graph

April 14, 2023

```
[ ]: import pickle
     import pandas as pd
     import numpy as np
     import seaborn as sns
     import itertools
     strs_dict = pickle.load(open('/BS/mlcysec/work/robust-segmentation/code/
      ↪hrnet_seg/tblogs1024/cached_stats/strs_dict_acc_21.pkl', 'rb'))
```

```
[ ]: all_labels = ['vegetation', 'motorcycle', 'bus', 'sidewalk', 'traffic sign',␣
      ↪'rider', 'wall', 'train', 'car', 'pole', 'road', 'truck', 'sky', 'person',␣
      ↪'fence', 'terrain', 'building', 'bicycle', 'traffic light']

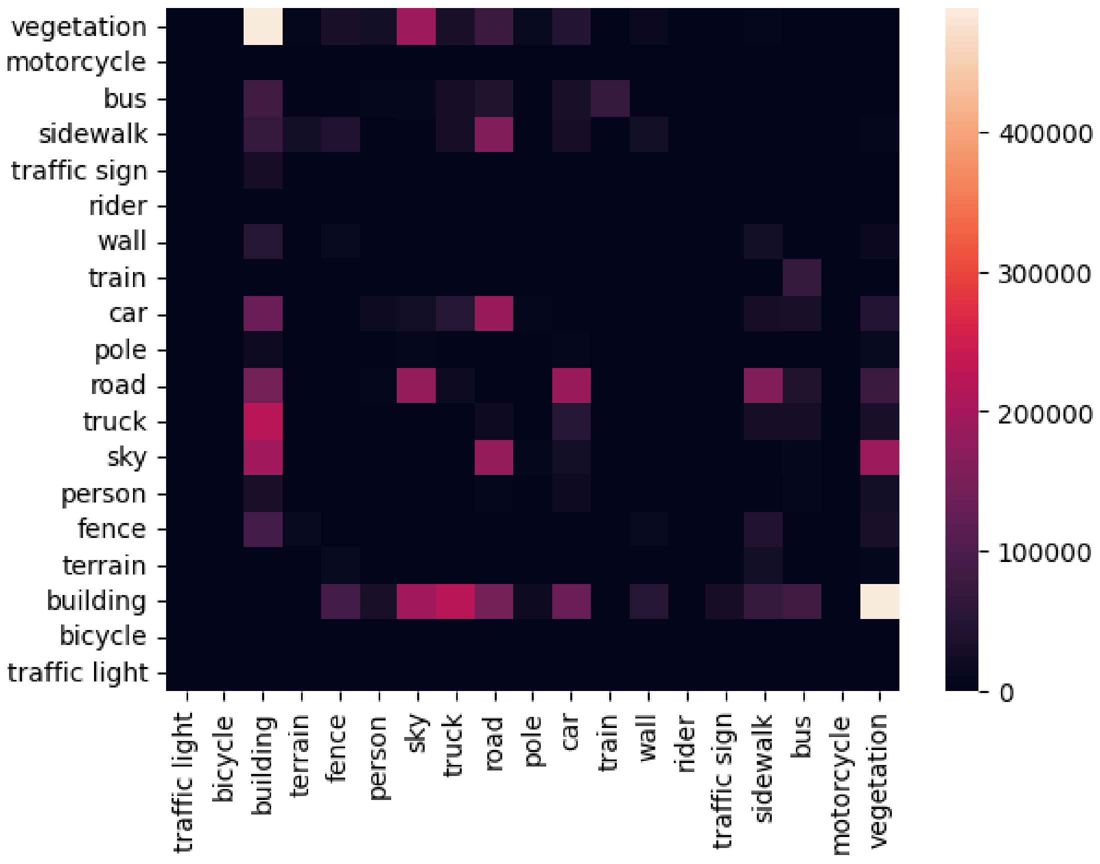
     def gen_heatmap(k=2, normalized=False, label=None):
         groups_dict = strs_dict[k]
         labels = []
         groups_dict = dict(sorted(groups_dict.items(), key=lambda x:x[1],␣
      ↪reverse=True))

