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Rapid Serial Visual Presentation Module

User Manual

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1 Practice RSVP module

The practice RSVP module intents to familiarize the user with different aspects of the RSVP presentation experiment as well as assess the user behavioral performance under different configuration parameters.

1.1 Quick start

Step 1: To run the practice module one needs to execute the following command from the installation directory:

python RSVPpractice.py

Step 2. The start menu will pop up which provides three option buttons each performing a specific task, these are

- *'Target Familiarization'* : Runs a target familiarization task, the intention is familiarize the subject with the current target.

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- *'RSVP Familiarization'* : Intents for familiarize the user with the actual RSVP task. It also provides the option to change the presentation frequency at runtime to identify the comfort level of each subject.
- *'Exit'*: Terminates the application

Case: Target Familiarization Script

In case the target familiarization option is selected, the script will randomly sample 20 targets from the training set and display them to the subject at a rate of one image per second. At the end of the display will prompt if the user would like to repeat the process. Clicking 'No' will terminate the script , and return to the main menu. Clicking 'Yes' will repeat the process. The target images show are loaded from the training path as specified in the configuration.ini file.

Case : RSVP Familiarization Script

In case the RSVP familiarization option is selected, an adaptable scripts that demonstrates the RSVP experiment will be shown. The script is independent of the producer/consumer module and can execute as a stand-alone application. The script also provides simulated classification results to familiarize the user with the feedback screen at the end of each block. The execution sequence and control of the script goes as follows:

1. Once the RSVP Familiarization option is selected, a GUI window shows up requesting the user to specify the frequency of presentation of the images. Enter in selected frequency in Hz. The default 10 Hz, alternative value can be 5Hz. In general the user can specify any frequency here. Press 'OK' to select the frequency.
2. Once the frequency is selected, the first RSVP block will begin. The image-set shown, the length of the block, the number of targets and the number of distractors is determined from the configuration.ini file.

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Specifically, the following parameters are used:

Under the section [**RSVPtrainUserSpecifiedParams**]

trainPath = path_to_the_training_imageset

This parameter determines the image set to be shown. The specified training path needs to include two sub-folders in order for it to be a valid path. These folders should be named 'targetpool' and 'nontargetpool' containing target and distractor images respectively. Each folder needs to contain at least one image.

numTargets = 2

This parameter specifies the number of target images to be shown per block. Suggested value for this is 2.

numNontargets = 98

This parameter specifies the number of distractors to be shown per block. The total of **numTargets** and **numNontargets** specifies the total number of images per block.

3. At the end of the block, the script calls the feedback module (feedback.py) with simulated data, and displays the current feedback implementation. The actual data are meaningless, but it allows the subject to understand the feedback screen.
4. At the end of the block the user has few options
 - a. Press space-bar, and moves to the next block with the current configuration.
 - b. Press the **Right Ctrl Key + t**, This will display the frequency selection box, enter a new presentation frequency and press OK. This

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feature allows to adjust the presentation frequency on run-time depending the the current subjects performance.

c. Press the **Right Ctrl Key + s**. This will terminate the RSVP familiarization script and return to the main menu.

2 Training module

Implements the training session, for the Rapid Serial Visual Presentation experiments.

2.1 Quick start

Step 0: This module loads the information as of what datasets to use as well as as the various parameters from the file **configuration.ini**, Check section configuring training module for instructions how to set this up.

Step 1: To run the training module one needs to execute the following command from the installation directory:

python RSVPtrain.py

Note: Before running this module make sure that the CBCI software is running and waiting for a client connection.

Step 2. A set of instructions will pop-up on the screen informing the subject about the current task. The subject can move the the next instruction screen by pressing the **SPACE** bar. After the last instruction screen a cross will

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appear on the screen and the first block of images will be shown. At the end of the block a feedback screen will show up informing the user about various performance measures.

Step 3: At the end of each block the subject can press SPACE bar to move to the next, block. This process can be repeated until enough examples are available for training (usually until 50 targets examples have been shown).

