-Israeli research projects. 45 Nobel Laureates, 7 Turing Laureates, and 7 Fields Medal Laureates have participated in BSF-supported projects.

### **ABOUT THE NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY (JAPAN)**

As the sole public institution in Japan to specialize in ICT, the National Institute of Information and Communications Technology (NICT) engages in the full spectrum of research and development in ICT from basic to applied research with an integrated perspective. Additionally, NICT supports the wider ICT sector through research funding and promoting collaboration with the academic and business communities in Japan as well as with research institutes overseas.

### **ABOUT THE STATE RESEARCH AGENCY (SPAIN)**

The State Research Agency (AEI) is a Spanish agency responsible for the promotion of scientific and technical research in all areas of knowledge through the competitive and efficient allocation of public resources, the monitoring of actions financed and their impact, and advice on action planning or initiatives through which the R&D policies of the General State Administration are implemented. The Agency is attached to the Ministry of Science, Innovation and Universities through the auspices of the Spanish Secretariat of State for Universities, Research, Development and Innovation.

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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 [System of Record Notices](#), NSF-50, "Principal Investigator/Proposal File and Associated Records," and NSF-51, "Reviewer/Proposal File and Associated Records." 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:

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