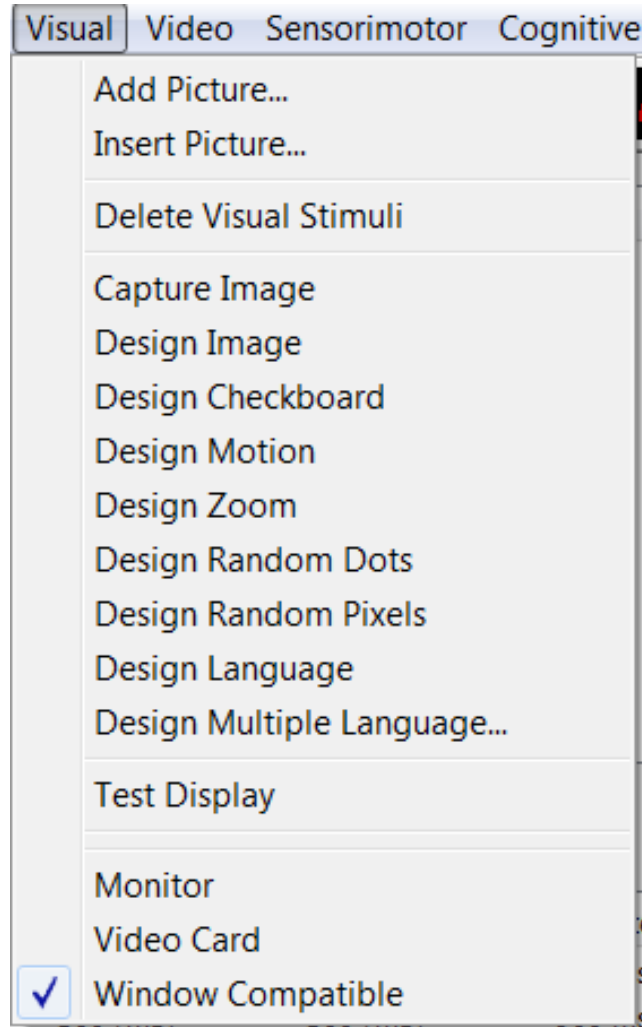


# BrainX

## Menu Visual



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Thank you.

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### ***Warnings and Cautions***

This software can be used to design paradigms for magnetoencephalography (MEG), electroencephalography (EEG) and functional resonance imaging (fMRI).

The following warnings and cautions appear in this guide. Please ensure you are aware of all the operations and interpretations.

### **General Information**

The Visual menu includes all the functions for designing visual stimulation, such as check board, picture, spoken language and background sound or noise.

### **Add Picture**

It adds a visual file (picture/image) to the end of the stimulus list.

### **Insert Picture**

It inserts a visual file (picture/image) to the selected position of the stimulus list.

### **Delete Visual Stimuli**

It deletes all the visual stimuli in the stimulus list or Design Panel.

### **Capture Image**

It captures a selected area (or picture/image) on the computer screen and then adds the captured image directly to the stimulus list.

### **Design Image**

It shows the dialog for designing image stimulus and adds the designed stimulus into the stimulus list.

### Design Checkboard

It shows the dialog for designing checkboard (or pattern) stimulus and adds the designed stimulus into the stimulus list.

### Design Motion

It shows the dialog for designing motion (or moving object) stimulus and adds the designed stimulus into the stimulus list.

### Design Zoom

It shows the dialog for designing zoom (or sizing object) stimulus and adds the designed stimulus into the stimulus list.

### Design Random Dots

It shows the dialog for designing random dot stimulus and adds the designed stimulus into the stimulus list.

### Design Random Pixel

It shows the dialog for designing random pixel stimulus and adds the designed stimulus into the stimulus list.

### Design Language

It shows the dialog for designing language stimulus and adds the designed stimulus into the stimulus list.

### Design Multiple Language

It shows the dialog for designing multiple language stimuli and adds the designed stimuli into the stimulus list. It can handle multiple words/sentences and assign them to multiple stimuli.