Step 4: After enough blocks have been shown, press the button 't' while you are in the feedback screen. This will sent a single to CBCI to train the classifier, and will then display the current session id. **Write down this session id since it will be needed as input during the testing session.**

2.2 Configuring Training Module

The training module configuration parameters are located under the **[RSVPtrainUserSpecifiedParams]** section of the configuration.ini file. Some of the parameters of this section have global scope (i.e apply for all training, testing and practice modules). Global scope parameters will eventually be moved to the [Globals] section. For compatibility with the currently implemented config files, this structure remains for now. The section 2.2 here covers only the training specific parameters, for global configuration parameters see section global configuration..

Parameter **trainPath**

This parameter specifies the path from where the training module will sample images. It can specify either an absolute path (i.e c:/mydatasets) or a relative path (i.e ./mydatasets). A valid trainPath needs to contain two sub-folders with the names 'targetpool' and 'nontargetpool' populated with target and distractor images respectively. These two folders **must** have at least one image.

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Note: windows automatically generates a Thumbs.db file in two sub-folders. The presentation software will ignore that file during image loading. It will also ignore any .svn folders. However the presentation will not be able to handle scenarios where non-image files are stored in either 'targerpool' or 'nontargetpool' folders.

Parameter **numTargets**

This parameter specifies the number of targets to be shown in every block, in the train module. Suggested value for this parameters is 2 for blocks of 100 images.

Parameter **numNontargets**

This parameters specifies the number of non-target images to be shown in every block for the train module. Suggested value for this parameters is 98 for blocks of 100 images.

Parameter **outputPath**

This parameter specifies the folder in which the training module will output the block classification results. This folder needs to differ from the corresponding parameter value in the testing module's section. At the end of the train module this folder will be populated with a number of .res files (one file for each block shown). This file are overwritten every new run.

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4 Global Configuration

A number of parameters control the behavior of all RSVP modules. These are global parameters and are stored in the **configuration.ini** file. This section explains these parameters and how to be used.

Parameter **presentationFreq**

This parameter is currently located under the **[RSVPtrainUserSpecifiedParams]** section of the configuration file. It controls the presentation frequency. Suggested values are 5 and 10, for 5Hz and 10Hz presentation rate respectively. Preferred presentation rate if the subject can identify the targets is 10Hz.

Parameter **monitorFrequency**

This parameter is currently located under the **[RSVPtrainUserSpecifiedParams]** section of the configuration file. It enables to monitor the presentation rate on run-time and log this behavior. Set monitorFrequency to 0 to disable this feature, set to 1 to enable this feature.

Enabling this feature will generate a file called 'monitor_freq.log' that shows the time difference (in seconds) between every two consecutive images in every block. Entries are grouped by blocks. This module keeps appending to the log file across executions.

Note: A third configuration parameters, is to set monitorFrequency=2 that can be used to simulate time delays. Since this options is still at alpha testing phase it is suggested not to be used.

Parameter **background_color**

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This parameter is used to specify the background color of the RSVP. It accepts a comma separated list of four real numbers between 0.0 and 1.0. The numbers correspond to the values or **red, green, blue** and **alpha** values. For example the entry 'background_color = 1.0,0.0,0.0,1.0' would correspond to red background. If an invalid set of values is specified the default background color is used (white).The parameter is located under the **[RSVPglobalParams]** section of the configuration file.

Parameter **logfile**

This parameter is located under the **[LOG]** section of the configuration file. It specifies the path and filename where the log file is stored. The log files are restricted to be 20 MB, if log information more than 20MB are needed the system will automatically close the logfile, rename it with an extension .1 and continue logging to an empty file with the original name. For example if the logfile entry is set to ./logfile.out. The logging directory might include entries like logfile.out, logfile.out.1, logfile.out.2 etc. where the logfile.out is the most recent logfile, logfile.out.1 is the second most recent file etc.

Parameter **loglevel**

This parameter is located under the **[LOG]** section of the configuration file. It specifies the level of logging information. Currently the system supports five level of logging information debug,info,warn,error and critical.

