

Proposal Panel 1 : 1831539

Agency Name: National Science Foundation

Agency Tracking Number: **1831539**

Panel Summary

In response to the Program Announcement NSF 18-517, "Resource Implementations for Data Intensive Research in the Social Behavioral and Economic Sciences (RIDIR)" 46 projects were submitted for consideration. Principal Investigators of non-compliant applications were given the opportunity to submit necessary revisions. It is estimated that approximately \$4.5 million will be invested in awards.

Proposals were evaluated by a mixed in-person - WebEx panel which convened at the National Science Foundation on April 26 and 27, 2018 . For each proposal written evaluations were provided by three assigned panel members. (In several cases additional panel members provided reviews.) At the conclusion of each discussion the panel placed the proposal in one of four categories: High Competitive, Competitive, Low Competitive and Non-Competitive. A distribution of proposals by category is provided below. It is likely that limited funds will permit ca. 4 awards.

Verbatim copies of the evaluations and a summary of the panel discussion are made available to all Principal Investigators through Fastlane. Inappropriate remarks, if any, may be stricken to indicate that they were disregarded. Proposals were evaluated in accordance with the two National Science Board approved merit review criteria (intellectual merit and broader impacts). In addition panelists were directed to the Program Announcement and were provided with a summary of the competition's major goals and additional required supplementary materials.

The external reviews and panel assessments are advisory to the Foundation which also takes into account factors that may affect the overall award portfolio such as budget constraints, diversity of institutions, support among sub-disciplines, geographic distribution or the potential of each award to broaden the participation of individuals from groups traditionally underrepresented in science and engineering.

High Competitive: 3
Competitive: 14
Low Competitive: 9
Non-Competitive: 20

1. Proposal summary:

The proposal aims develop a system that allows for a web-based open source scientific process management (SPM) system called LabNanny that will act as a searchable video repository at the same time allow for the self-curation. This proposal builds upon existing work (Databrary.org) and aims at making behavioral video research more interoperable, robust, and reliable.

2. Intellectual merit:

The review panel thought the intellectual merit of this proposal to be very good. Especially with respect to providing a tool that will allow for replication of experiments and inspiring new interest in using videos data within the social sciences. However, questions were raised with respect to its first research objective and a proposal currently being considered for funding at NIH (i.e. the proposal did not differentiate how this is different). Moreover, while it was clear that this proposal would benefit the current research community it was unclear how others outside of this community would be involved.

With respect to implementation, the panel noted novelty about providing the infrastructure that allows for a searchable video repository and for reproduceable science. However, the reviewers questioned and noted that other systems currently exist that are similar to what is proposed here, and it was unclear what the difference was between them.

One concern by the panel was with respect to the sustainability of the project especially if it was to take off (i.e. attract a lot of users) or what would happen after the funding period ended? Specifically, concerns were raised if the project moved to a subscription model which would be at odds to open data and therefore be of little use to researchers with limited budgets.

3. Broader impacts:

The panel thought that the proposal did a good job on explaining the current user base of the Databrary and noted that the searchable database and standardized method could be a good resource for social and cognitive sciences especially for scholars that have limited resources. However, the panel questioned if the user base could not be expanded (especially the advisory board). Some on the panel noted that that behavioral anthropology, sociology, and social psychology were not represented within the team of assembled advisors, but similar challenges exist within these fields with respect to video annotation which been an ongoing endeavor for over a decade (and is ignored in the current proposal).

4. Supplementary documents:

The data management, technical and Sustainability plans were found to be adequate.

5. Conclusions:

The panel thought this was a competitive proposal with the potential to bolster video-based research in the social sciences but without differentiating the proposed system to existing products and reaching out to other disciplines (which are not currently on the Advisory Board) the panel questioned if the system would be of benefit outside of the current user community.

6. Panel recommendation:

Competitive

The summary was read by the panel, and the panel concurred that the summary accurately reflects the panel discussion.

PANEL RECOMMENDATION:

Proposal Review 1 : 1831539

Agency Name: National Science Foundation

Agency Tracking Number: **1831539**

Organization:

NSF Program: Data Infrastructure

PI/PD: Adolph, Karen

Application Title: RIDIR: Collaborative Research: Transforming behavioral science through video data and documentation

Rating: Very Good

Review

Summary

In the context of the five review elements, please evaluate the strengths and weaknesses of the proposal with respect to intellectual merit.

The intellectual merit of this proposal is strong. Video data provides promising avenues for researchers to explore behavior, both in the lab and in the real world. Unfortunately, video data is time consuming to collect and to code, and there exists little incentive to engage in post-publication curating of video archiving. The proposal describes the development of tools for large scale archiving of video data that provides semantic and intellectual tags, allowing easier access and verification of providence. This has the potential to dramatically enhance access to and utilization of video data for secondary analysis, new discoveries, and replication studies.

One weakness in the proposal is that the distinction between the first objective in the current proposal to create a web based scientific process management system and the objectives of a proposal currently being considered for funding at NIH. They seem to share the same objectives.

In the context of the five review elements, please evaluate the strengths and weaknesses of the proposal with respect to broader impacts.

If successful, the expanded functionality of the Databrary archive will dramatically increase access to video data among multiple social, cognitive, and computational sciences. The investigators have assembled a team of advisors that shows impressive intellectual diversity (although I was surprised that behavioral anthropology, sociology, and social psychology were not represented).

