National Science Foundation Funding

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Perception, Action, and Cognition Program
March 2021
Overview

• How to find the right program at NSF
• Elements of a strong grant proposal
• What happens once you submit?
• Questions/discussion
• One-on-one with a PD

https://nsf.gov/funding/programs.jsp?org=SBE
https://www.nsf.gov/sbe/additional_info/sbe_opportunities_key.jsp
FIRST QUESTIONS TO ASK YOURSELF:

Q1: NSF or NIH?

Q2: If NSF, which directorate/program?
NSF OR NIH?

1. Basic research (sometimes with close applications) but not primarily biomedical
2. Confidentiality of reviewers and panels
3. Panels change membership frequently
4. Liberal use of external (ad hoc) reviewers – no one-size-fits-all review approach
5. Each submission is considered independent (so keep trying)
6. Panelists and external reviewers are ADVISORY to the Program Officers
7. Rating scales vary by program (constantly shifting)
8. Interactive: co-review and co-funding within NSF and with other agencies
If NSF, which directorate/program?

- Biological Sciences
- Engineering
- Mathematical & Physical Sciences
- Computer & Information Science & Engineering
- Geosciences (including Polar Programs)
- Integrative Activities
- Education & Human Resources
- Social, Behavioral & Economic Sciences
- International Science and Engineering
Most common for this audience: SBE
Once you’ve narrowed it down: Look at the program webpage

Who is the Program Director?

How do you contact the Program Director?

How do you apply? Program Description vs. Solicitation

When do you apply?

Think you already know? THINK AGAIN! Things change OFTEN so don’t assume!
How do I know if my research is relevant to a particular program?
Awards recently made by that Program

<table>
<thead>
<tr>
<th>Awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adolescent Information Management with Parents and Siblings</td>
</tr>
<tr>
<td>Collaborative Research: Stress, Academic Outcomes, and Health Outcomes among Language Brokers</td>
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<tr>
<td>Expanding access to web-based online data collection for developmental research</td>
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<tr>
<td>CAREFIR: Discovering the underpinnings of statistical language learning in Infants</td>
</tr>
<tr>
<td>Recruit measures of social reward and information value in infants</td>
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<tr>
<td>Exploring the relation between non-social skills and mental rotation from infancy to preK</td>
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<tr>
<td>A Life Span Conceptual Model of Ethnic-Racial Identity</td>
</tr>
<tr>
<td>After School Activities: Identifying Risk and Protective Factors for Community Violence Exposure</td>
</tr>
<tr>
<td>The Development of Relational Processing in Infancy</td>
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<tr>
<td>SBR-RCM: CompCmp: Modeling the Development of Phenotypic Representations</td>
</tr>
<tr>
<td>Motor Exploration and Motor Learning During Child Development</td>
</tr>
<tr>
<td>Collaborative Research: Science of Learning Center: Visual Language and Visual Learning (V2)</td>
</tr>
</tbody>
</table>

What has been funded through a particular program?

Click on a title to get the abstract
Abstract of Awards Recently Made

You can review the abstracts of awards made through a particular program.

Program Manager: Chalanda Bright
ECS Division Of Behavioral and Cognitive Sci
SBE Direct For Social, Behav & Economic Sci

Start Date: September 1, 2016
End Date: August 31, 2021 (Estimated)
Awarded Amount to Date: $750,555.00

Investigator(s): Hannela Cassola m272@cornell.edu (Principal Investigator)
Lisa Datu (Co-Principal Investigator)
Vrenessa value (Co-Principal Investigator)
Felix Temeemis (Co-Principal Investigator)

Sponsor: Cornell University
273 Fine Hall Road
Ithaca, NY 14853-2920 (607)255-5014

NSF Program(s): CSE - Developmental Sciences

Program Reference Code(s): 1698
Program Element Code(s): 1698

ABSTRACT

Mental rotation, the ability to mentally manipulate a visual representation of an object and recognize its appearance from a different orientation, shows stability from infancy through preschool. This ability predicts mathematical achievement in kindergarten and beyond as well as entry into the Science, Technology, Engineering, and Mathematics (STEM) fields. The present work focuses on identifying how non-spatial processes contribute to mental rotation abilities. Findings will help identify ideal time points for intervention, advance understanding of the factors that contribute to mental rotation, and address how individual differences in mental rotation during infancy predict later abilities. This work will involve the creation and refinement of measures that can be used to trace the development of mental rotation from infancy into preschool; thereby, not only contributing new tools to the field, but also yielding insights that can inform current theoretical conceptions of mental rotation and its relation to non-spatial processes.