Parameter **input_from**

This parameter is located under the **[RSVPglobalParams]** section of the configuration file. It species which mechanism to use when loading the data

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and what output mechanism to report the results. Currently only two input/output mechanisms are supported. The first mechanism loads the images based on the file system structure and output the results in .res files (one per block). The second mechanism loads the images as specified in an XML file and outputs the results in an XML file. Setting the **input_from=1** enables the file structure loading mechanism while setting the **input_from=2** enables the XML loading mechanism.

Warning: Consider following dependencies when setting the parameter

- **input_from=1** requires valid values for the parameters
trainPath - In section [RSVPtrainUserSpecifiedParams]
outputPath - In section [RSVPtrainUserSpecifiedParams]
testPath - In section [RSVPtestUserSpecifiedParams]
outputPath - In section [RSVPtestUserSpecifiedParams]
- **input_from=2** requires valid values for the parameters
trainXMLfile - In section [RSVPtrainUserSpecifiedParams]
testXMLfile - In section [RSVPtestUserSpecifiedParams]

5. Setting up the various input mechanism.

The Rapid Serial Visual Presentation Module currently supports to input/output mechanisms, File Structure Loading mechanism and XML based loading mechanism. The section explains how to configure and set each one of these two mechanism.

Loading mechanism refers to the method the module will accept a

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description of the input images and the format of its output. The File structure loading mechanism utilizes the directory structure where the images are stored to identify how the images are to be processed and outputs the results in plain text files with an extension .res. The XML based loading mechanism loaded the images based on a description from an XML format and output the results in an XML file.

5.1 Configuring the File Structure Loading mechanism

To configure the file structure loading mechanism, there are two main steps involved.

- 1) Set up a valid directory structure for training and testing session
- 2) Setup the configuration.ini

The following subsection explain in detail these two steps

5.1.1 Setting up a valid directory structure.

For the training session, a valid directory structure is any folder that includes two sub-folders with the names **targetpool** and **nontargetpool**, containing target and non-target images respectively. Further the following constraints hold.

- targetpool and nontargetpool folders should include at least one image. (Note you can setup the configuration.ini file to show only targets or only non-target images)
- targetpool and nontargetpool folders should include **only** image files. *Thumbs.db* file that is automatically generated by windows is ignored. Any .svn folder in these directories will also be ignored.
- targetpool and nontargetpool should not include any other sub-folder
- ALL images in these two folders should have of the same dimensions (width, height).

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For the testing session, a valid directory structure is any folder that includes sub-folders that follow the naming convention '**__block_XX**' where '**XX**' is a number indicating the order of the block. For example, '**__block_1**' corresponds to the first block to be shown during testing, '**__block_2**' to the second block to be shown during testing etc. Each folder '**__block_XX**' should contain ALL images (targets, non-targets, potential targets, potential non-targets etc) that are to be shown during the **XX**th block in the testing session. Further the following constraints apply.

- All '**__block_XX**' should be ordered with no missing indexes.
- Each '**__block_XX**' should include only image files. The Thumbs.db file that is automatically generated by windows is ignored. Any .svn folder in these directories is also ignored.
- Each '**__block_XX**' should NOT include any other subfolder.

5.1.1.1 Providing label information during testing.

The File Structure mechanism allows the user to provide labels for each image in each block. To achieve this functionality, it uses file pre-fixing. You can use the following pre-fixes in any image stored in the '**__block_XX**' sub-folders.

- '**_210_**' : Prefix the image name with this code will tag the image as a target. Example : '**_210_myimagename.jpg**'
- '**_220_**' Prefice the image name with this code will tag the image as a non-target. Example '**_220_myimagename.jpg**'
- '**_200_**' : Prefix the image name with this code will tag the image as an unknown stimulus type (i.e no ground truth available). This is the default behavior if no prefix is provides.

5.1.1.2 Output format

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The output of the File Structure mechanism is a set of .res files, one file per block shown. The following naming convention is used for the output files:

Output file name : **block_X.res** corresponds to the results of the **X**th block.

There is one such file for every block shown during a session. The same output format is used for both training and testing modules.

