Preview of Award 1305190 - Annual Project Report

Cover

Federal Agency and Organization Element to Which Report is Submitted:	4900
Federal Grant or Other Identifying Number Assigned by Agency:	1305190
Project Title:	The Neural Engineering Data Consortium: Building Community Resources to Advance Research
PD/PI Name:	Iyad Obeid, Principal Investigator Joseph Picone, Co-Principal Investigator
Recipient Organization:	Temple University
Project/Grant Period:	08/01/2013 - 12/31/2016
Reporting Period:	08/01/2015 - 07/31/2016
Submitting Official (if other than PD\PI):	N/A
Submission Date:	N/A
Signature of Submitting Official (signature shall be submitted in accordance with agency specific instructions)	N/A

Accomplishments

* What are the major goals of the project?

The major goal of this planning grant is to assess the need within the bioengineering community for an organization devoted to the development of big data resources. Major goals in support of this overarching goal were:

- promote the concept through presentations at major conferences and online surveys
- engage the community to assess needs
- create an advisory board to guide the development of the organization
- develop an organizational plan and estimate of the resources required
- host outreach activities to promote the need and goals of the organization

The original proposal was structured into three phases:

- create an online presence for the organization and promote it within the community
- create an advisory board (Board of Directors) and a preliminary organizational structure
- dissemination of information and collection of feedback

* What was accomplished under these goals (you must provide information for at least one of the 4 categories below)?

Major Activities: Two major accomplishments were realized during this reporting period. The first was that we hosted the 2015 IEEE Signal Processing in Medicine and Biology Symposium at Temple University. One of the main purposes of this event was to promote the goals and vision of the Neural Engineering Data Consortium with respect to the curation and dissemination of biomedical signal and image data. The event had about 60 attendees and over 45 presenters, and will be hosted at Temple by the NEDC again in December 2016.

Our second major accomplishment was the continued development of the NEDC's flagship "Temple University Hospital EEG Database" which now comprises close to 30,000 clinical EEGs and is available freely on the Internet. To date, 90 users have registered to access the data, and that number has been increasing steadily. Despite a significant suite of software tools that we have created, developing and curating the data retains a substantial manual component for quality assurance. Funds from this award have been spent on labor costs to continue growing this unique source of raw signal data and physician reports to the biomedical community.

Specific Objectives:

Significant Results:

Key outcomes or Other achievements:

* What opportunities for training and professional development has the project provided?

As stated earlier, we have hosted the 2015 IEEE Signal Processing in Medicine and Biology Symposium. A number of our students, both graduate and undergraduate, were able to participate in this event, as speakers, presenters, and organizers.

* How have the results been disseminated to communities of interest?

The NEDC published its first peer-reviewed journal article this year summarizing the TUH-EEG database. We have also hosted the aforementioned Symposium.

* What do you plan to do during the next reporting period to accomplish the goals?
Nothing to report.

Products

Books

Book Chapters

Inventions

Journals or Juried Conference Papers
Iyad Obeid, Joseph Picone (2016). The Temple University Hospital EEG Data Corpus. *Frontiers in neuroscience*. . Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Licenses

Other Conference Presentations / Papers

Other Products Name *Databases.*	Most Senior Project Role	Nearest Person Month Worked

Temple University Hospital EEG Corpus

https://www.isip.piconepress.com/projects/tuh_eeg/html/downloads.shtml

Other Publications

Patents

Technologies or Techniques

Thesis/Dissertations

Websites

Participants/Organizations

Research Experience for Undergraduates (REU) funding

Form of REU funding support: REU supplement

How many REU applications were received during this reporting period? 10

How many REU applicants were selected and agreed to participate during this reporting period? 5

REU Comments:

What individuals have worked on the project?

Name	Most Senior Project Role	Nearest Person Month Worked
Obeid, Iyad	PD/PI	0
Picone, Joseph	Co PD/PI	1

Full details of individuals who have worked on the project:

Iyad Obeid
Email: iobeid@temple.edu
Most Senior Project Role: PD/PI
Nearest Person Month Worked: 0

Contribution to the Project: Spent about 0.5 months on the project - contributed to development of the TUH-EEG data corpus and organization of the SPMB Symposium.

Funding Support: n/a

International Collaboration: No
International Travel: No

Joseph Picone
Email: joseph.picone@gmail.com
Most Senior Project Role: Co PD/PI
Nearest Person Month Worked: 1

Contribution to the Project: Oversaw development of TUH-EEG corpus and was main organizer of SPMB Symposium.

Funding Support: n/a

International Collaboration: No
International Travel: No

What other organizations have been involved as partners?
Nothing to report.

What other collaborators or contacts have been involved?
Nothing to report

Impacts

What is the impact on the development of the principal discipline(s) of the project?

We are releasing the world's largest curated database of EEG signals. We expect that this database will enable significant new discovery in biomedical machine learning because it will finally make it possible to apply the strongest and most data-consumptive machine learning algorithms to neural engineering problems.

What is the impact on other disciplines?

We are optimistic that the Neural Engineering Data Consortium will successfully raise awareness in other groups about the necessity of creating research corpora from "found" clincial biomedical signal and image data. Through our efforts, the NEDC is part of an ongoing conversation in the research community about changing how biomedical data is mined in order to address various problems of clinical relevance.

What is the impact on the development of human resources?
Nothing to report.

What is the impact on physical resources that form infrastructure?
Nothing to report.

What is the impact on institutional resources that form infrastructure?
Nothing to report.

What is the impact on information resources that form infrastructure?
Nothing to report.

What is the impact on technology transfer?
Nothing to report.

What is the impact on society beyond science and technology?
Nothing to report.

Changes/Problems

Changes in approach and reason for change
Nothing to report.

Actual or Anticipated problems or delays and actions or plans to resolve them
Nothing to report.

Changes that have a significant impact on expenditures
Nothing to report.

Significant changes in use or care of human subjects
Nothing to report.

Significant changes in use or care of vertebrate animals
Nothing to report.

Significant changes in use or care of biohazards
Nothing to report.