

analysis

January 30, 2021

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[1]: from datetime import datetime
import pickle
import pandas as pd
import matplotlib
import matplotlib.pyplot as plt
import seaborn as sns
sns.set_theme(style="white")
%matplotlib inline

directoryBase = "/home/david/Documents/projects/yolo-object-detection/images/"
results = 'result_29_01_2021_14_01_41.picke'
path = directoryBase+results
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[2]: with open(path, 'rb') as f:
    data = pickle.load(f)
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[3]: print(data[0][0])
```

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{'image': '/home/david/Documents/projects/yolo-object-
detection/images/2021-01-22/13-30-33.jpg', 'result': ['car: 0.8965'], 'timing':
'[/INFO] YOLO took 0.391402 seconds']}
```

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[4]: count = 0
noObjDet = 0
tempData = []
record = {}
for set in data:
    for image in set:
        record = {}
        comps = image['image'].split('/')
        dateTime = comps[-2] + ' ' + comps[-1].split('.')[0]
        record['date'] = dateTime
        if len(image['result']) == 0:
            noObjDet += 1
            record['confidence'] = -1
            record['object'] = "None"
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        else:
            comps = image['result'][0].split(':')
            label = comps[0]
            confidence = float(comps[1])
            record['confidence'] = confidence
            record['object'] = label

        count += 1
        tempData.append(record)

print(count, noObjDet)

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708 200

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[5]: idx = pd.date_range('2021-01-22 07:00:00', '2021-01-22 17:00:00', freq='S')
      idx1 = pd.date_range('2021-01-23 07:00:00', '2021-01-23 17:00:00', freq='S')
      idx2 = pd.date_range('2021-01-24 07:00:00', '2021-01-24 17:00:00', freq='S')
      idx3 = pd.date_range('2021-01-25 07:00:00', '2021-01-25 17:00:00', freq='S')
      idx4 = pd.date_range('2021-01-26 07:00:00', '2021-01-26 17:00:00', freq='S')
      idx5 = pd.date_range('2021-01-27 07:00:00', '2021-01-27 17:00:00', freq='S')

      idx = idx.union(idx1).union(idx2).union(idx3).union(idx4).union(idx5)

print(len(idx))

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[6]: new_df = pd.DataFrame(idx)
      new_df.columns = ['EventTime']
      df = pd.DataFrame(tempData)
      dates = pd.to_datetime(df['date'], format='%Y-%m-%d %H-%M-%S', errors='ignore')
      df['EventTime'] = dates
      del df['date']
      df.info()

```

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<class 'pandas.core.frame.DataFrame'>
RangeIndex: 708 entries, 0 to 707
Data columns (total 3 columns):
 #   Column      Non-Null Count  Dtype
---  -
 0   confidence  708 non-null   float64
 1   object      708 non-null   object
 2   EventTime   708 non-null   datetime64[ns]
dtypes: datetime64[ns](1), float64(1), object(1)
memory usage: 16.7+ KB

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[7]: new_df = pd.merge(new_df,df, on="EventTime", how="left" )
```

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[8]: new_df.head()
```

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[8]:
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	EventTime	confidence	object
0	2021-01-22 07:00:00	NaN	NaN
1	2021-01-22 07:00:01	NaN	NaN
2	2021-01-22 07:00:02	NaN	NaN
3	2021-01-22 07:00:03	NaN	NaN
4	2021-01-22 07:00:04	NaN	NaN

```
[9]: new_df.describe()
```

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[9]:
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	confidence
count	706.000000
mean	0.327191
std	0.833904
min	-1.000000
25%	-1.000000
50%	0.819050
75%	0.901525
max	0.992200

```
[10]: new_df['object'].unique()
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```
[10]: array([nan, 'car', 'train', 'None', 'truck', 'person', 'bus', 'tvmonitor'],  
      dtype=object)
```

```
[11]: new_df['confidence'] = new_df['confidence'].fillna(-2)  
new_df['object'] = new_df['object'].fillna('no event')
```

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[12]: new_df['event'] = new_df['object'].apply(lambda x: 1 if not x=='no event' else_  
      ↪0)
```

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[13]: stats = new_df[['EventTime', 'event']].copy()  
stats = stats.set_index('EventTime')
```

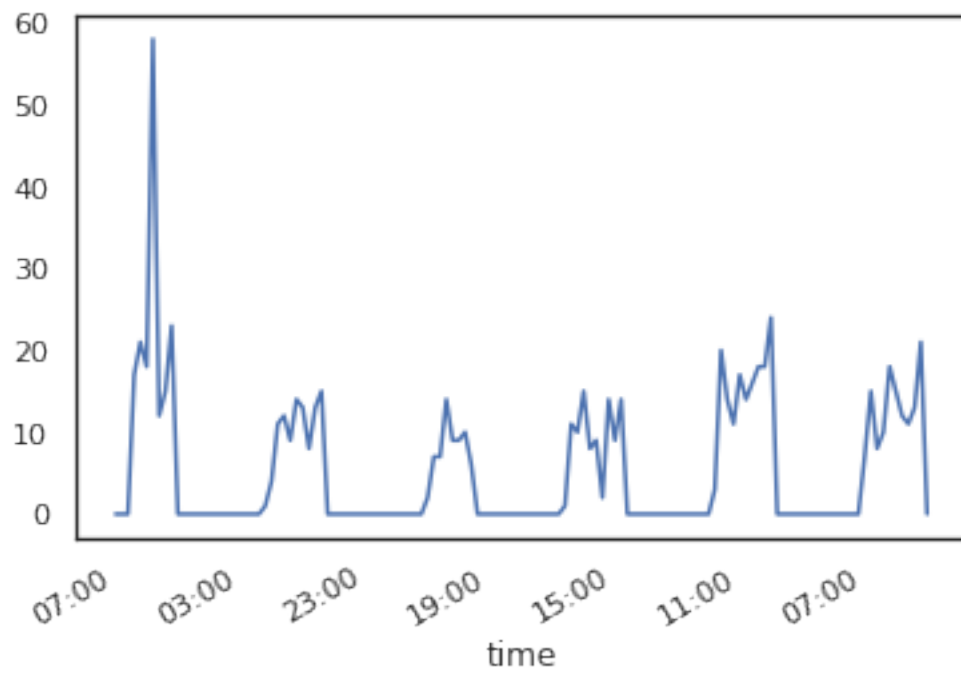
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[14]: stats = stats.resample('60T').sum()  
stats = stats.reset_index()
```

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[15]: stats['time'] = stats['EventTime'].dt.strftime('%H:%M')  
stats['date'] = stats['EventTime'].dt.strftime('%d')  
stats = stats.set_index(['time'])
```

```
[16]: del stats['EventTime']  
stats['date'] = stats['date'].apply(lambda x: str(x))
```

```
[17]: stats['event'].plot.line(subplots=True)
```

```
[17]: array([<AxesSubplot:xlabel='time'>], dtype=object)
```



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[ ]:
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