The format of each .res files is as follows:

First line of the file is a header. Following the header there is one row for every image shown in the block. Each row is a tab-delimited list with the following fields.

<Path><Image Name><Block Index><Image Index><Confidence><Rank>

where

<Path> - Full path the image is stored.

<Image Name> - Image name.

<Block Index> - Index of the block (i.e 1 2 3 etc)

<Image Index> - Order the image was presented within the block

<Confidence> - The EEG confidence according to the classifier.

<Rank> - The order of the image after resorting according to the confidence.

5.1.2 Update the configuration file

The next step involves specifying the proper parameters in the configuration.ini file. To do so specify the following parameters.

To configure the training or practice modules to use the file structure loading

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mechanism

- Set **input_from=1**
- Set **trainPath** in section **[RSVPtrainUserSpecifiedParams]** of the configuration.ini file to a **valid training path** (see section 5.1.1 for what qualifies for a valid training path).
- Set **outputPath** in section **[RSVPtrainUserSpecifiedParams]** of the configuration.ini file to a folder the .res files will be stored.

Warning: Make sure this folder is empty to avoid overriding previous results. Make sure this folder differs from the corresponding outputPath of the training module to avoid overriding training results.

To configure the testing modules to use the file structure loading mechanism:

- Set **input_from=1**
- Set **testPath** in section **[RSVPtestUserSpecifiedParams]** of the configuration.ini file to a valid testing path (see section 5.1.1 for what qualifies for a valid testing path).
- Set **outputPath** in section **[RSVPtestUserSpecifiedParams]** of the configuration.ini file to a folder where the .res files will be stored.

Warning: Make sure this folder is empty to avoid overriding previous results. Make sure this folder differs from the corresponding outputPath of the training module to avoid overriding training results.

5.2 Configuring the XML based Loading mechanism.

To configure the XML based loading mechanism, there are two main steps involved.

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- 1) Set up a valid input XML file for training and testing session
- 2) Setup the configuration.ini

The following subsection explain in detail these two steps

5.2.1 Setting up a valid input XML file

All modules (training, testing and practice) use the save input XML schema which provides all necessary information for them to run. The XML schema is explained below

XML schema by example:

```
<?xml version="1.0" ?>
<object_detection_result>
  <file_name>.\RSVPimagesets\train_set</file_name>

  <object_info idx="0">
    <file_name>\targetpool\vanhatpeople10.jpg</file_name>
    <id>0</id>
    <status>1</status>
    <position_x>0</position_x>
    <position_y>0</position_y>
    <confidence>0.0</confidence>
    <eegconfidence>0.0</eegconfidence>
    <groundTruth>1</groundTruth>
  </object_info>

  <object_info idx="1">
    <file_name>\targetpool\vanhatpeople11.jpg</file_name>
    <id>1</id>
    <status>1</status>
    <position_x>0</position_x>
```

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```
<position_y>0</position_y>
<confidence>0.0</confidence>
<eegconfidence>0.0</eegconfidence>
<groundTruth>1</groundTruth>
</object_info>

