

Kaneshiro_etAl_objectCategoryEEG_README.pdf

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Citation for the dataset:

Blair Kaneshiro, Marcos Perreau Guimaraes, Hyung-Suk Kim, Anthony M. Norcia, and Patrick Suppes (2015). EEG data analyzed in "A Representational Similarity Analysis of the Dynamics of Object Processing Using Single-Trial EEG Classification". Stanford Digital Repository.

Available at: <http://purl.stanford.edu/bq914sc3730>

If using the data, please also cite the following paper:

Blair Kaneshiro, Marcos Perreau Guimaraes, Hyung-Suk Kim, Anthony M. Norcia, and Patrick Suppes (2015). A Representational Similarity Analysis of the Dynamics of Object Processing Using Single-Trial EEG Classification. PLoS ONE 10:8, e0135697.

This data package contains 10 anonymized datasets of scalp-recorded EEG in MATLAB (.mat) format. Each .mat file contains EEG data from one experimental participant.

Kaneshiro_etAl_objectCategoryEEG.pdf (this file)

Informational document describing the dataset

S1.mat - S10.mat

These 10 .mat files contain the EEG and stimulus labels for individual participants. Each file combines the six EEG recordings that were taken across two experimental sessions for each participant. Data matrices have been cleaned and preprocessed as described in Kaneshiro et al. (2015). Each data file is around 316MB in size, for a total size of around 3.16GB.

Variables contained in each .mat file

- **sub**: Experimental participant identifier (e.g., 'S1', 'S2')
- **N**: Number of time samples per trial (always 32)
- **Fs**: Sampling frequency of the data (always 62.5Hz)
- **T**: Number of experimental trials (around 5,184 per dataset)
- **exemplarLabels**: A vector of length T containing the exemplar label of each trial.
- **categoryLabels**: A vector of length T containing the category label of each trial. (1=Human Body; 2=Human Face; 3=Animal Body; 4=Animal Face; 5=Fruit Vegetable; 6=Inanimate Object)
- **X_2D**: The 2D EEG data matrix. Size of X_2D is T rows by 124*N columns. Each row of X represents one experimental trial. These are the matrices that were input to the classifier in the Kaneshiro et al. (2015) PLoS paper. Trial labels are corresponding elements in the exemplarLabels and categoryLabels vectors. Columns of X_2D contain

N time samples of EEG, concatenated from 124 electrodes (i.e., N time samples from electrode 1 followed by N time samples from electrode 2, etc.). Electrode numbers correspond to channels 1-124 of EGI's HydroCel Geodesic Sensor Net, 128 channels (ftp://ftp.egi.com/pub/support/Documents/net_layouts/hcgsn_128.pdf).

- **X_3D**: The 3D EEG data matrix. X_3D is a 3-dimensional electrodes-by-time-by-trial matrix of size 124-by-32-by-T. Each slice of X_3D along the trial dimension represents one experimental trial. Trial labels are corresponding elements in the exemplarLabels and categoryLabels vectors. This form of the EEG data allows for easier subsetting by time and space. Electrode numbers correspond to channels 1-124 of EGI's HydroCel Geodesic Sensor Net, 128 channels (ftp://ftp.egi.com/pub/support/Documents/net_layouts/hcgsn_128.pdf).