The archive also has the potential to provide access to researchers who lack the resources -- physical, monetary, or time -- to collect and curate their own video files for analysis. In that way, this project will reach underrepresented minorities and first generation students.

Please evaluate the strengths and weaknesses of the proposal with respect to any additional solicitation-specific review criteria, if applicable

One concern regarding the specific solicitation involves the sustainability of the project. If successful, the archiving needs could increase exponentially, inevitably increasing the cost of the endeavor. While the investigators expressed a commitment to "open data," they also referenced the possibility of shifting to a subscription model in the future. That possibility is at odds with the stated goals of the project, and it undermines the benefits of access to

researchers who lack the resources to conduct such investigations.

Summary Statement

This project describes an enhancement to a previously funded project that developed the Databrary (a video data repository) and Datavyue (an analysis tool for video data). The enhancements involve the development of a web-based scientific process management system that will allow data collection protocols to be standardized (called NannyLab), facilitate the self-curation of video archives, enhance the reuse of existing video data for secondary investigations, to enhance annotation of and metadata for existing videos more easily accessed, and to expand user base beyond developmental science.

The project has tremendous potential, and it represents an important advance across the allied social and cognitive sciences.

Concerns center on the distinct goals that differentiate a proposal pending at NIH (involving PLAY data collection) and the first aim of the current proposal and the sustainability of the project, particularly given broadening participation.

Proposal Review 2 : 1831539

Agency Name: National Science Foundation

Agency Tracking Number: **1831539**

Organization:

NSF Program: Data Infrastructure

PI/PD: Adolph, Karen

Application Title: RIDIR: Collaborative Research: Transforming behavioral science through video data and documentation

Rating: Very Good

Review

Summary

In the context of the five review elements, please evaluate the strengths and weaknesses of the proposal with respect to intellectual merit.

This is an outstanding team that has great experience related to this work. As a result of their prior work in this field, they are able to describe potential issues, how they will handle them, and their plans in great detail. It is clear that the proposed work would be beneficial to researchers in this area as well as scientists in other fields, including psychology, linguistics, anthropology, political science, behavioral economics, education and learning sciences, experimental biology, human-computer interaction, machine learning, and computer vision, enabling new collaborations and multidisciplinary research that is presently not feasible due to lack of resources or tools.

In the context of the five review elements, please evaluate the strengths and weaknesses of the proposal with respect to broader impacts.

The broader impact spans many fields, including behavioral, social, biological, educational, learning, data, and computer sciences that may use video data. They explain how the project will link to other existing repositories so that researchers who currently do not use video data may consider adding video data to their other data analysis. Many other broader impacts are described, such as new opportunities for researchers and students from underrepresented groups, improving research transparency and boosting reproducibility, and raising public awareness and interest in the behavioral sciences.

Please evaluate the strengths and weaknesses of the proposal with respect to any additional solicitation-specific review criteria, if applicable

Summary Statement

The project builds on Databrary that was developed by the PIs. They aim to improve the reproducibility, transparency, and scalability of video-based research via LabNanny, a web-based scientific process management (SPM) system; accelerate data sharing by making self-curation of datasets more reliable, robust, and efficient; accelerate reuse of shared research video by making videos, metadata, and associated files easier to find, clone, and

build upon; make behavioral research more interoperable, robust, and reliable through video-enhanced, web-based protocols that describe procedures and coding manuals that specify how to annotate the videos; and expand the user of video as data and documentation beyond the developmental science community. The aims are thoughtfully described in great detail, and the broader impacts are clear. This project will specifically benefit a 65-member research community that will begin a large-scale study of infant natural activity too.

Proposal Review 3 : 1831539

Agency Name: National Science Foundation

Agency Tracking Number: **1831539**

Organization:

NSF Program: Data Infrastructure

PI/PD: Adolph, Karen

Application Title: RIDIR: Collaborative Research: Transforming behavioral science through video data and documentation

Rating: Very Good

Review

Summary

In the context of the five review elements, please evaluate the strengths and weaknesses of the proposal with respect to intellectual merit.

Video as data has received little attention but captures a lot of human behavior (compared to text) however, coding and documenting this is limited. This proposal seeks to overcome this issue and expand the use and reuse of videos to a larger community via a dedicated SPM.

Proposes to develop LabNanny a web-based scientific process management (SPM) system which will allow or automated web based coding with a flexible work flow

In the context of the five review elements, please evaluate the strengths and weaknesses of the proposal with respect to broader impacts.

Already has a large user base and has an advisory board for Databrary which will help steer the project. The SPM could be used by others.

Please evaluate the strengths and weaknesses of the proposal with respect to any additional solicitation-specific review criteria, if applicable

Data Management plan is very detailed and demonstrates the PIs have thought about the project and how only authorized investigators can access the data. The technical plan is detailed and demonstrates the team has a good grasp on what is needed (i.e. a backend and a front end developer). Sustainability of the project and how to ensure it keeps going after the project is well presented.

Summary Statement

Build on existing work (Databrary.org) to develop a web-based open source scientific process management (SPM) system called LabNanny, which will help with the self curation of video datasets and allow for the shared reuse of such videos which has the potential to expand the use of video as data and documentation beyond the developmental science community (i.e. to psychology, linguistics, anthropology, political science, behavioral economics)