Analysis_Out

February 13, 2022

An Exception was encountered at 'In [3]'.

[1]:
```
import warnings
warnings.filterwarnings('ignore')
```

[2]:
```
import scrapbook as sb
import pandas as pd
import numpy as np
import seaborn as sns
import numpy as np
from statistics import mean
import matplotlib.pyplot as plt
```

1 Baseline

Execution using papermill encountered an exception here and stopped:

[3]:
```
books = sb.read_notebooks("./BaseLine_Model_Output")
baseLine_data = []
for nb in books.notebooks:
    nbList=[nb.scraps['Stats Model MAE'].data,nb.scraps['Catboost MAE'].data]
    baseLine_data.append(nbList)
df = pd.DataFrame(baseLine_data, columns = ["Stats Model","Catboost"])
baseLine_data = np.reshape(baseLine_data,(1,10))[0]
display(df)
mae_stats = mean(baseLine_data[:,0])
mae_cat = mean(baseLine_data[:,1])
print("Average MAE (Stats Model): "+ str(mae_stats))
print("Average MAE (Catboost Model): "+ str(mae_cat))
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
/var/folders/5x/0vb7l3qn55q_tgn_2zh9s0bw0000gn/T/ipykernel_12668/905295071.py i
 ↪<module>
      5     baseLine_data.append(nbList)
      6 df = pd.DataFrame(baseLine_data, columns = ["Stats Model","Catboost"])
----> 7 baseLine_data = np.reshape(baseLine_data,(1,10))[0]
      8 display(df)
```

```
      9 mae_stats = mean(baseLine_data[:,0])

<__array_function__ internals> in reshape(*args, **kwargs)

~/opt/anaconda3/envs/papermill/lib/python3.8/site-packages/numpy/core/
 ↪fromnumeric.py in reshape(a, newshape, order)
    297            [5, 6]])
    298     """
--> 299     return _wrapfunc(a, 'reshape', newshape, order=order)
    300
    301

~/opt/anaconda3/envs/papermill/lib/python3.8/site-packages/numpy/core/
 ↪fromnumeric.py in _wrapfunc(obj, method, *args, **kwds)
     53     bound = getattr(obj, method, None)
     54     if bound is None:
---> 55         return _wrapit(obj, method, *args, **kwds)
     56
     57     try:

~/opt/anaconda3/envs/papermill/lib/python3.8/site-packages/numpy/core/
 ↪fromnumeric.py in _wrapit(obj, method, *args, **kwds)
     42     except AttributeError:
     43         wrap = None
---> 44     result = getattr(asarray(obj), method)(*args, **kwds)
     45     if wrap:
     46         if not isinstance(result, mu.ndarray):

ValueError: cannot reshape array of size 20 into shape (1,10)
```

2 GAN Model

[ ]:
```
book = sb.read_notebooks("./GAN_Output")
gan_data = []
gan_mse = []
for nb in book.notebooks:
    metrics = nb.scraps['GAN_1 Metrics'].data
    for i in range(1000):
        gan_mse.append(metrics[0][i])
    nbList = [nb.scraps['GAN Model MSE'].data,
              nb.scraps['GAN Model MAE'].data,
              nb.scraps['GAN Model Euclidean distance'].data,
              nb.scraps['GAN Model Manhattan Distance'].data]
    gan_data.append(nbList)
```

```
df = pd.DataFrame(gan_data, columns = ['MSE','MAE','Euclidean␣
↪Distance','Manhattan Distance'])
display(df.style)
print("MEAN:")
print(df.mean(axis = 0))
gan_data = np.array(gan_data)
```

3 ABC_GAN Analysis

3.1 ABC Pre-generator - Catboost

3.2 ABC Pre-generator - Stats

[ ]:
```
book = sb.read_notebooks("./ABC_GAN_Stats")
paramVal = [1,0.1,0.01]
abc_mse = [[] for i in range(3)]
abc_mse_skip = [[] for i in range(3)]
abc_mse_mean = [[] for i in range(3)]
abc_mse_skip_mean = [[] for i in range(3)]
abc_weights = [[] for i in range(3)]
prior_model = [[] for i in range(3)]
abc_pre_generator = [[] for i in range(3)]

for nb in book.notebooks:
    metrics3 = np.array(nb.scraps['ABC_GAN_3 Metrics'].data)
    paramVar = float(nb.papermill_dataframe.iloc[0]['value'])

    #Divide data according to parameters
    for i in range(3):
        if paramVar == paramVal[i]:
            for j in range(100):
                abc_mse_skip[i].append(metrics3[1,j])
            abc_weights[i].append(nb.scraps['Skip Connection Weight'].data)
            prior_model[i].append(nb.scraps['Prior Model MAE'].data)
            abc_pre_generator[i].append(nb.scraps['ABC Pre-generator MAE'].data)
            abc_mse_skip_mean[i].append(mean(metrics3[1,:]))
```

[ ]:
```
for i in range(3):
    data = []
    for j in range(len(abc_weights[i])):
        data.append([paramVal[i],prior_model[i][j],
                     ␣
↪abc_pre_generator[i][j],abc_weights[i][j],abc_mse_skip_mean[i][j]])

    df = pd.DataFrame(data, columns = ['Variance','Prior Model MAE',
                                       'ABC pre-generator MAE','Skip Node␣
↪weight','ABC_GAN MAE (skip connection)'])
```

```
    display(df.round(5))
    print(df.mean(axis=0))
    print("-----------------------------------------------------------------")
```