### Test Display

It tests the properties of the video card in the computer and the present system in the MEG/EEG/fMRI suite. Please note that, the display is not necessary to be a screen. It may include several items.

### Monitor

It checks and displays the properties of the monitor.

### Video Card

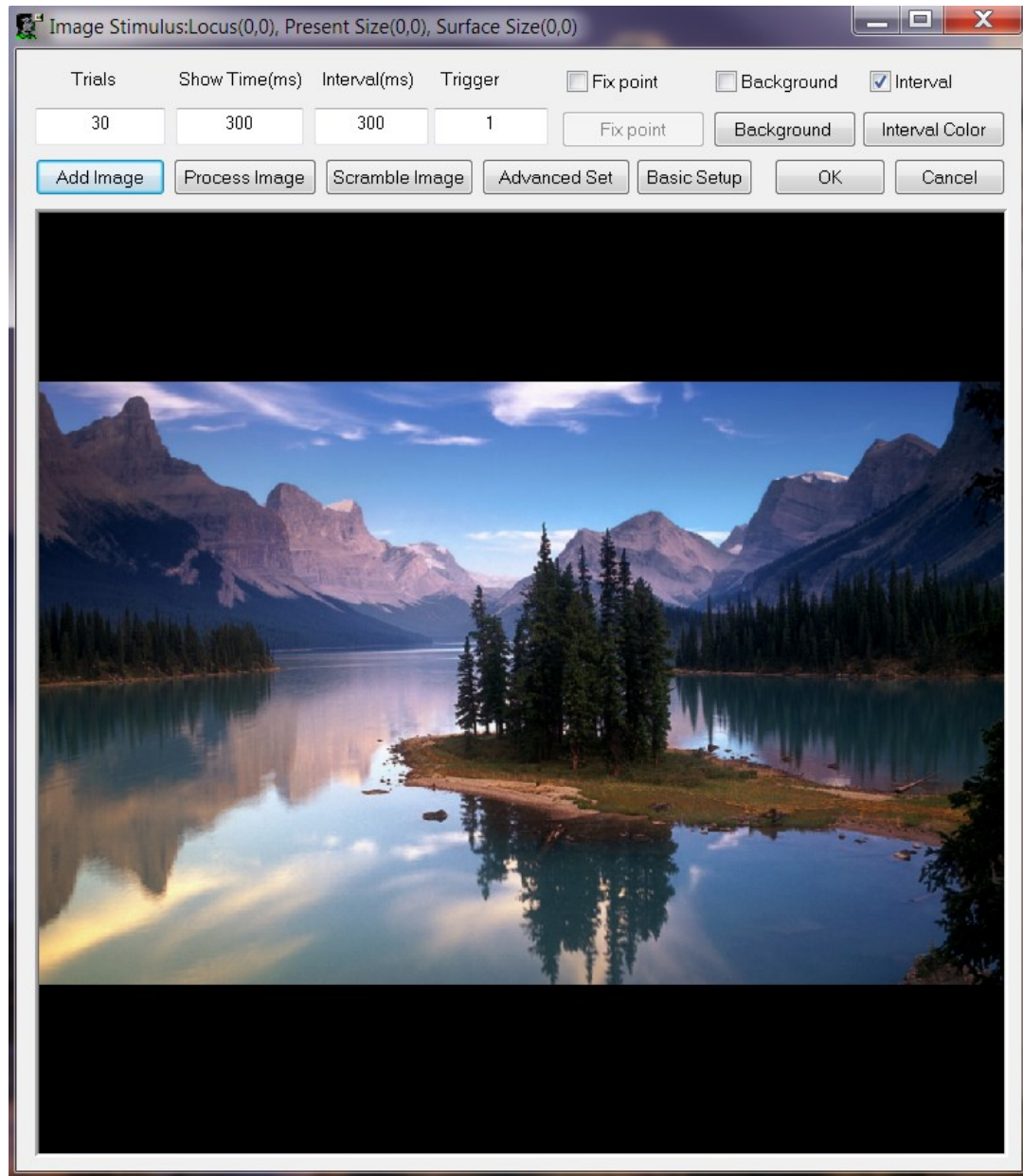
It checks and displays the properties of the video card.