<object_info idx="2">
  <file_name>\targetpool\vanhatpeople12.jpg</file_name>
  <id>2</id>
  <status>1</status>
  <position_x>0</position_x>
  <position_y>0</position_y>
  <confidence>0.0</confidence>
  <eegconfidence>0.0</eegconfidence>
  <groundTruth>1</groundTruth>
</object_info>
</object_detection_result>
```

The inset above shows an example in an input XML file specifying a database of three images. The file begins with the header tag **<?xml version="1.0" ?>** which specifies the xml protocol version. All task specific information are enclosed within the **<object_detection_result>** tag.

The **<file_name>.\RSVPimagesets\train_set</file_name>** tag specifies the root directory of the images. All images specified in the rest of the XML file are taken with respect to this path. You can specify either an absolute or relative path. Relative paths start with the symbol '.' (dot) to indicate the current path.

All images are specified using the **<object_info>** tag. This tag accepts a the required attribute 'idx' that indicates a unique identifier for the image. For example the tag **<object_info idx="0">** specifies an image with identifier 0. This value needs to be unique within the XML file. The properties

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of each such image specified with various property tags explained below.

- **<file_name>...</file_name>** tag - Specifies the filename of the image. The filename is relative to the root path specified on the header.
- **<id>...</id>** tag - Specifies the unique id of the image, must be the same as the idx attribute of the **<object_info>** tag.
- **<status>...</status>** tag - Can take one of two values {1 2}

1: indicates the stimulus is a potential target, and is to be shown in a testing session.

2: indicates the stimulus is a filler/distractor and is to be used as-such in a testing session

The status variable is to be set by the Computer Vision/Chipping Engine module of the overall system and does not affect the training session.

- **<position_x>...</position_x>** tag - Specifies the x coordinate of an image chip in the overall large image. This parameter is set by the Computer Vision/Chipping Engine module and it is used by Remote View component. It has no effect over the RSVP presentation.
- **<position_y>...</position_y>** tag - Specifies the y coordinate of an image chip in the overall large image. This parameter is set by the Computer Vision/Chipping Engine module and it is used by Remote View component. It has no effect over the RSVP presentation.
- **<confidence>...</confidence>** tag - A real number indicating the confidence of the Computer Vision module to this image being a target. The parameter is set by the Computer Vision module and has no effect over the RSVP presentation.
- **<eegconfidence>...</eegconfidence>** tag - A real number indicating the confidence of the EEG system to this image being a target. This parameter is an output parameter of the of the RSVP

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module. For XML schema uniformity set this parameter to 0.0 when the XML is used as input to the RSVP module.

- **<groundTruth>...</groundTruth>** tag - Can take one of three values {1 0 -1}

1 : indicate a labeled target image.
0 : indicate a labeled non-target image.
-1 : indicates that no ground truth is available (an empty field can be used aswell.)
- **<dispOrder>...</dispOrder>** tag - An integer that specifies the exact order the image will be presented during testing. All images are sorted based of this number, if exact ordering is specified in the configuration files.

5.2.1.1 Automatic generation of XML files from File structure

The RSVP module provides a utility that enables the automatic creation of an XML input file from a File structure output. The tool name is XMLfromFileStructureUtil.py

To run type

python XMLfromFileStructureUtil.py

A file chooser window will pop-up and ask yhe user to provide a **valid training path** (see section 5.1.1 for what qualifies for a valid training path). The utility will generate a new file with the name **xml_output_renameME.xml** in the current directory. The utility will then open the current folder for the user to rename the file to a unique name.

5.2.1.2 Output Format

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The XML based loading mechanism generates its output as an XML file. The file is saved in the current directory and has a default filename

'xml_RSVPoutput_renameme.xml'

The output XML file uses the same XML schema as the one described in section 5.2.1 with an addition of an extra child node of the **<eegconfidence>** tag. Specifically, One **<econf>** tag is added to store the eegconfidence of the image for every time it was presented. For example if an image is shown three times during a single session, then three **<econf>** tags will be appended in the **<eegconfidence>** tag of that image. The following is an example of an amendment to the schema that characterizes the output for a image with id=3