         g_d = {}
         for groups in groups_dict.keys():
             if label is not None:
                 if label not in groups:
                     continue
                 g = groups.replace(','+label, '')
                 g = groups.replace(label+',', '')
             else:
                 g = groups
             if g.count(',') == 1:
                 group_labels = g.split(',')
                 labels.extend(group_labels)
                 g_d[g] = groups_dict[groups]
         if len(g_d.keys()) == 0: return
         labels = list(set(labels))
         cols, idx = labels, labels
         df = pd.DataFrame(np.zeros((len(idx), len(cols))),␣
      ↪columns=list(reversed(cols)), index=idx).copy()
         for groups, count in g_d.items():
```

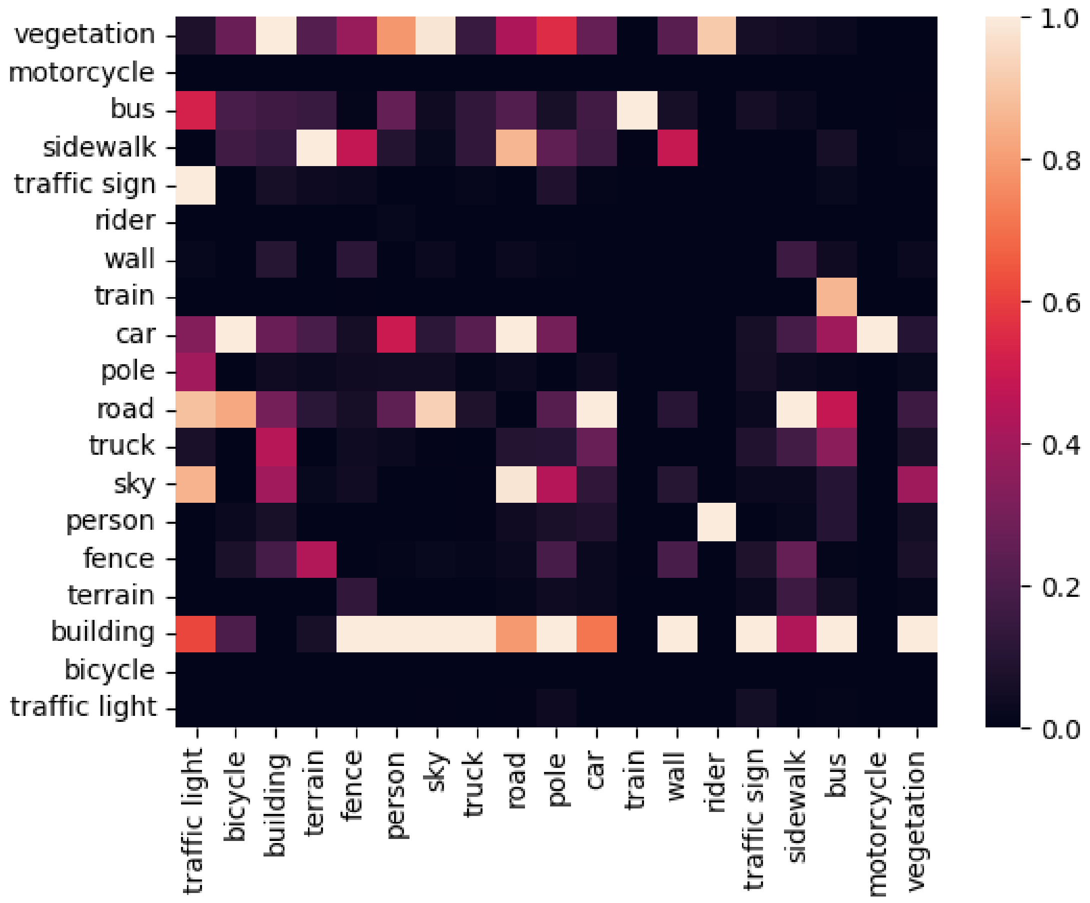