### Window Compatible

It enables users to stop (press “Esc” key) and start the paradigm easily. This function is necessary because BrainX is designed to control the video card, audio care, serial ports and parallel ports for better synchronization presentation and triggering. Consequently, it can be easily “locked” to ignore other input and users’ response. The selection of Window Compatible will make the running paradigm more responsible to user responses.

## How to design image stimulus

The dialog of the Visual Stimulus – Image is designed for setup a visual stimulus with an image. User needs to add an image to be a stimulus.



### ***Process Image***

It provides a few functions for image processing.

### ***Scramble Image***

It scrambles a loaded image. It is commonly used as a control for a same image.

#### **Fix Point**

It provides a way to setup a fix point. It is optional.

#### **Interval Color**

If there is an interval between two images (two stimuli), the interval can present a background color. This is optional.

## **How to design check-board stimulus**

The dialog of the Visual Stimulus – Check-Board is designed for setup a visual stimulus with an check-board.

**Block Board Settings**

**Block parameters**

	Width	Height
Board size	600	600
Block size	60	60

☐ Full screen
 ☐ Full block
 ☐ Show circle
 ☐ Side equal

**Stimulation Settings**

Name	Pattern Reversal
Present time(ms)	300
Interval (ms)	0
Trial	30
Trigger	1

**Stimulation Field**

☒ Full Field  
☐ Right half field  
☐ Left half field  
☐ Right up field  
☐ Right down field  
☐ Left up field  
☐ Left down field

**Fix point**

Setup fixing point

**Colors**

Background Foreground

Basic Setup OK Cancel



The dialog of the Visual Stimulus – Check Board is designed for setup a check board pattern.

### ***Board Size***

It indicates that the size of the entire board. This board includes many small squares or blocks or checkers.

### ***Block Size***

It shows the width and height of the size of the small blocks (square).

### ***Full Screen***

It will take the entire screen as the check board.

### ***Full Block***

It indicates that all block will be full size.

### ***Show Circle***

It makes the check board as a circle.

### ***Side Equal***

It makes the width and height the same.

### ***Background and Foreground***

It is used for setup the background and foreground colors.

### ***Stimulation Field***

It is designed for setup a special check board for stimulating a partial visual field.

## How to design motion stimulus

**Motion pattern dialog**

**Motion object**

☐ Image
 ☒ Rectangle
 ☐ Ellipse

Width 
 Name

Height 
 Load image

**Motion Location**

	X	Y
Start point	<input type="text" value="10"/>	<input type="text" value="10"/>
End point	<input type="text" value="600"/>	<input type="text" value="600"/>

**Motion parameters**

Step 
 Speed

Trial 
 Interval

Trigger

☐ Show fix point
 ☒ Show Interval

The dialog of the Visual Stimulus – Motion is designed for setup a motion stimulus. The motion object can be an image, rectangle or ellipse.

### ***Motion Object***

Currently, three kinds of motion objects are supported, they are image, rectangle and ellipse. User can load an image as the motion object. Or, designing a rectangle or ellipse use the Width, Height, background and foreground function to define the object.

## **Motion Location**

It includes the start and end positions for the motion object.

## **Motion Parameters**

It defines the step and speed of the motion.

## **Show Fix Point**

It indicates if the fix point will be shown. It is optional.

## **Show Interval**

It indicates if there is interval between two stimuli. It is optional.

## How to design motion stimulus

The dialog of the Visual Stimulus – Zoom is designed for setup a zoom stimulus. The zoom object can be an image, rectangle or ellipse.