```
<object_info idx="3">
  <file_name>\nontargetpool\vanhat0801.jpg</file_name>
  <id>3</id>
  <status>2</status>
  <position_x>0</position_x>
  <position_y>0</position_y>
  <confidence>0.0</confidence>
  <eegconfidence>
    <econf>0.01</econf>
    <econf>0.012</econf>
    <econf>0.001</econf>
  </eegconfidence>
  <groundTruth>0</groundTruth>
</object_info>
```

Note that the **<eegconfidence>** tag now has three **<econf>** sub-tags with three different confidence values. This output suggests that the image with id 3 was shown three times during the session.

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5.2.2 Update the configuration file

The next step involves specifying the proper parameters in the configuration.ini file. To do so specify the following parameters.

To configure the training or practice modules to use the XML based loading mechanism

- Set **input_from=2**
- Set **trainXMLfile** in section **[RSVPtrainUserSpecifiedParams]** of the configuration.ini file to a **valid input XML file** (see section 5.2.1 for what qualifies for a valid input XML file).

To configure the testing modules to use the XML based loading mechanism:

- Set **input_from=2**
- Set **testXMLfile** in section **[RSVPtestUserSpecifiedParams]** of the configuration.ini file to a valid input XML file (see section 5.1.1 for what qualifies for a valid testing path).

6. Running mainApp Graphical User Interfaces

Rapid Serial Visual Presentation provides a Graphical User Interface (GUI) for creating configuration session and lunch e its modules. This section explain how to use this GUI, its advantages and known limitations.

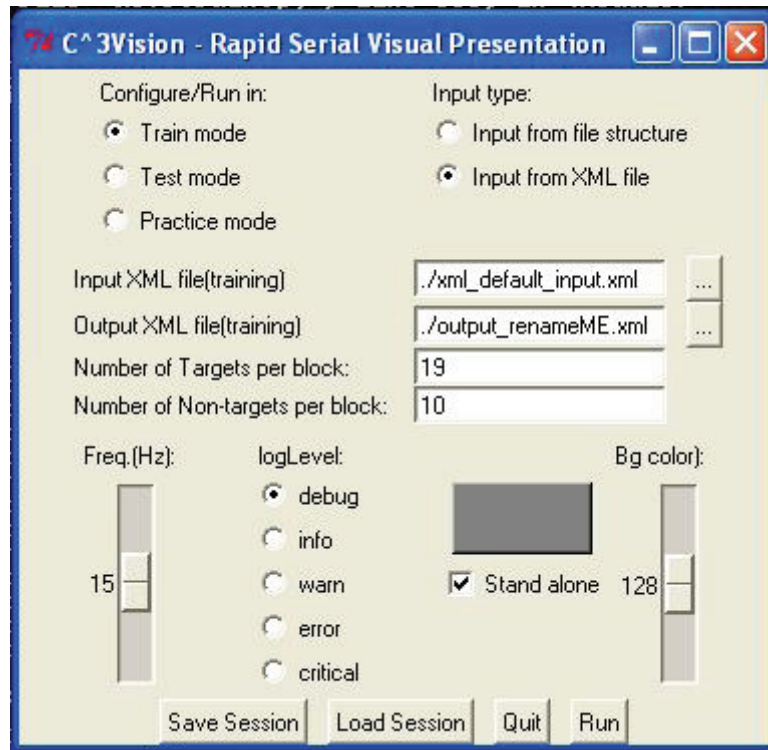
To run the GUI type the following command

python mainApp.py

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The GUI window will pop-up looking like the one in figure 1 below:



GUI is conceptually divided into four sections.

- Control/selection section
- Module specific parameters section
- Common parameters section
- Command execution section

Control/selection section

The control/selection section includes the three radio buttons under 'Configure/Run in' group and the two radio buttons under 'Input type' group. The user can select one radio button from each group to specify the

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configuration to run or to set-up the parameters of that configuration. For example, selecting 'Train mode' and 'Input from File' will display the parameters associated with the train module (in the Module specific parameter section). Pressing the run button will execute the train RSVP module and load the data from an XML file using the parameters specified. There are total of six possible configurations the user can choose from.

Module specific parameters section

The module specific parameters section allows the user to provide the values specific to a particular configuration. Some of these parameters are specific to a module while some others are shared among some of the configurations. This section explain each of the parameters and for which execution configuration apply.

Configuration 1: ***Train Mode - Input from file structure***

- Configuration's shared parameters
 - *Input Path(Training)* : Absolute or relative path to a training input folder.This parameters is shared between configurations: (Configuration 1, Configuration 5)
 - *Output Path (Training)*: Absolute or relative path to an empty output folder.This parameters is shared between configurations: (Configuration 1, Configuration 5)
 - *Number of Targets per Block* : Specifies the number of targets to be shown is a single block. This parameters is shared between configurations: (Configuration 1, Configuration 5)
 - *Number of Non Targets per Block* : Specifies the number of non-targets to be shown is a single block. This parameters is shared between configurations: (Configuration 1, Configuration 5)

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Configuration 2: **Train Mode - Input from XML file**

- Configuration's specific parameters
 - *Input XML file (Training)* : Selection of an XML file the follows the RSVP input schema.
 - *Output XML file (Training)*: Absolute or relative path to an empty output folder.
- Configuration's shared parameters
 - *Number of Targets per Block* : Specifies the number of targets to be shown is a single block. This parameters is shared between configurations: (Configuration 2, Configuration 6)

Configuration 3: **Test Mode - Input from file structure**

- Configuration's specific parameters