```
        if groups.count(',') == 1:
            c1, c2 = groups.split(',')
            df[c1][c2] += count
            df[c2][c1] += count

    #print(df)
    normalized_df = (df-df.min())/(df.max()-df.min())
    # sns.heatmap(df)
    if normalized:
        sns.heatmap(normalized_df)
    else:
        sns.heatmap(df)
```

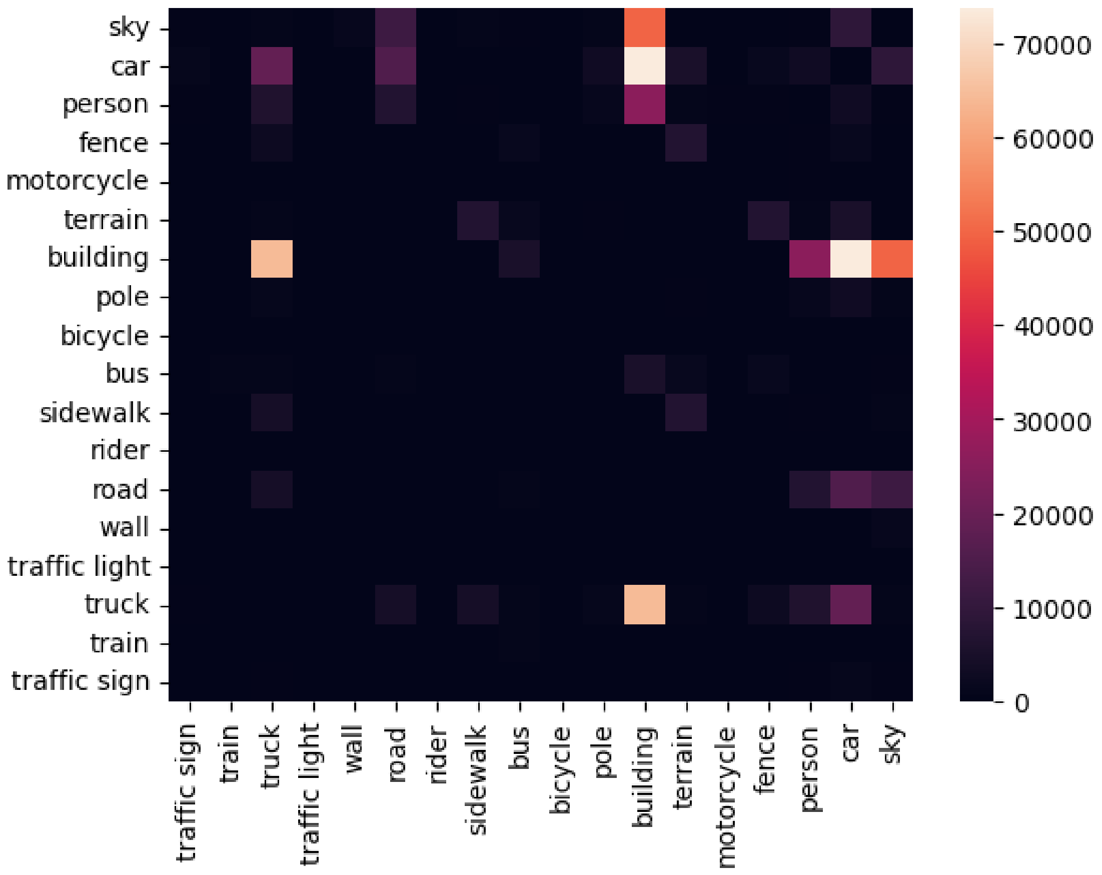
```