**Zoom pattern dialog**

**Zoom object**

☐ Circle ☐ Rect

**Location**

**Size**

**Background** **Foreground**

**Name**  **Load image**

**Motion parameters**

**Steps**

**Speed**

**Trial**

**Interval**

**Trigger**

☐ Send step trigger

**Zoom range**

**Width**  **Height**

**Stimulation option**

☐ Show fix point **Fix point**

**Basic Setup** **Ok** **Cancel**

### ***Zoom Object***

Currently, three kinds of zoom objects are supported; they are image, rectangle and ellipse. User can load an image as the zoom object. Users can also design a rectangle or ellipse with the Width, Height, background and foreground function to define the stimulation parameters.

### ***Zoom Location***

It includes the start and end positions for the motion object.

### ***Zoom Parameters***

It defines the step and speed of the motion.

### ***Show Fix Point***

It indicates if the fix point will be shown. It is optional.

### ***Show Interval***

It indicates if there is interval between two stimuli. It is optional.

## **How to design random dots stimulus**

The dialog of the Visual Stimulus – Random Dots is designed for setup a random dots stimulus. The dots are visually and spatially randomized.

### ***Dot objects***

The dot objects can be circular or rectangle. Users can also design a rectangle or ellipse with the Width, Height, background and foreground function to define the stimulation parameters.

### ***Center or other Location***

If the “Center” is checked, the cluster of dots will show at the center of the screen/project. Otherwise, it will show at the location defined by the location (x,y).

### ***Full Screen or defined regions***

If the “Full Screen” is checked, the dots will show on the entire screen. Otherwise, the dots will show in the defined area.

### ***Show Fix Point***

It indicates if the fix point will be shown. It is optional.

### ***Show Time***

It indicates the time of presentation.

### ***Show Interval***

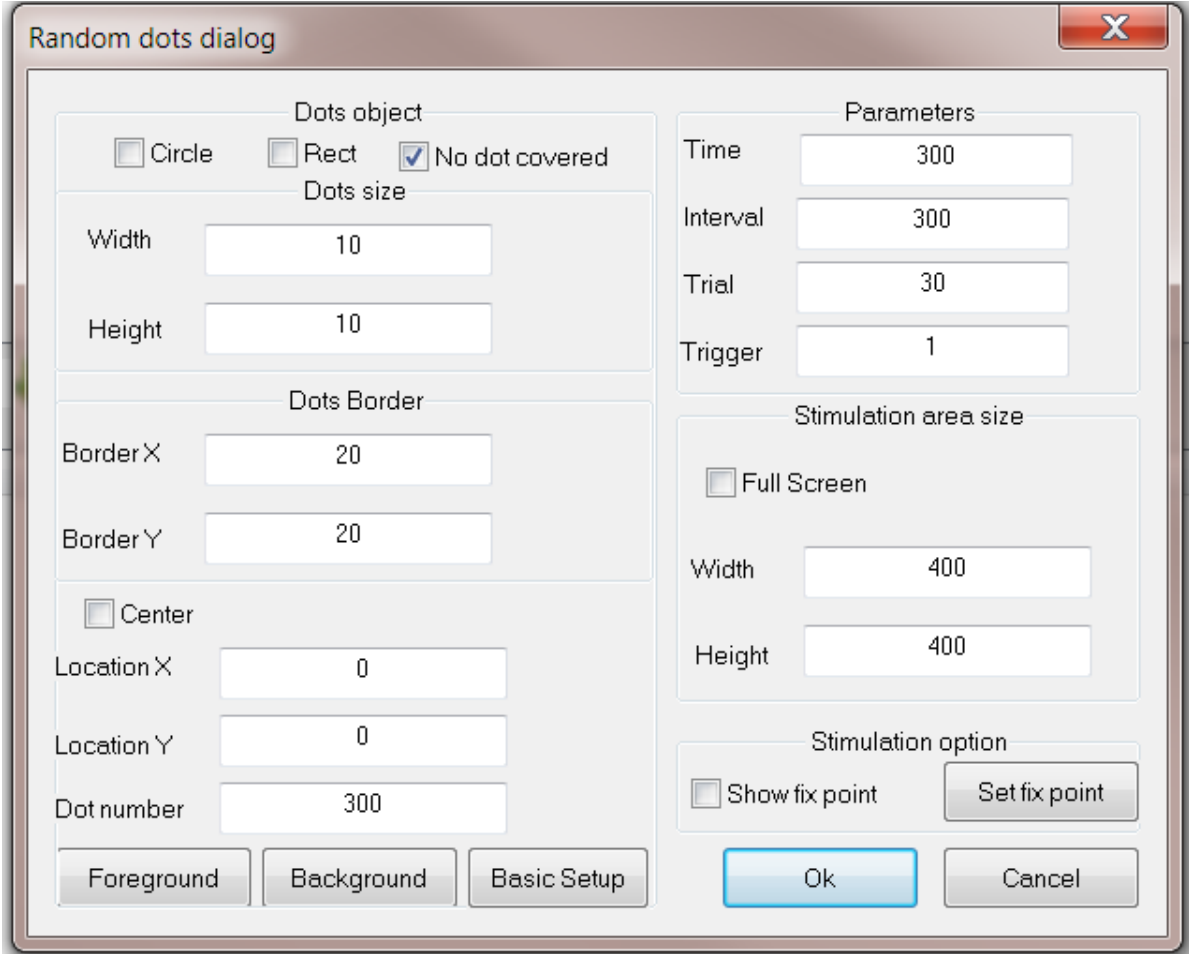
It indicates the interval between two consequent stimuli.

