

HOW TO RUN CANLAB 2ND LEVEL ANALYSIS TEMPLATE SCRIPTS

walkthrough by Marianne Reddan, 2017
code & videos by tor, 2017

This document (editable version, may be updated) :

https://docs.google.com/document/d/1bGpiXUyxxzu6aG0zAU4x8ELNy3bdUMogW_TiuoDaH0s/edit?ts=591b73b7#

Videos (see below):

On Youtube and CANlab slack

Example HTML output from these scripts:

https://www.dropbox.com/s/rt8xzf6yq4h0h6e/Example_CANlab_second_level_html_output.zip?dl=0

What you will need to run:

CANlab core tools, SPM (e.g., SPM12), CANlab second-level analysis scripts

For “signature”-based analysis: CANlab signatures (e.g., NPS); some private

If you are sharing data with CANlab, here is a post with details:

<https://slack-files.com/T09S4HMUL-F1866CCER-6f7a17803b>

If you are applying the NPS and other “signatures” here are two posts about how to do it, and some notes about image scaling across studies:

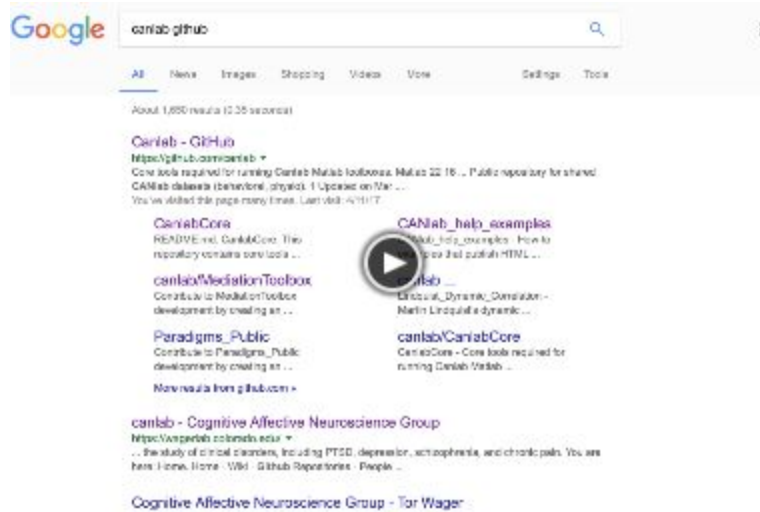
<https://slack-files.com/T09S4HMUL-F17M8PFS7-09e72ec85b>

<https://slack-files.com/T09S4HMUL-F1J0TF0H5-2885e964cc>

1. INSTALL THE CANlab_help_examples FOLDER FROM GITHUB

Found here <https://github.com/canlab>

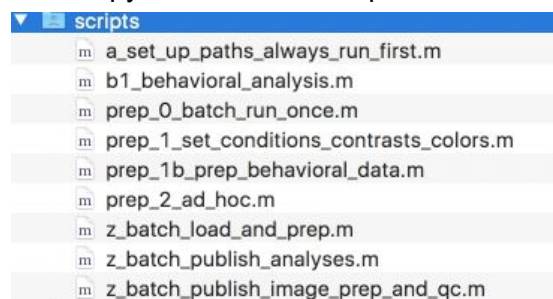
This video provides further instruction.



2. SET UP YOUR DATA ANALYSIS FOLDER

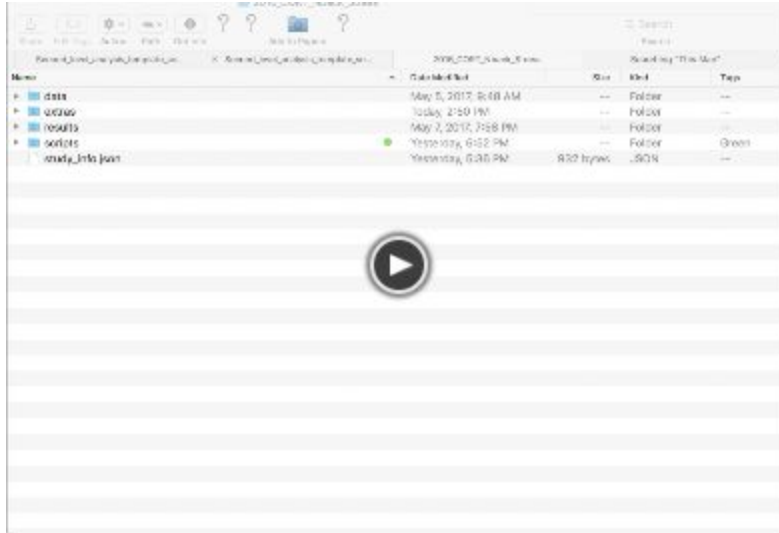
In your **Analysis** folder set up these subfolders:

- data
- extras
- results
- scripts
 - Here copy in a series of scripts from CANLab_help_examples



Copy over to your **Analysis** folder 'study_info.json'

This video provides further instruction.