[ ]: gen_heatmap(2, normalized=False)
```



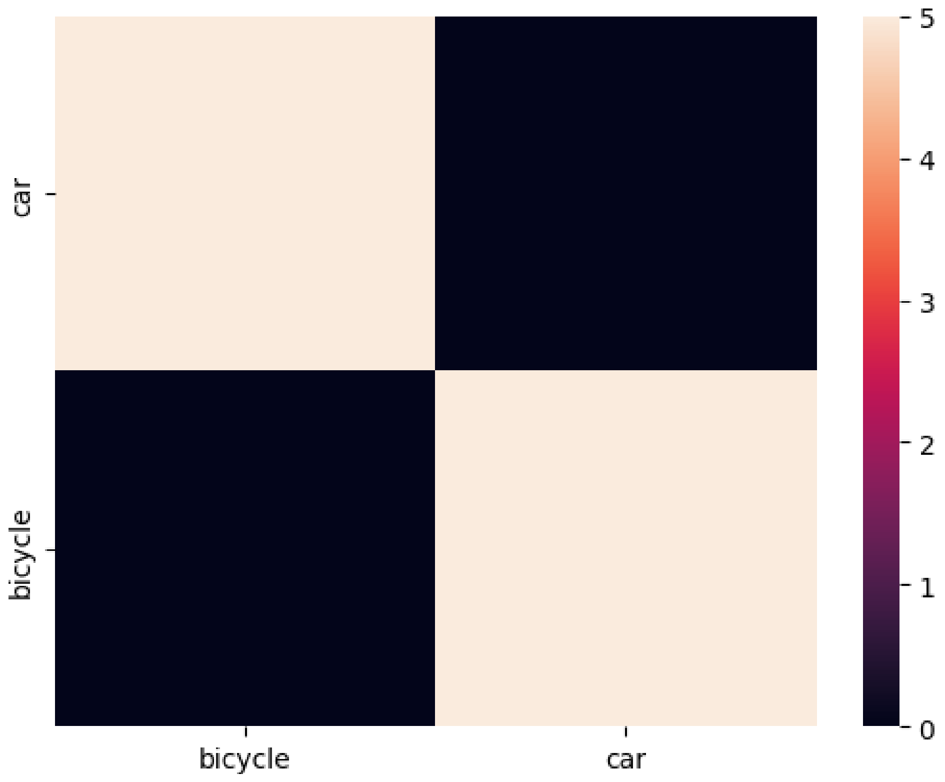
```
[ ]: gen_heatmap(2, normalized=True)
```



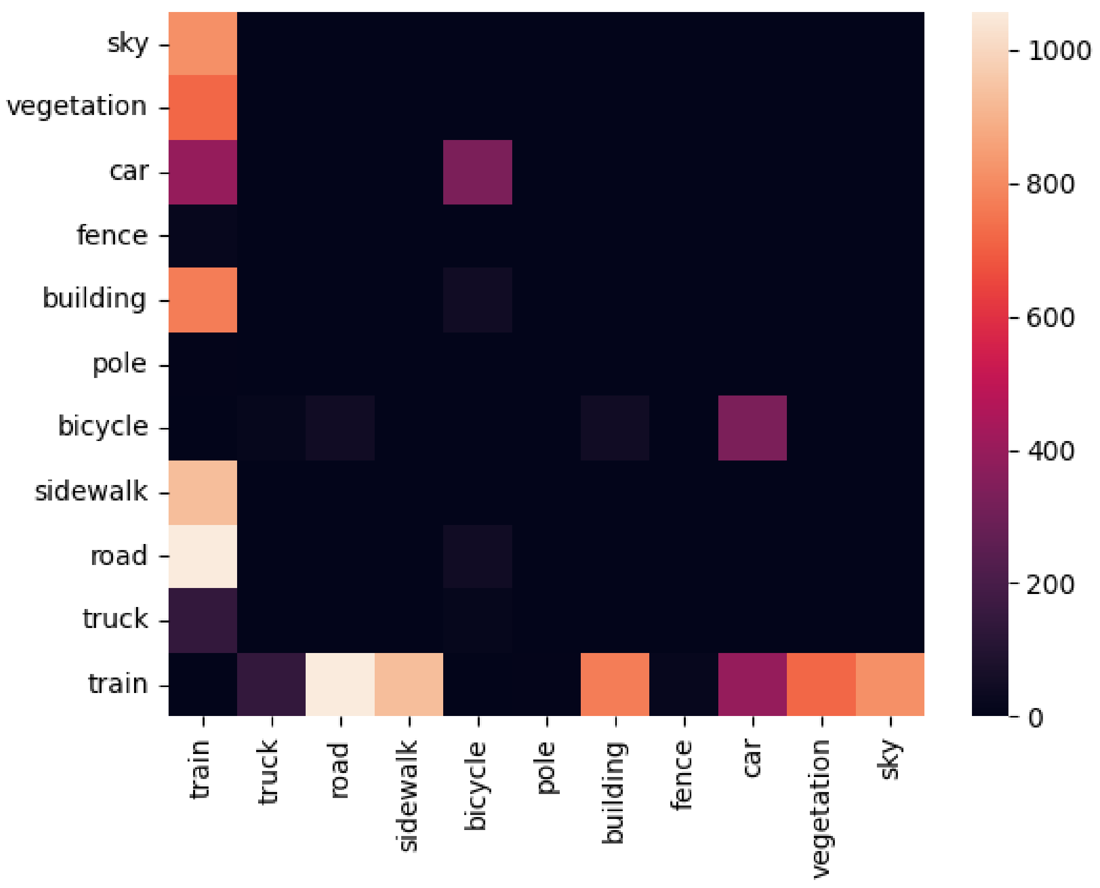
```
[ ]: gen_heatmap(3, normalized=False, label='vegetation')
```



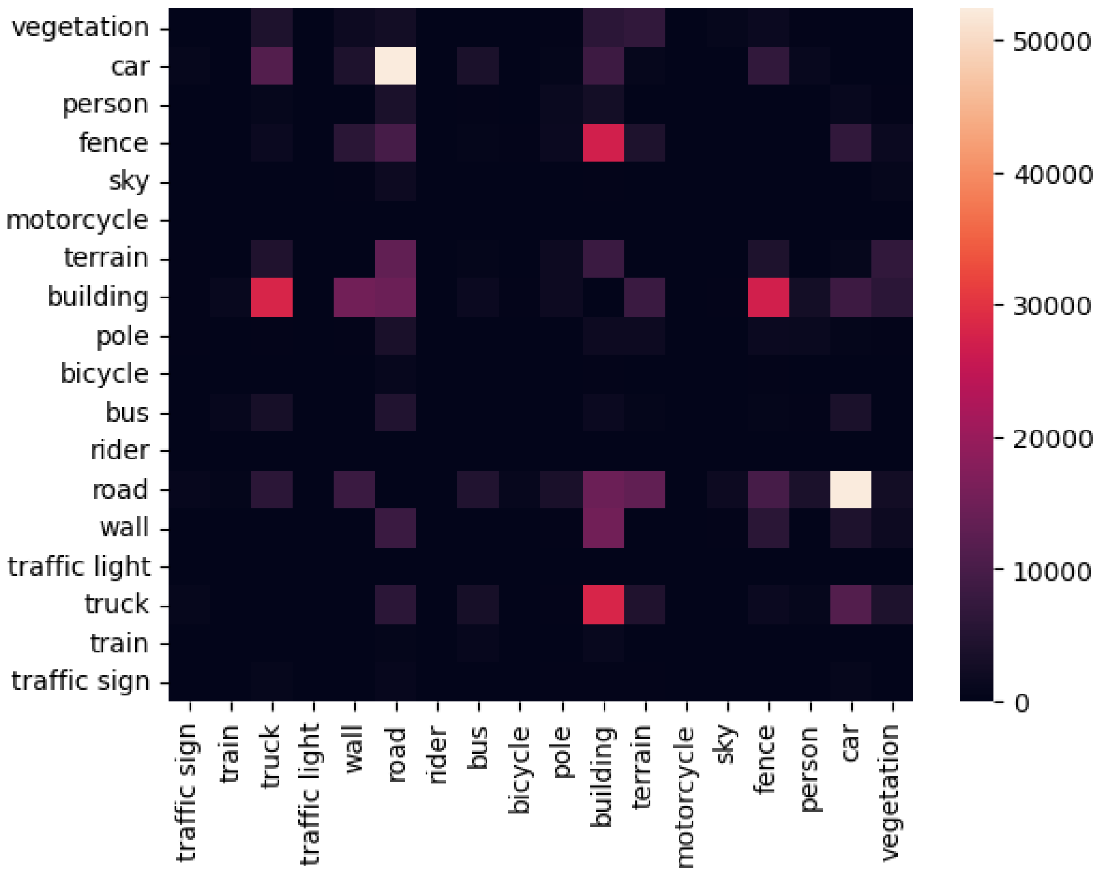
```
[ ]: gen_heatmap(3, normalized=False, label='motorcycle')
```



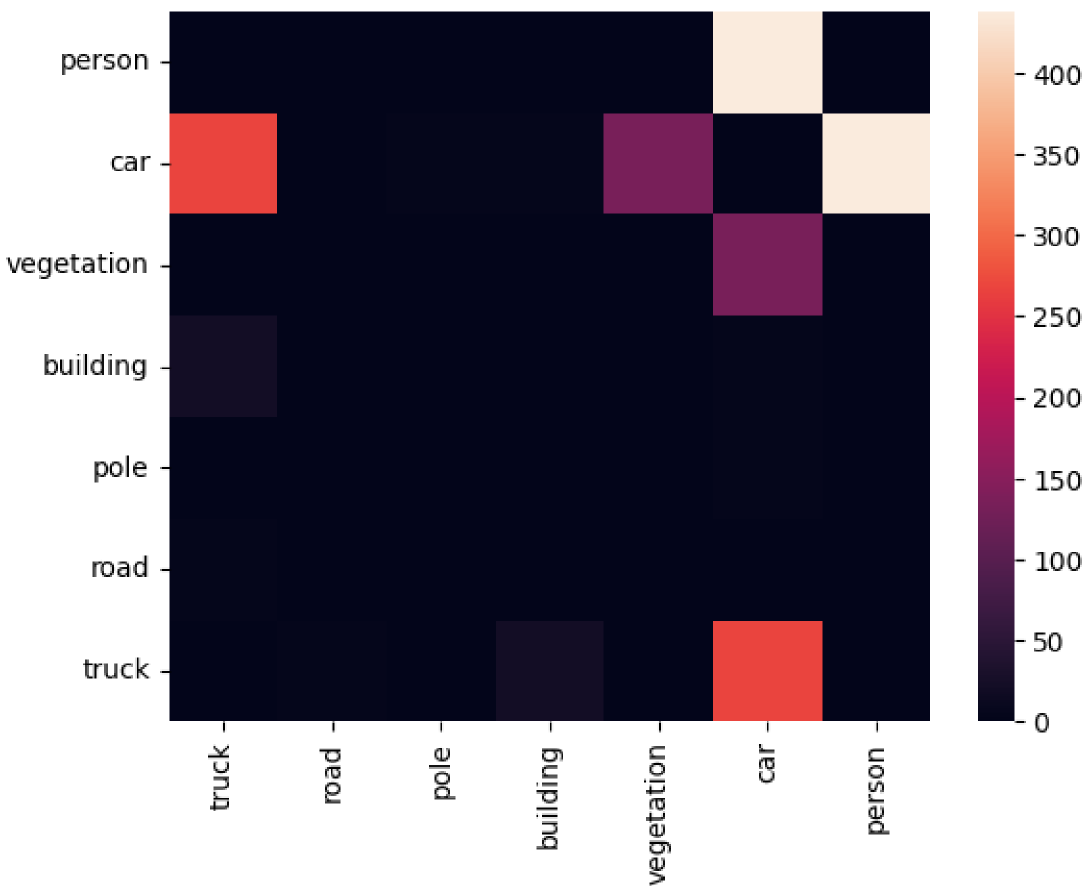
```
