**README**

**GeneratingData**

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**Prelude:** Contains MATLAB code for generating datasets, including vertical, diagonal and horizontal boundaries. Also contains script for user labelling of datasets. Also contained in this file are a large collection of datasets, already ready to use for training. These include over 7500 user labelled images ~ recommend you use these for training and understanding process before labelling user data on your own.

**File Structure:**

An overview of the file structure is included below:

* **Display Day Code:** Repurposed user data entry code which is used on display day to allow poster viewers to interact and generate data of their own (not completed at time of compendium completion)
* **Existing Labelled Datasets:** Over 7500+ user labelled images organized into three datasets; small, medium and large. Recommend using this for early model training. Raw data contains this data in hit, miss, CR, FA format (for user statistics), and organized contains this data in signal/nosignal format ready for CNN training.
* **Existing Unlabeled Datasets:** Contains a variety of datasets that have no been user labelled; these can be used for quick testing or validation of models. Includes datasets with diagonal, horizontal and offset boundaries.
* **createFullGabor:** Creates a full Gabor patch array of a given size given a list of input angle values. Can be generated with or without a boarder.
* **Create Horizontal Signal:** Creates an array of Gabor patches containing a signal in the form of a horizontal visual texture boundary down the center of the image. Can be created at different sizes.
* **createSingleGabor:** Creates a single Gabor patch from a given angle.
* **createTestImageRandomSignal:** Creates an array of Gabor patches containing an offset signal in the form of a visual texture boundary down the center of the image. Can be created at different sizes. Will randomly generate the offset in either the horizontal or vertical plane.
* **createTestImageSIgnal:** Currently creates a signal image with a diagonal boundary, however can be modified to create horizontal boundaries as well.
* **GenerateData:** Generates unlabeled datasets of a given size with 50% vertical signal images, and 50% random noise images.
* **generateRandomDatasetNoSignal:** Creates an array of random Gabor patches. Can be created at different sizes.
* **generateRandomDatasetSignal:** Creates an array of Gabor patches containing a signal in the form of a vertical visual texture boundary down the center of the image. Can be created at different sizes.
* **GenerateUserData:** Updated script for generating data that is then labelled by users. Can change the functions and size to generate datasets with different properties.
* **GeneratingFigures:** Generates the “hyperplane of parameters” plot shown in the poster from results of CNN training.