Dear all,

since many partners are going to produce stimuli for the retina, I would like to summarize how to prepare them with this quick guide.

before starting just some definitions to have a common language:

- An image (or frame) can be either a stimulus or a background presentation to be shown to the retina

- A stimulation sequence is a set of images to be displayed at a certain temporal frequency for a certain number of repetitions

(e.g. horizontal bars moving from right to left)

- A stimulation protocol is a set of stimulation sequences

(e.g. a list of 8 sequences where each sequence is a bars moving in one of the 8 main directions)

An experimental sessions consists in presenting one or more stimulation protocols to the retina,

and a stimulation protocol consists in a series of sequences where for each sequence you can set for how long has to presented

and a temporal pause before starting the following one.

A stimulation sequence (what you have to prepare) has to be a folder containing all the frames to be presented and a info.txt file.

Each image has to be png (preferred choice) or bmp file at 664x664 pixel resolution (grayscale or colored).

Images can have any filename but it is important that they are sequentially numbered since this sequence will be the order list used by the software.

some examples (not exhaustive…)

myFile01, myFile02, …. myFile10, myFile11 etc….

or

001something, 002something …. 099something, 100something etc…

About the info text file, here you are the structure:

# stimulation modality: 1 = SequenceOfFrames || 2 = ListOfFrames || 3 = Video

1

# number of images of the stimulation sequence

12

# time interval [msec] of image displaying

500

# (optional only in case 2) sequence length

5

# (optional only in case 2) sequence list (0-based index)

1

3

5

0

3

You have to fill only fields in “yellow”, while rows starting with “#” are just comments you don’t have to modify or eliminate them.

Here you are a description of each parameter:

- # stimulation modality: 1 = SequenceOfFrames || 2 = ListOfFrames || 3 = Video

there are two modalities of presenting stimuli (Video is still not available)

SequenceOfFrames -> stimuli will be presented in the order as the file name list

ListOfFrames -> stimuli will be presented in a order defined in the last two options, by this way a frame can be repeated one or more time

- # number of images of the stimulation sequence

the number of the images in the folder

- # time interval [msec] of image displaying

the time interval (in msec) a frame will be displayed

Then if you have selected the option ListOfFrames you have still to fill the following parameters:

- # (optional only in case 2) sequence length

the number of images to be displayed for a single sequence

- # (optional only in case 2) sequence list (0-based index)

the sequence of the index of the images to be displayed

Example 1:

a moving bar composed by a sequence of 10 images to be displayed at 30Hz

in the folder file names can be:

NAME Index when loaded by the software

moving\_bar\_01, 0

moving\_bar\_02, 1

moving\_bar\_03, 2

moving\_bar\_04, 3

moving\_bar\_05, 4

moving\_bar\_06, 5

moving\_bar\_07, 6

moving\_bar\_08, 7

moving\_bar\_09, 8

moving\_bar\_10 9

the info file:

# stimulation modality: 1 = SequenceOfFrames || 2 = ListOfFrames || 3 = Video

1

# number of images of the stimulation sequence

10

# time interval [msec] of image displaying

32

# (optional only in case 2) sequence length

0

# (optional only in case 2) sequence list (0-based index)

0

This stimulus sequence will be presented for a period of time that will be set directly on the software GUI.

Example 2:

a set of 5 different gratings that have to be presented for 500msec followed by a background image lasting 1 sec

in the folder file names can be:

NAME Index when loaded by the software

01\_background, 0

02\_gratings1, 1

03\_gratings2, 2

04\_gratings3, 3

05\_gratings4, 4

06\_gratings5, 5

the info file:

# stimulation modality: 1 = SequenceOfFrames || 2 = ListOfFrames || 3 = Video

2

# number of images of the stimulation sequence

6

# time interval [msec] of image displaying

500

# (optional only in case 2) sequence length

15

# (optional only in case 2) sequence list (0-based index)

1

0

0

2

0

0

3

0

0

4

0

0

5

0

0

This stimulus sequence will be presented for a period of time that will be set directly on the software GUI.

Since video modality is still not available the software can handle about 3000-4000 images at a time on the pc in Newcastle,

so if you want to provide longer stimulation (e.g. white noise) you will have to prepare a set of folders of about 3000 images each that will be loaded sequentially in a protocol. By this way you can present how many images you want with the limitation that every time a folder has to be loaded there will be few seconds of background presentation.

If you have any questions or doubts please send me an email or keep in contact via skype, don’t hesitate to contact me.

In the attachment you will find two sequence examples for the available stimulation modality and you can also find the stimulator software version if you want to try how the stimuli should look like.

I didn’t have time to prepare a short guide, so if you want to use it we can just have a 5 minutes skype call to explain how it works.

Ready for the joint measuring session?

see you soon and have a fantastic Xmas….

Ale