

## What is changing when: Decoding visual information in movies from human intracranial recordings

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neurophysiology\_data\_exp1 – Contains physiology data from experiment 1

- Folder for each subject
- Sub-folder for each recording session. Data from different recording sessions were merged in the paper. IFP recordings have been shown to be stable across recording sessions (Bansal et al., 2012).
- Within each session folder, there are 4 files:
  - movie\_trials\_bb.mat – broadband voltage signals [ $\mu\text{V}$ ] (filtered from 0.1-100 Hz)
  - movie\_trials\_hg.mat – high gamma frequency band signals (70-120 Hz)
  - movie\_trials\_lg.mat – low gamma frequency band signals (30-70 Hz)
  - movie\_trials\_alpha.mat – alpha frequency band signals (8-15 Hz)
- Each file contains 3 data variables: 1 for responses to each movie (mov1\_filt\_bb, mov2\_filt\_bb, mov3\_filt\_bb)
  - cell array – length # trials per session
  - Each cell is #channels x time points data matrix. Each point in the matrix represents the voltage in microVolts (in the case of the broadband signals) or normalized power (in the case of the high gamma, low gamma, alpha signals) at each time point.
- Each file also contains variable sr, denoting sample rate in Hz.
- scripts/plot\_fig2.m – will format the data in a matrix and generate the plots in Figure 2

movie\_data\_exp1 – contains the 12s clip movies from experiment 1

- mov1.mat, mov2.mat, mov3.mat – frame data for the three 12-s clip movies
- movie\_event\_times.mat – contains cell arrays for the movie cut times in each clip.

eyetracking\_data\_exp1 –post-hoc eye tracking data for 7 subjects (a1-a7):

- Each subjects' file contains the following variables:
  - frames
  - eye\_targets, x (row 1) and y (row 2) positions of each eye in screen coordinates.
  - Saccades – vector of time length indicating whether there was a saccade (1) or not (0) at each time
  - Blinks – vector of time length indicating whether there was a blink (1) or not (0) at each time
  - screen\_coords – screen size
  - t\_transitions\_on – movie onset times
  - t\_transitions\_off – movie offset times
  - clips\_list – list of the five 12s movie clip names that were shown, Note: mov1a.mat, mov2a.mat, and mov4a.mat correspond to movies 1,2, and 3 in our physiology experiment
  - pseudoorder – order in which the movie clips were presented

- scripts/plot\_figs1.m loads the data for all subjects and generates the plots in Figure S1

neurophysiology\_data\_exp2 – contains physiology data from experiment 2

- For each subj and freq band there is a file
- <subjID>\_movie\_rasters\_<freq> folder contains the data for each subject/frequency band
- Within this folder there is one file per recording channel, containing the following variables:
  - raster\_data – cuts x time points data file (time points span -500:2000 ms relative to cut onset, so there are 1250 time points for two subjects with sr of 500 Hz, and 5000 for subjects with sr of 2kHz).
  - raster\_labels – contains field 'faces' with 1/0/-1 indicating whether there was a single face on the screen, no faces on the screen, or other
  - raster\_site\_info – channel #
  - raster\_data\_rand – cuts x time points movie data, aligned to random inter-cut periods
- scripts/plot\_fig6.m – will format the data and generate the plots in Figure 6
- For more details on the raster\_data format and for decoding code, visit [readout.info](http://readout.info)

electrode\_locations – contains files with anatomical locations for each subjects

- <subjID>\_parcellation.mat – contains anatomical parcel information based on freesurfer automatic parcellation for each subject. The file contains the following variables:
  - channels – ordered channel number for each electrode
  - hemisphere – a number indicating whether each electrode is in the right (1) or left (2) hemisphere
  - regions – region name for the freesurfer parcel each electrode is in
  - region\_codes – numeric code for the freesurfer parcel each electrode is in
  - volume\_ind – 3D volume information in subjects native space for electrode location