The critical research question is as follows: What are the non-spatial processes that contribute to mental rotation abilities and their development? Associations between mental rotation, object features, processing bias, and motor experience will be examined using a cross-sectional design with overlapping age cohorts. The investigators will recruit an infant cohort at 6 months, a toddler cohort at 20 months, and a preschool cohort at 3 years. Each cohort will be assessed at three time points -- every six months for Infants (i.e., 6, 14, and 20 months), every 8 months for toddlers (i.e., 20, 28, and 36 months), and every year for preschoolers (1, 4, and 5 years).

When examined at a specific age, the sample will provide a snapshot into the association between mental rotation and non-spatial skills (i.e., object features, processing bias, and motor experience). The longitudinal design will allow the investigators to follow participants across infancy, toddlerhood, or the preschool years. This approach provides an opportunity to understand how non-spatial skills, such as more precocious motor skills during infancy.
Another route:

Awards database
Awards Simple Search

Overview of Award Search Features

Search award for: [Input field]

Use double quotes for exact search. For example "water vapor".

- [ ] Active Awards
- [ ] Expired Awards

Search
Identifies the program
Collaborative Proposal: Visual Attention in an Invertebrate Predator

Award Abstract #1656714

NSF Org: IOS
Division Of Integrative Organical Systems

Initial Amendment Date: April 5, 2017
Latest Amendment Date: April 13, 2018
Award Number: 1656714
Award Instrument: Continuing grant
Program Manager: Srihar Baggavachari
IOS Division Of Integrative Organical Systems
DIO Direct For Biological Sciences
Start Date: April 15, 2017
End Date: March 31, 2020 (Estimated)
Awarded Amount to Date: $333,334.00
Investigator(s): Elizabeth Jakes ejakes@psych.umass.edu (Principal Investigator)
Sponsor: University of Massachusetts Amherst
Research Administration Building
Hadley, MA 01035-9450 (413) 545-0608
NSF Program(s): ACTIVATION
Program Reference Code(s): 9178, 9179
Program Element Code(s): 7713

ABSTRACT
All visual animals face the problem of distinguishing relevant from distracting stimuli quickly and efficiently. One way that visual systems accomplish this task is through selective attention, where an animal attends to a portion of the available visual stimuli at a time. Tiny jumping spiders have microminiature eyes that are nearly as acute as a human’s and, like humans, pays attention and discriminates among visual targets. This project investigates how jumping spiders pay attention to and identify moving visual objects. The simplicity of the jumping spider eye and brain makes it easier to learn how
Contact a PD to see if you’ve identified the right program

Introduce yourself via e-mail (don’t cold call). Follow-up after a week or two.

- What’s your training, your expertise?
- What level of appointment do you have? Where?

Summarize your proposed research in a 1- or 2- pager

- What is your research question?
- Theoretical framing
- How will you try to answer it?
- Why would anyone care? Impact?

Email all potentially relevant PDs in ONE email with everyone cc’d
While looking for the right program:

- Ask other PIs (friends/mentors) for copies of their successful proposals.
- Volunteer to be an adhoc reviewer
- Accept adhoc review requests.
- Things change often so don’t assume you know!
- Line up colleagues willing to comment on proposal drafts
- Sign up for NSF alerts or program emails.

Give yourself plenty of TIME.
Get notified about new opportunities, etc.!

1. Sign up for “Get NSF Updates by Email”
Some Programs have a sign up on their webpage.
You found the right program:
NOW Print and READ!!!
Next steps?

• Email or visit your Sponsored Research Office
• Get a Fastlane/research.gov ID, log in, start on required documents
• Create a budget draft for your chair and SRO to make sure that all necessary costs are included
• Find out internal timelines for approvals

Plan for everything taking longer!
Be nice to your SRO
Be nice to your SRO
Proposal Budget

• Doing the budget early helps define the scope of the proposed work.
• Follow the PAPPG, the different budget categories, and what they allow.
• Check the range of award sizes for the program
  • (NSF.gov>award search or link from program home page)
• Personnel costs (PI salary, graduate assistantships, postdocs) add up quickly with fringe and IDC
• Work with your SRO to know what costs are allowable, what costs are required (for example, fringe or tuition), and what the final total will be once IDC is calculated
Intellectual Merit: the potential to advance knowledge

• Will the proposed activity advance basic science, knowledge, and understanding within its own field or across different fields?

• Is the project likely to be successful?
  • Qualifications of the proposer/team
  • Sufficient access to resources

• To what extent does the proposed activity explore creative and original concepts?

• How well-conceived and organized is the proposed activity?

- Demonstrate societal impacts with specificity
- Disseminate results broadly to enhance scientific and technological understanding
- Make data/code publicly available when applicable/appropriate
- Enhance the infrastructure for research and education, such as facilities, instrumentation, networks and partnerships
- Broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)
- Promote teaching, training and learning

ETC!
What Makes a Proposal Competitive?