 - *Input Path(Testing)* : Absolute or relative path to a training input folder.
 - *Output Path (Testing)*: Absolute or relative path to an empty output folder.

Configuration 4: **Test Mode - Input from XML file**

- Configuration's specific parameters
 - *Input XML file (Testing)* : Selection of an XML file the follows the RSVP input schema.
 - *Output XML file (Testing)*: Absolute or relative path to an empty output folder.
 - *Number of Targets per Block* : Specifies the number of targets to be shown is a single block. Note this parameter is different from corresponding parameter in the Training and practice modules
 - *Number of Non Targets per Block* : Specifies the number of non-targets to be shown is a single block. Note this parameter

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is different from corresponding parameter in the Training and practice modules

Configuration 5: **Practice Mode - Input from file structure**

- Configuration's shared parameters
 - *Input Path(Practice)* : Absolute or relative path to a training input folder.
 - *Output Path (Practice)*: Absolute or relative path to an empty output folder.
 - *Number of Targets per Block* : Specifies the number of targets to be shown is a single block. This parameters is shared between configurations: (Configuration 1, Configuration 5)
 - *Number of Non Targets per Block* : Specifies the number of non-targets to be shown is a single block. This parameters is shared between configurations: (Configuration 1, Configuration 5)

Configuration 2: **Practice Mode - Input from XML file**

- Configuration's specific parameters
 - *Input XML file (Training)* : Selection of an XML file the follows the RSVP input schema.
 - *Output XML file (Training)*: Absolute or relative path to an empty output folder.
- Configuration's shared parameters
 - *Number of Targets per Block* : Specifies the number of targets to be shown is a single block. This parameters is shared between configurations: (Configuration 2, Configuration 6)

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Appendix

Session files Vs Configuration files

The main mechanism for providing user parameters to the Rapid Serial Visual Presentation Module is configuration files. However, as the program evolved and new functionality was added, there was a need to introduce a more organized format in providing those parameters. This new format is supported by what we refer to as session files. Session files are better structured configuration files that are used by the GUI module of the RSVP application. The core modules (RSVPtrain.py, RSVPtest.py, RSVPpractice.py) accept user parameters in the form of a **configuration files**, The GUI module (mainApp.py) accepts input and saves the parameters in the form of **Session files**.

When running GUI module, the user can save the parameters by pressing 'Save Session' button. This will save the current parameters as specified in the GUI form in a **session file**. The user can load a session by pressing the 'load Session' file and selecting a previously saved session file. **Important: The GUI can not load configuration files Only Session files.**

When the user presses the 'Run' button, the GUI module generates a temporary **configuration file** from the currently loaded session and stores it to the current directory. The file generated is named '**__configuration.ini**', and is in a format that the core modules can load.(RSVPtrain.py, RSVPtest.py, RSVPpractice.py)

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Important: The core modules can not load session files.

Understanding the GUI values section

display order checkbox. This option has an effect only if one runs on the **Test mode** and **input from XML file** configuration. If selected images in the XML file will be ordered (ascending order) based on the XML field **<dispOrder></dispOrder>**. In this configuration images are shown in blocks of size **bsize = 'Number of Targets per block' + 'Number of non-targets per block'**. All images in the XML file will be shown. The size of the last block is **#images in XML module bsize**. **Important: If the input XML file does not include the dispOrder file then the order to be used is the order the images are listed in the XML file.**

stand alone checkbox. This option has the effect to execute any of the core modules as a stand alone application. It does not require the CBCI engine to run and not connection the the network. Use this option to test different input image sets and configurations or to demonstrate the presentation software.