The first step in creating an online presence for NEDC was to create a web site from which information could be disseminated. The NEDC web site is located at [NEDC](http://www.nedcdata.org) and has been operational since the beginning of the project. It was implemented using Drupal which is one of the more popular content management systems in use today. It uses the CorporateClean theme and is structured so that featured events appear in the slideshow at the top of the page. Menus along the top provide access to major categories such as “About Us” and a description of the advisory board. Under the Data tab users can find information about data available for download. We also created a Facebook page (Neural Engineering Data Consortium) and Twitter account (nedcdata). Over the last four months we are averaging about 200 unique visitors a month to the NEDC site and 500 pages viewed. We expect this to increase with the release of the TUH EEG Corpus.

The second step in creating an online presence was to begin conducting a market survey. We created a simple short survey on [SurveyMonkey](http://www.surveymonkey.com/s/DZPJTF3) that collects feedback on the types of resources needed and willingness to join a consortium. The survey consists of three required questions and five optional questions. Though many people have promised to take the survey, we have only three responses thus far. We need to increase participation and will be focusing on that in the coming months as we organize a constituents meeting.

A third significant step was taken by organizing a symposium at the first [IEEE GlobalSIP Conference](http://www.ieeeglobalsip.org/2013/) held in Austin, Texas in December 2013. Our symposium was titled [Advancing Neural Engineering Through Big Data](http://www.ieeeglobalsip.org/2013/anebd.html). The symposium consisted of four keynote talks followed by an afternoon poster session. The keynote talks were designed to sample the continuum of potential constituents for data resources. Iyad Obeid began the session with a description of the context and promoting the need for an organization like NEDC. Chris Cieri, Executive Director of the Linguistic Data Consortium (LDC), followed with an overview of their 20-year history. Jack Judy, a former DARPA Program Manager in the bioengineering area, provided a government perspective on the state of research and how data needs to drive this research. Karen Moxon, Associate Director for Research at Drexel University, provided a perspective on how challenging it can be to collect neural engineering data. Over 300 researchers attended the conference, while about 30 of these attended our plenary session. Thirteen papers were presented at the afternoon poster session, which provided an opportunity for the PIs to promote NEDC and its resources. There was considerable interest in the TUH EEG Corpus.

We also began organizing the 2014 IEEE Signal Processing in Medicine and Biology Symposium at Temple University (www.ieeespmb.org/2014). This symposium will have a big data focus and will include a panel session to discuss data and resource needs. We plan to host this symposium at Temple for the next few years since it will provide an excellent forum to promote NEDC. This is a small, focused symposium that should have an attendance of about 100 professionals and include about 40 technical papers and posters. There will be two keynote talks, two lecture sessions and two poster sessions in addition to the panel. We presented a paper on NEDC and the TUH EEG Corpus at the 2013 meeting.

In addition to these activities, we have reached out to several specific organizations to discuss the role NEDC can play in their research. We have created an active collaboration with the Dermatology Department at Temple University’s School of Medicine in the area of characterization of itch. We hope that we can eventually provide reference data for this emerging area of science and are discussing ways an organization like NEDC could facilitate data collection. We have met with University of Pennsylvania and Jefferson Memorial Hospital to discuss similar collaborations. Jefferson is very prominent in the head trauma area and is expanding its neuroscience focus. They provide an excellent opportunity to develop data resources focusing on the study of head trauma in athletics.

The second major task for this project was to create an advisory board and a preliminary organizational structure. Our initial advisory board, referred to as the NEDC Board of Directors, can be found at [www.nedcdata.org/drupal/node/11](http://www.nedcdata.org/drupal/node/11). We carefully selected these members to cover four major constituencies. Dr. Michele Masucci, our Interim VP of Research, represents Temple University and has been highly supportive of this activity. Dr. Chris Cieri represents LDC with whom we have a close working relationship. Building on LDC’s best practices is an important part of our plan to mitigate risk. Dr. Emily Caporello represents the government from a sponsorship point of view through her position at DARPA. Dr. Gene Civillico represents government research labs through his affiliation with the FDA. The FDA is a significant piece of the puzzle in bioengineering because they not only influence research directions but also influence how technology is evaluated and certified. They can be a major constituent for NEDC. Finally, Maciej Lazarewicz, MD, PhD, represents industry through his position at Medtronic and his long-term commitment to big data activities. Industrial participation was key to LDC getting off the ground.

We held our initial Board of Directors meeting at Temple on May 1. Some materials from the meeting, including an audio recording of the public portion of the meeting, are available [here](http://www.isip.piconepress.com/publications/conference_presentations/2014/nedc_bod). The agenda included: (1) Board member introductions, (2) and overview of LDC’s operations to ensure everyone was familiar with the scope of the proposed activity, (3) an overview of NEDC as it currently exists, (4) a discussion of the TUH EEG Corpus as a case study in how corpora are developed and disseminated, (5) a discussion of the technical challenges that NEDC can address through its resources (where are the most significant perceived opportunities), and (6) how we can engage the community. The meeting was structured as a half-day meeting including lunch so that people could attend the meeting in a single day trip. One participant due to illness participated remotely via a WebEx session.

The Board was enthusiastic about the creation of this entity but asked many hard questions about plans for funding and sustainability. Chris Cieri’s overview of LDC involved an extended discussion of the broad range of activities one faces when releasing data because this was first time most of the Board had witnesses such a detailed brief of all the issues one faces today in developing and releasing data. The appropriateness of the LDC model for bioengineering was discussed at length, and it was acknowledged that the bioengineering community might not have the same focused technology drivers that exist in human language technology. An interesting thread was the discussion of distribution methodologies since bioengineering datasets can be very large. A definite preference was expressed for a Dropbox like mechanism for distribution, so that sites could be easily updated. Overall the Board was very satisfied with the first meeting. We plan to schedule a second meeting around May 1, 2015.

Finally, as part of our outreach effort, we developed a half-day laboratory that introduces high school students to big data concepts. The lab began with teaching students how to record EEG data through an Emotiv EPOC headset. Students were then introduced to Python programming. Students were then shown how to modify a simple pattern recognition program in Python and to add their own algorithm. Twenty-one students participated and about half of them were able to complete the lab in a three-hour timeframe. We plan to repeat this lab at some of the local high schools over the second year of this project. The lab materials are available at [WE2](http://www.isip.piconepress.com/projects/we2).

**Maciej Lazarewicz**