### ***Trial***

It indicates the trials of presentation.

### ***Trigger***

It indicates the trigger associated with the presentation that will be sent to the MEG/EEG/fMRI systems.



The image shows a 'Random dots dialog' window with a title bar and a close button. The dialog is divided into several sections for configuring a random dots stimulus.

- Dots object:** Contains three checkboxes: 'Circle' (unchecked), 'Rect' (unchecked), and 'No dot covered' (checked).
- Dots size:** Contains two input fields: 'Width' (value 10) and 'Height' (value 10).
- Dots Border:** Contains two input fields: 'Border X' (value 20) and 'Border Y' (value 20).
- Center:** Contains a checkbox (unchecked) and two input fields: 'Location X' (value 0) and 'Location Y' (value 0).
- Dot number:** Contains an input field with the value 300.
- Parameters:** Contains four input fields: 'Time' (value 300), 'Interval' (value 300), 'Trial' (value 30), and 'Trigger' (value 1).
- Stimulation area size:** Contains a checkbox 'Full Screen' (unchecked) and two input fields: 'Width' (value 400) and 'Height' (value 400).
- Stimulation option:** Contains a checkbox 'Show fix point' (unchecked) and a 'Set fix point' button.

At the bottom of the dialog, there are three buttons: 'Foreground', 'Background', and 'Basic Setup'. At the bottom right, there are 'Ok' and 'Cancel' buttons.

## How to design random pixel stimulus

The dialog of the Visual Stimulus – Random Dots is designed for setup a random dots stimulus. The dots are visually and spatially randomized.

### **Pixels**

The pixels can be in any color or black/white. Users can also combine some of the color to define the stimulation parameters.

**Random pixel dialog**

**Color random pixel**

☐ Red ☐ Blue

☐ Green ☐ White and black

**Show area**

☐ Full Screen

Width: 400

Height: 400

☒ Center

Location X: 760

Location Y: 340

**Stimuli parameters**

Time: 300

Interval: 300

Trial: 30

Trigger: 1

**Stimulation option**

☐ Show fix point

Set fix point Basic Setup

Ok Cancel

### **Center or other Location**

If the “Center” is checked, the cluster of pixels will show at the center of the screen/project. Otherwise, it will show at the location defined by the location (x, y).