• Original and timely ideas
• Sound scientific rationale/theoretical basis with relevant lit review
• Critical approach with alternative explanations considered
• Likely high impact
• Succinct, focused, *detailed* project plan
• Broader impacts developed, not just listed
• Experience in essential methodology. If not, then pilot data.
• Pilot data (that support the hypothesis)
• Realistic timeline and budget
• If the experiments “work,” will anyone care? *IMPACT*
Common Pitfalls that may lead to RWR

• Not responsive to the solicitation or Program Announcement
• Overlooks key aspects of the program announcement and requirements (e.g., interdisciplinarity of team; budget size; etc.)
• Not compliant (font size, >15 pages, inappropriate letters of support/collaboration, etc.)
• Failure to include solicitation-specific documents
• Submitted after 5pm local time on the deadline date
• Submitted to the wrong program and we can’t transfer for some reason
Your Institution Submits the Proposal - Not You!

Why Research.gov (vs. FastLane)?

- Compliance checks for fonts, margins, and line spacing
- Passes info among forms
- Real-time compliance feedback and alerts
- FAST document uploads
- Embedded video job aids and PAPPG guidance

• BUT some things not yet implemented in research.gov
FINAL STEP

• Download the proposal from NSF and check it!!

• Don’t rely on what you uploaded.
• READ what NSF thinks you actually submitted!!
What happens once your SRO submits your proposal?

* There are some exceptions to submission procedures (e.g., individual awards such as postdoctoral fellowships)
Feedback from Merit Review

• Verbatim anonymized reviews (ratings: E, V, G, F, P)

• Reviews should address proposal strengths and weaknesses for both review criteria: Intellectual Merit and Broader Impacts

• If it went to panel, there will be a “Panel Summary” with ratings (rating differs across panels)

• Context statement

• Often, a “PO Comment”
We recommend the proposal for award!

• CELEBRATE! But don’t gloat
• Read the reviews and panel summary for constructive suggestions. We may ask you to respond to the reviews (or change things a bit) before deciding to fund.

We recommend the proposal be declined

▸ Develop a thick skin. You are in the majority (80-90%).
  • Never enough money to fund all the good proposals (no 3 strikes rule)
  • Revising and resubmitting is a chance to learn. Persistence can pay off!
  • NSF reviews are often exceptionally helpful and constructive.
  • Will you address the reviews directly or just revise the application?
  • Schedule a call with the PD (after you have had time to digest the reviews)
Common Criticisms

- **Insufficient detail** (experimental method, theory, predictions, and/or analysis plan)
- No compelling rationale (no theoretical framework)
- Disconnect between framing/motivation and proposed work
- Results could have alternative explanations that you didn’t consider
- No consideration for unexpected outcomes
- No preliminary data (proof of concept) for risky ideas or new methods
- Failing to establish feasibility
- Over-ambitious/Too incremental

*If the experiments “work,” will anyone care?*
NSF Policy on Sexual Harassment

• NSF does not tolerate sexual harassment, other forms of harassment, or sexual assault, within the agency, at awardee organizations, field sites or anywhere science or education is conducted.

• Grantee organizations must report findings of sexual harassment, or any other kind of harassment regarding a PI or co/PI or any other grant personnel.

• Grantee organizations must establish and maintain clear and unambiguous standards of behavior to ensure harassment-free workplaces wherever science is conducted, including notification pathways for all personnel, including students, on the primary and supplemental awards.

• See Important Notice #144 at https://www.nsf.gov/pubs/issuances/in144.jsp

• NSF Harassment page at https://www.nsf.gov/od/odi/harassment.jsp
Common Myths

• NSF only funds scholars at elite institutions
• NSF only funds “famous” academics
• NSF only funds established investigators
• Only funds “normal (safe)” science
• Once declined, always declined
• Advisory committees make funding decisions
The mazes were too easy, so now they have us running through bureaucracies and looking for grants.
Questions

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Student Support Opportunities

• SBE Postdoctoral Research Fellowship (SPRF)
• Graduate Research Fellowship Program (GRFP)
• Doctoral Dissertation Research Improvement Grant (DDRiG)
• Research Opportunities for Undergraduates (REU)
1) SBE-UKRI Lead Agency Opportunity  

2) Collaborative Research in Computational Neuroscience: NSF and NIH (US); ANR (France); BMBF (Germany); BSF (Israel); AEI and ISCII (Spain); NICT (Japan)  
   https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5147

3) Partnerships for International Research and Education (PIRE)  
   https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505038

4) Accelerating Research through International Network-to-Network Collaborations (AccelNet)  
   https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505584

5) International Research Experiences for Students  
   https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=12831

6) Subaward to a US PI