[ ]: gen_heatmap(3, normalized=False, label='bus')
```



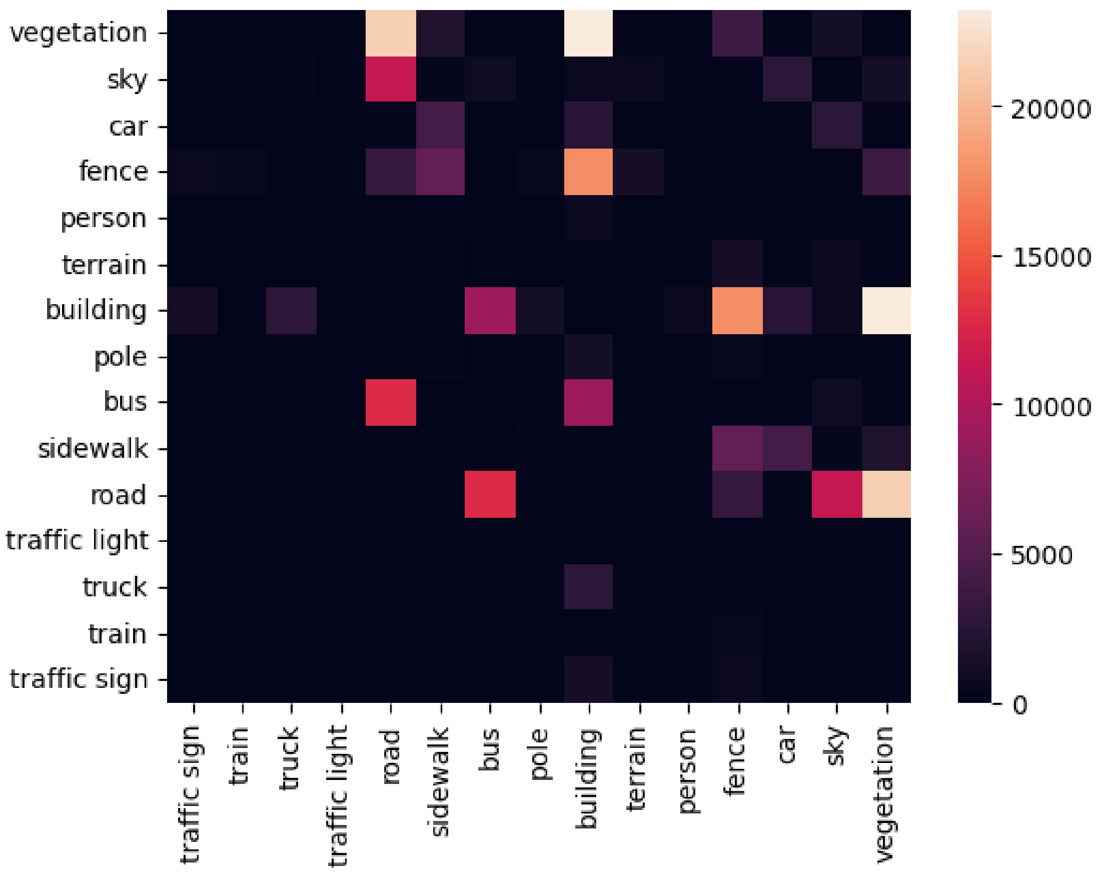
```
[ ]: gen_heatmap(3, normalized=False, label='sidewalk')
```



```
[ ]: gen_heatmap(3, normalized=False, label='rider')
```



```
[ ]: gen_heatmap(3, normalized=False, label='wall')
```



```
[ ]: gen_heatmap(3, normalized=False, label='train')
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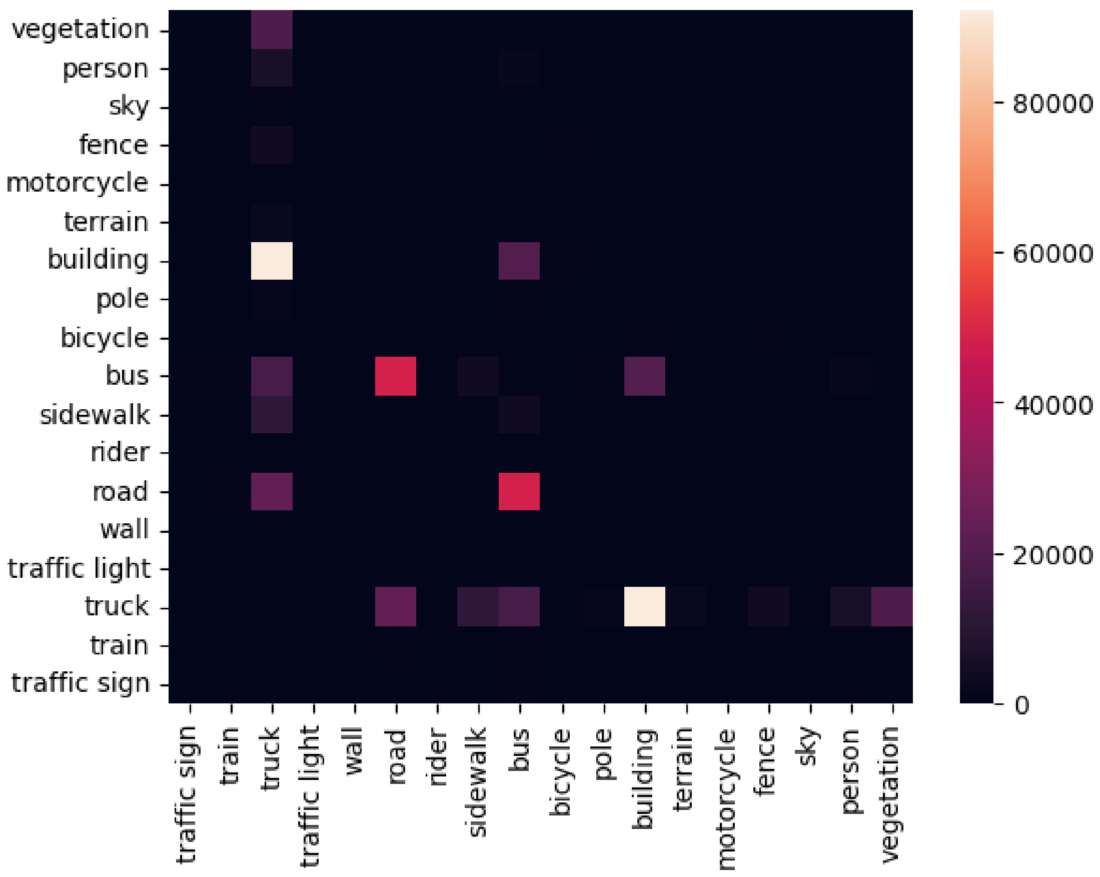
