

DecMeg2014 - Decoding the Human Brain

2 months to go

Monday, April 21, 2014

\$5,000 • 104 teams

Sunday, July 27, 2014

Dashboard

Home

Data

Make a submission

Information

Description

Evaluation

Rules

Prizes

Timeline

Forum

Leaderboard

My Team

My Submissions

Leaderboard

1. Alexandre
2. the_moliver
3. Raul Rios
4. Luis Garcia Dominguez
5. fchollet
6. gregl
7. nagadomi
8. Alfredo Kalaitzis
9. Johan Paratte
10. Thomas McColgan

Forum (27 topics)

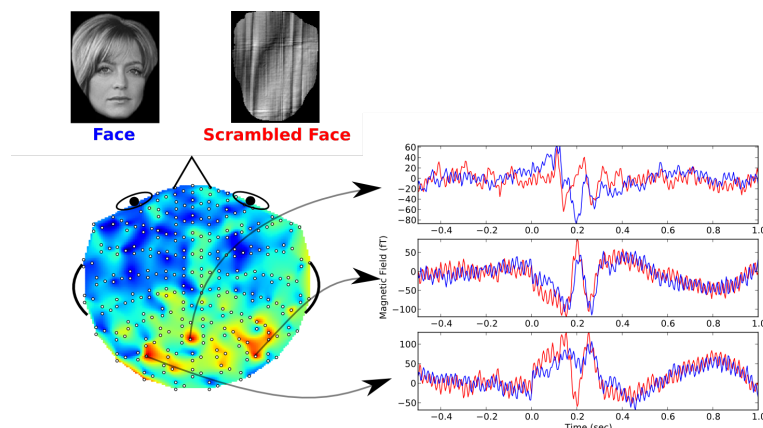
Clarification to rule on No External Datasets
13 hours agoPublication restrictions
yesterdayTeam
yesterdayUsing shared code
yesterdaySegmenting the signal and gaining features
yesterdayClarification please: Public and Private split on the leaderboard
2 days ago

Competition Details » [Get the Data](#) » [Make a submission](#)

Predict visual stimuli from MEG recordings of human brain activity

Understanding how the human brain works is a primary goal in neuroscience research. *Non-invasive* functional neuroimaging techniques, such as [magnetoencephalography \(MEG\)](#), are able to capture the brain activity as multiple timeseries. When a subject is presented a stimulus and the concurrent brain activity is recorded, the relation between the pattern of recorded signal and the category of the stimulus may provide insights on the underlying mental process. Among the approaches to analyse the relation between brain activity and stimuli, the one based on predicting the stimulus from the concurrent brain recording is called brain **decoding**.

The goal of this competition is to predict the category of a visual stimulus presented to a subject from the concurrent brain activity. The brain activity is captured with an MEG device which records 306 timeseries at 1KHz of the magnetic field associated with the brain currents. The categories of the visual stimulus for this competition are two: **face** and **scrambled face**. A stimulus and the concurrent MEG recording is called *trial* and thousands of randomized trials were recorded from multiple subjects. The trials of some of the subjects, i.e. the train set, are provided to create prediction models. The remaining trials, i.e. the test set, belong to different subjects and they will be used to score the prediction models. Because of the variability across subjects in brain anatomy and in the patterns of brain activity, a certain degree of difference is expected between the data of different subjects and thus between the train set and the test set.



Full details of the neuroscientific experiment in which the data were collected are available at: <http://www.frontiersin.org/Journal/10.3389/fnhum.2011.00076/abstract>. A brief survey of the scientific literature on the problem of decoding across subjects,

[teams](#)[players](#)[entries](#)

together with a preliminary solution in terms of transfer learning, is available at: <http://arxiv.org/abs/1404.4175>.

Conference

This competition is associated with the the 19th International Conference on Biomagnetism, [Biomag 2014](#). The Biomag conference will be held in Halifax, Canada, August 24-28, 2014.

Organization

This competition is organized by Emanuele Olivetti, Mostafa Kia and Paolo Avesani ([NeuroInformatics Lab](#), Fondazione Bruno Kessler and Università di Trento, IT).

Acknowledgements

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Started: **5:21 am, Monday 21 April 2014 UTC**
Ends: **11:59 pm, Sunday 27 July 2014 UTC (97 total days)**