### **Full Screen or defined regions**

If the “Full Screen” is checked, the pixels will show on the entire screen. Otherwise, the pixels will show in the defined area.

### **Show Fix Point**

It indicates if the fix point will be shown. It is optional.

### **Show Time**

It indicates the time of presentation.

**Show Interval**

It indicates the interval between two consequent stimuli.

**Trial**

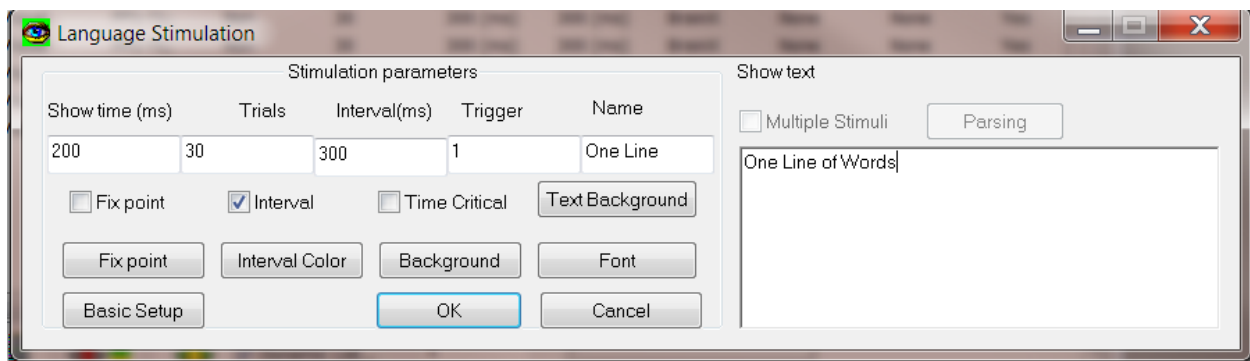
It indicates the trials of presentation.

**Trigger**

It indicates the trigger associated with the presentation that will be sent to the MEG/EEG/fMRI systems.

## How to design language stimulus (one stimulus at a time).

The dialog of the Language Stimulation dialog is designed for setup a language stimulus. The language (words or sentence) will be displayed at the center of the screen.

**Show Time**

It indicates the time of presentation.

**Show Interval**

It indicates the interval between two consequent stimuli.

**Trial**

It indicates the trials of presentation.

**Name**

It indicates the name of the stimulus.

### **Trigger**

It indicates the trigger associated with the presentation that will be sent to the MEG/EEG/fMRI systems.

### **Show Fix Point**

It indicates if the fix point will be shown. It is optional.

### **Interval Color**

It indicates the color will be presented between two stimuli.

### **Background (Color)**

It indicates the background color will be presented during the task.

### **Font (Color)**

It allows user to setup the font of the language presentation.

## **How to design multi-language stimuli at one time**

The dialog of the Multi-Language Stimulation dialog is designed for setup multiple language stimuli at one time. The each line of words or sentence in the Edit box will be divided into one language stimulus (parsing). IN other words, the dialog of the Visual Stimulus – language is designed for setup a visual stimulus with one or more language stimuli.

**Hint: the language stimuli are parsed with new line character. In other word, one line is one stimulus in the text box.**

### **Multiple Stimuli**

It indicates that the text edit box includes more than one stimulus. This is a powerful feature for designing language paradigms. User can paste hundreds of words or sentence into the text box, and the parsing function will automatically parse all text into stimuli with one click.

Please note that all the settings will apply to each parsed stimulus.

### **Background**

It is used for setup the background of the screen; by default, it is black. Please note that the screen background is different from the text background.

### **Text Background**

The text background indicates the background for drawing text. It is an area around the text presentation.



### **Font**

It is used for setup the font of text stimuli.

### **Fix Point**

It provides a way to setup a fix point. It is optional.

### **Interval Color**

If there is an interval between two images (two stimuli), the interval can present a background color. This is optional.

The settings of other parameters in the designing multi-language stimuli are similar to that of the designing single language stimulus.

