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# **DiscreetAI**

***Release 1.0.0***

**DiscreetAI**

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## JS LIBRARY

DiscreetAI's custom JS library for setting up datasets on the client side for training.

## 1.1 API

**bootstrapLibrary** (*repoID*, *X*, *y*)

Bootstrap the library by storing the initial data and connecting to the server.

**Arguments**

- **repoID** (*string*) – The repo ID associated with the dataset.
- **x** (*tf.Tensor2D*) – The datapoints to train on.
- **y** (*tf.Tensor1D*) – The labels for the datapoints.

**addMoreData** (*repoID*, *X*, *y*)

Add more data after bootstrapping.

**Arguments**

- **repoID** (*string*) – The repo ID associated with the dataset.
- **x** (*tf.Tensor2D*) – The datapoints to train on.
- **y** (*tf.Tensor1D*) – The labels for the datapoints.

**isBootstrapped** ()

Returns *true* if the library is bootstrapped, *false* otherwise.



## EXPLORA

Explora is a customized Jupyter Notebook used for starting decentralized training sessions.

## 2.1 explora

`explora.make_data_config(data_type, class_labels, color_space=None, image_dims=None)`

Helper function to generate the required data config for users running training sessions with the iOS library.

### Parameters

- **data\_type** (*str*) – The type of data the model will train on. Currently, only *image* is supported for the iOS library
- **class\_labels** (*list*) – The list of possible labels in the dataset.
- **color\_space** (*str, optional*) – The type of image that is inputted into the model, if applicable. Must be specified if *data\_type* is *image*. If specified, must be either *GRAYSCALE* or *COLOR*.
- **image\_dims** (*tuple, optional*) – The dimensions of image that is inputted into the model, if applicable. Must be specified if *data\_type* is *image*. Must have a length of 2 (width x height).

**Returns** Data config to be used when starting a new session.

**Return type** DataConfig

**async** `explora.start_new_session(repo_id, model, hyperparameters, percentage_averaged=0.75, max_rounds=5, library_type='PYTHON', check_point_frequency=1, data_config=None)`

Validate arguments and then start a new session by sending a message to the server with the given configuration. Designed to be called in *Explora.ipynb*.

### Parameters

- **repo\_id** (*str*) – The repo ID associated with the current dataset.
- **model** (*keras.engine.Model*) – The initial Keras model to train with. The model must be compiled!
- **hyperparams** (*dict*) – The hyperparameters to be used during training. Must include *batch\_size*!
- **percentage\_averaged** (*float, optional*) – Percentage of nodes to be averaged before moving on to the next round. Defaults to 0.75.
- **max\_rounds** (*int, optional*) – Maximum number of rounds to train for. Defaults to 5.

- **library\_type** (*str*, *optional*) – The type of library to train with. Must be either *PYTHON* or *JAVASCRIPT* or *IOS*. Defaults to *PYTHON*.
- **checkpoint\_frequency** (*int*, *optional*) – Save the model in S3 every *checkpoint\_frequency* rounds. Defaults to 1.
- **data\_config** (*DataConfig*, *optional*) – The configuration for the dataset, if applicable. If *library\_type* is *IOS*, then this argument is required!

## Examples

```
>>> start_new_session(  
...     repo_id="c9bf9e57-1685-4c89-bafb-ff5af830be8a",  
...     model=keras.models.load_model("model.h5"),  
...     hyperparameters={"batch_size": 100},  
...     percentage_averaged=0.75,  
...     max_rounds=5,  
...     library_type="PYTHON",  
...     checkpoint_frequency=1,  
... )  
Starting session!  
Waiting...  
Session complete! Check dashboard for final model!
```



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