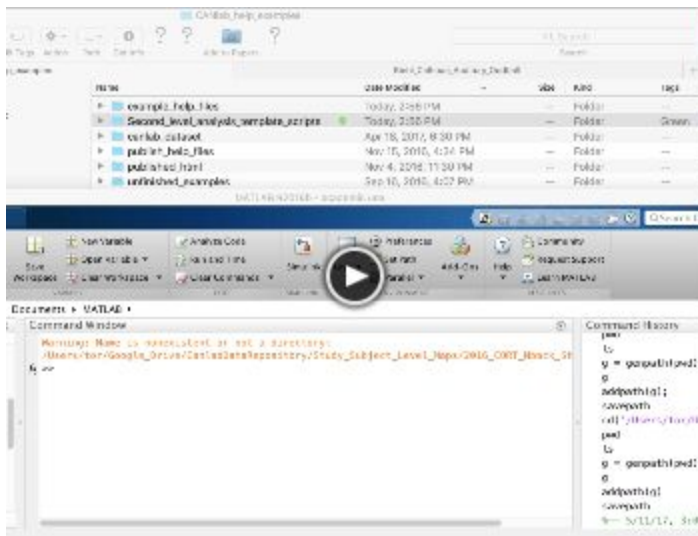


3. ADD ALL THE FOLDERS TO PATH

In MATLAB

- `genpath(addpath('/CANLab_help_examples/'))`
- `genpath(addpath('/YOUR_ANALYSIS_FOLDER/'))`

This video provides further instruction.



4. MODIFY THE TEMPLATE SCRIPTS

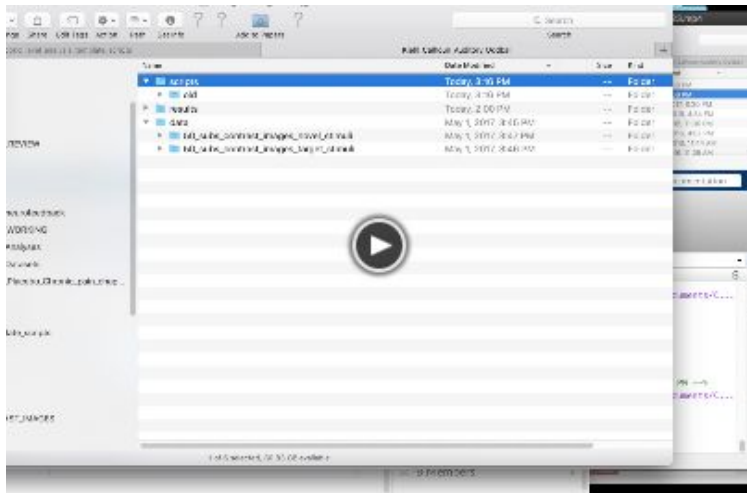
1. In a text editor, edit the **study_info.json** file to fit your data
For example:

```

1 {
2   "Primary_publication":
3   "Fill in this JSON-format file and call it study_info.json, in your main
4   study folder. This field would contain the primary publication associated
5   with the study, if any, or null if none.",
6
7   "Associated_publications":
8   "Other publications here. e.g.,
9   Reddan MC, Wager TD, Schiller D. Imagined Extinction Reduces Learned Threat in Brain and Body. (submitted)",
10
11  "Notes":
12  "This dataset was shared by Daniela Schiller for Marianne Reddan to analyze the effects of imagined extinction",
13
14  "Publication_URLs": null,
15
16  "Publication_DOIs": null,
17
18  "Paradigm_files_links": null,
19
20  "Data_files_links": null,
21
22  "IRB_number": null,
23
24  "Scanner_site": "New York University",
25
26  "Field_strength": "3.0T",
27
28  "Citing_this_work":
29  "If you use this dataset in a publication,
30  please include as authors or acknowledge individuals as specified below.
31  Please also see information on publications and grants to cite.",
32
33  "Authors_to_include_on_reuse": null,
34
35  "Authors_to_acknowledge_on_reuse": "Tor Wager, Daniela Schiller, Marianne Reddan",
36
37  "Grant_numbers_to_cite": null
38
39 }
40

```

This video provides further instruction.



