
Day After Tomorrow

Release 0.1

Team Hugo

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HURRICANEFORCAST

1.1 HurricaneForecast package

1.1.1 Submodules

1.1.2 HurricaneForecast.Model module

1.1.3 HurricaneForecast.StormData module

class HurricaneForecast.StormData.DataChecks(*download_dir, source, labels=None, provide_df=False, df=None, storm_id='*'*)

Bases: object

average_wind_speeds()

Returns average wind speed over dataframe

check_shapes(verbose=False)

Check size of images in df. Raise warning if shape is unequal.

check_time_gaps(verbose=False)

Check time gap between images. Raise warning if the gap is larger than 1 hour.

count_images()

Returns number of images in dataframe

get_anomalous_shapes()

Returns lists storing image id of anomalous images and shapes of those images

get_image(image_id)

A function that returns the image represented by image_id as a tensor.

get_time_gaps()

Return lists storing index of large time gap and the magnitude of the time gap

get_warnings()

Print out warning if image sizes are unequal or large time gap is found.

plot_wind_speeds()

Create plot of wind speed over relative time

1.1.4 HurricaneForecast.StormTensor module

```
class HurricaneForecast.StormTensor.StormTensorDataset(train_df, storm_id, num_sequence,  
                                                    download_dir, train_source)
```

Bases: torch.utils.data.dataset.TensorDataset

Resize_space()

Resize all the images in the train_df by (366, 366).

calculate_mean_std(*storm_id*)

Calculate the mean and standard deviation of all the pixels in the training dataset This will be used for normalisation

get_image_tensor(*image_id*)

Obtain image tensor from Image ID.

image_id [str] Image ID from self.df

img [torch.tensor] Tensor of the image specified by image_id

get_last_10_img()

Get the last ten 10 imgs to predict the last five

get_last_five()

get_storm_images(*storm_id*)

Create a tensor of all images in the data for storm with Storm ID = storm_id

get_tensor_combination(*start_pos, number*)

Obtain the combination tensor of several images from the given start point and number of images required.

start_pos [int] The start index to combine the images.

number: int Combined the number of images in one tensor

img [torch.tensor] The combination tensor for numbers of images.

tensor_to_image(*tensor*)

Convert image tensor to a 2D array

tensor [torch.tensor] Image tensor with one channel

tensors: Tuple[torch.Tensor, ...]

1.1.5 HurricaneForecast.Train_Validate module

1.1.6 Module contents

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