2. Next, in MATLAB open **a_set_up_paths_always_run_first.m** and change:
 - a. `basedir` to the filepath of your analysis folder
3. Next, open up **prep_1_set_conditions_contrasts_colors.m** and change the paths and wildcards referring to the contrast images in your data folder:
 - a. Update the *conditions* to reflect how *your* data are set up
 - i. `DAT.subfolders`
 - ii. `DAT.conditions`
 - iii. `DAT.structural_wildcard`

```
% /Users/maus/Desktop/2017_AuditoryThreatConditioning/data/subj_contrasts/IE101NC/con_0001.hdr
fprintf('Image data should be in /data folder\n');

DAT = struct();

% Names of subfolders in /data
DAT.subfolders = {'subj_contrasts'};

% Names of conditions
DAT.conditions = {'CSp' 'CSm'};

DAT.conditions = format_strings_for_legend(DAT.conditions);

DAT.structural_wildcard = {};
DAT.functional_wildcard = {'IE*/con_0001.img' 'IE*/con_0002.img'};
```

- b. Update the *contrasts* to reflect what contrasts you are interested in
 - i. DAT.contrasts
 - ii. DAT.contrastnames

```
% Set Contrasts
% -----

% Vectors across conditions
DAT.contrasts = [1 -1];

DAT.contrastnames = {'CSp_vs_CSm'};

DAT.contrastnames = format_strings_for_legend(DAT.contrastnames);
```

- c. Update the *colors* or leave to default
- d. Update *between-condition contrasts* if you have more than one subject group. If you only one group - leave it empty.

```
% Set BETWEEN-CONDITION contrasts, names, and colors
% -----
% Currently used in c2c_SVM_between_condition_contrasts
%
% Matrix of [n contrasts x k conditions]

DAT.between_condition_cons = [];

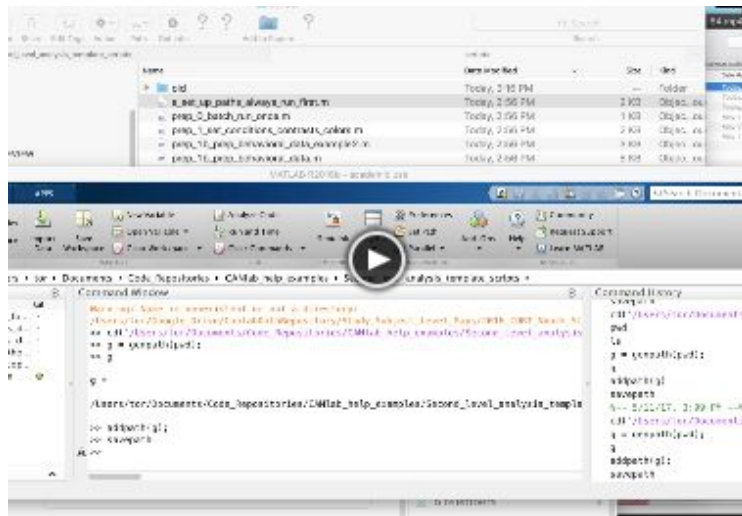
DAT.between_condition_contrastnames = {};

DAT.between_condition_contrastcolors = custom_colors ([.2 .2 .8], [.2 .8 .2], si
```

4. Save & run your **a_set_up_paths_always_run_first.m** and **prep_1_set_conditions_contrasts_colors.m** in MATLAB
5. Run prep_2, 3, and 4
6. It will be saved here in **data_objects.mat**

Name	Date Modified
▼ scripts	Today, 3:18 PM
m prep_1_set_conditions_contrasts_colors.m	Today, 3:22 PM
m a_set_up_paths_always_run_first.m	Today, 3:19 PM
▶ old	Today, 3:16 PM
m prep_0_batch_run_once.m	Today, 2:56 PM
m prep_1b_prep_behavioral_data_example2.m	Today, 2:56 PM
m prep_1b_prep_behavioral_data.m	Today, 2:56 PM
m z_batch_load_and_prep.m	Today, 2:56 PM
m z_batch_publish_analyses.m	Today, 2:56 PM
m z_batch_publish_image_prep_and_qc.m	Today, 2:56 PM
study_info.json	Today, 2:56 PM
▼ results	Today, 2:00 PM
▶ figures	May 1, 2017, 3:47 PM
data_objects.mat	May 21, 2016, 2:11 PM
image_names_and_setup.mat	May 21, 2016, 2:11 PM
▼ data	May 1, 2017, 3:45 PM
▶ 50_subs_contrast_images_novel_stimuli	May 1, 2017, 3:47 PM
▶ 50_subs_contrast_images_target_stimuli	May 1, 2017, 3:46 PM

This video provides further instruction on steps 4.2 to 4.6.



4. RUN THE BATCH AND PUBLISH

1. There are multiple options for what to run. Try `z_batch_publish_analyses.m`

And you are set. If you have issues with your file structure check out the [youtube channel](#) to learn more ways to use the wildcards.