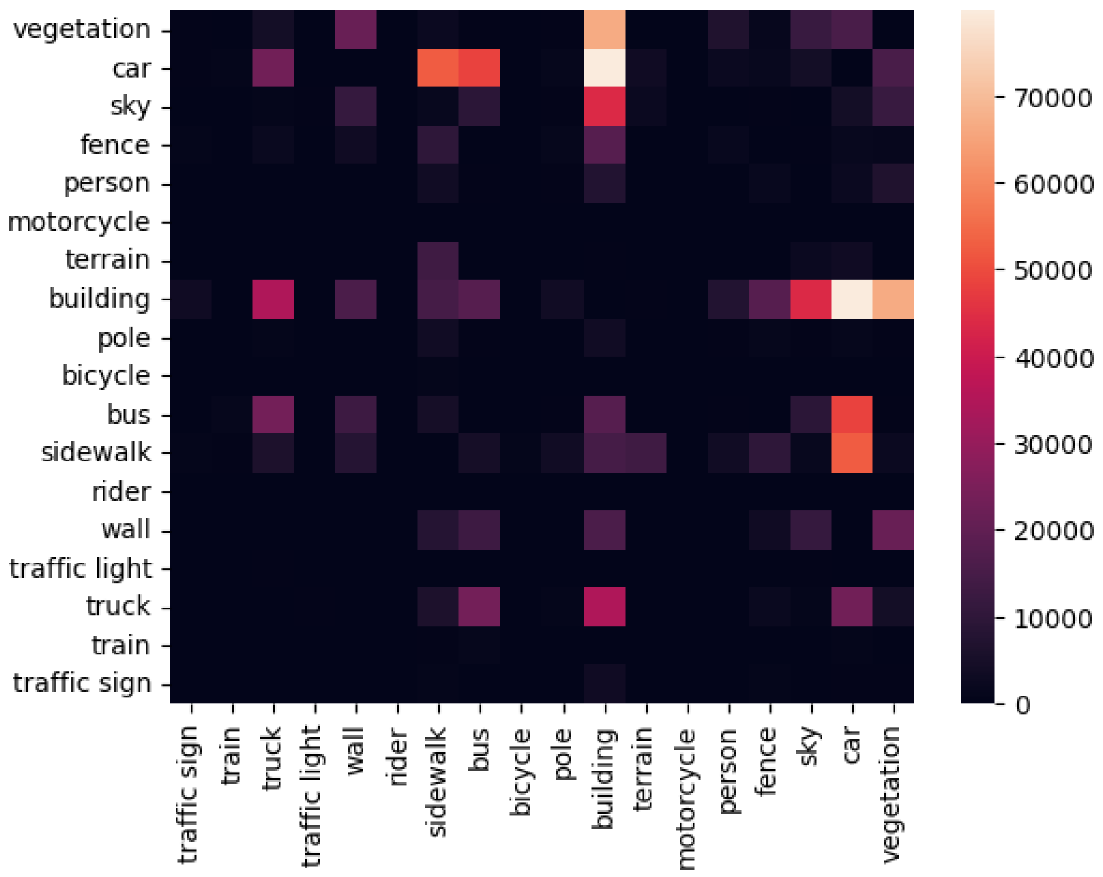
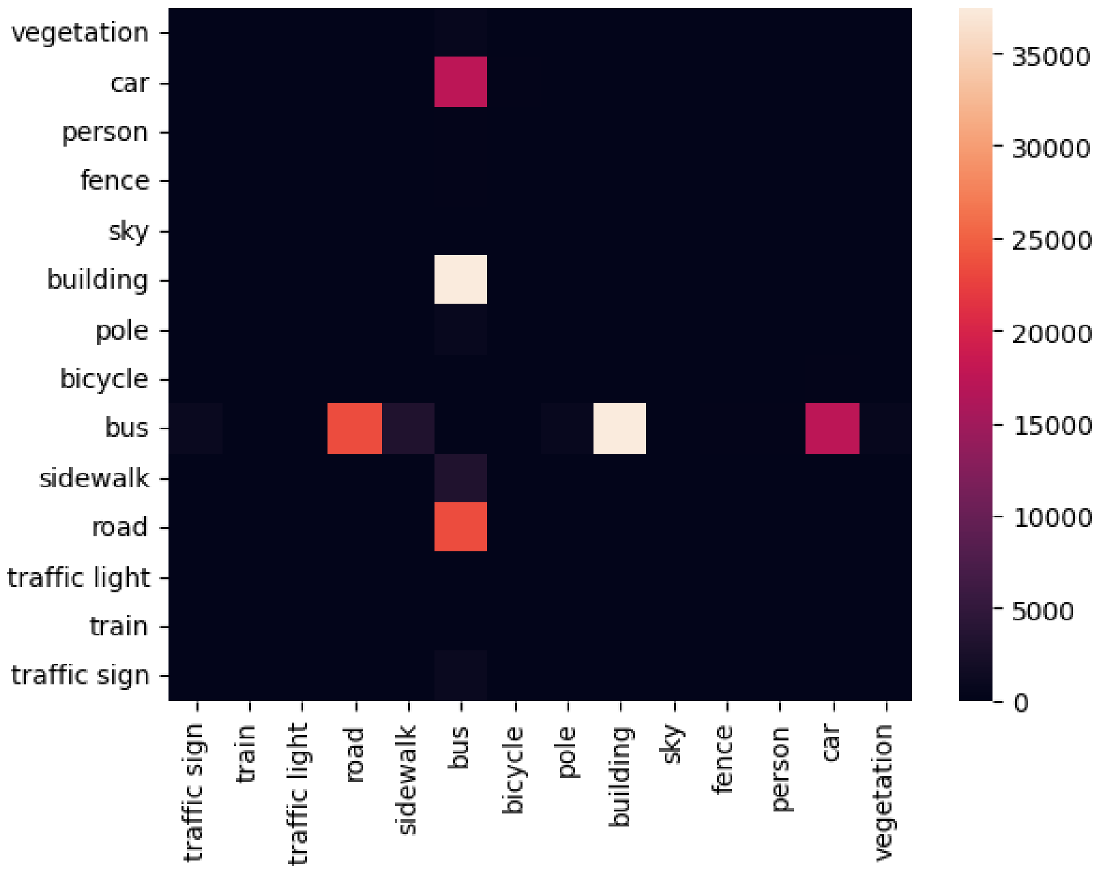
```
[ ]: gen_heatmap(3, normalized=False, label='car')
```



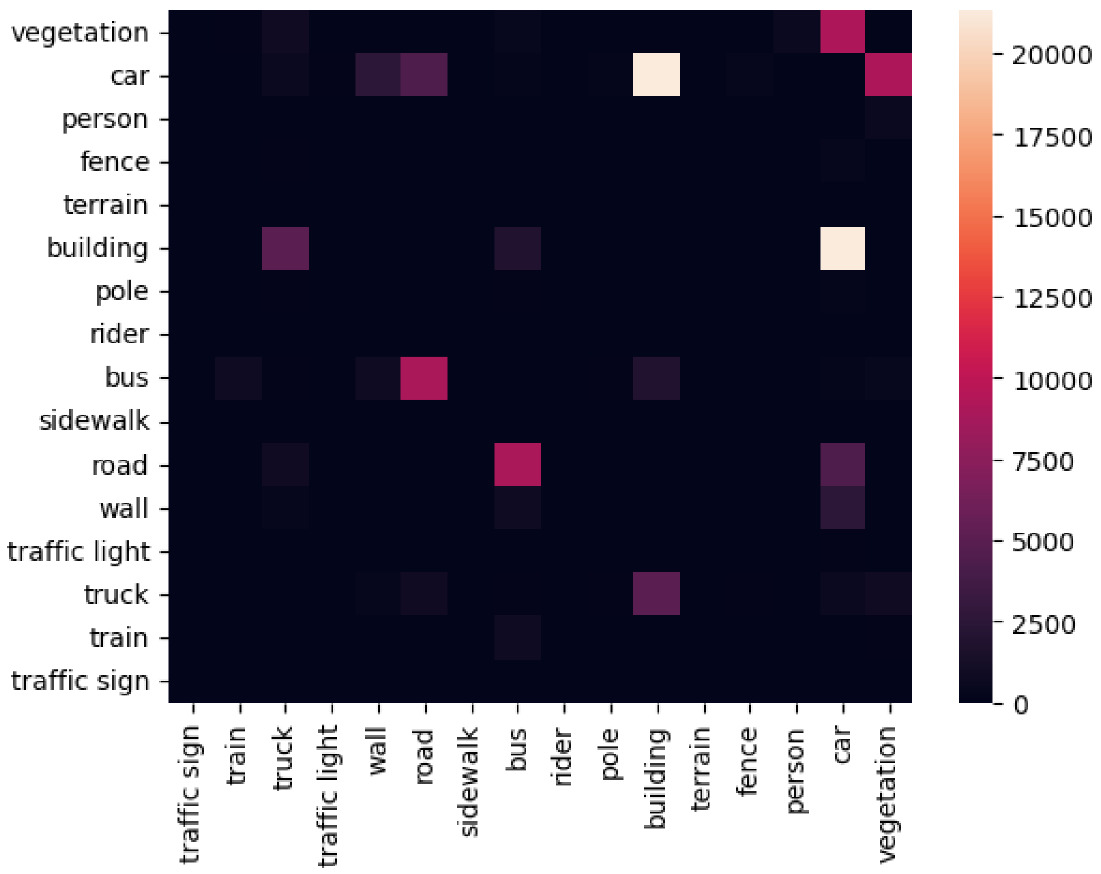
```
[ ]: gen_heatmap(3, normalized=False, label='road')
```



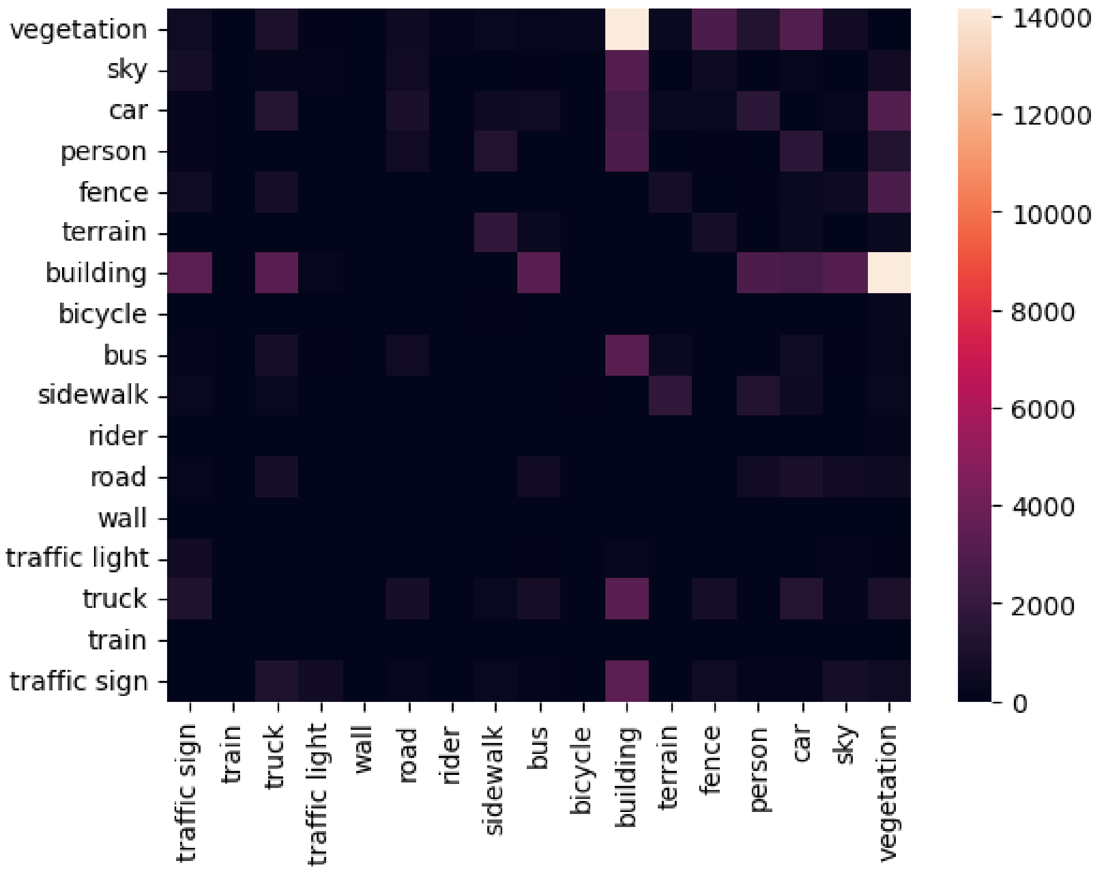
```
[ ]: gen_heatmap(3, normalized=False, label='truck')
```



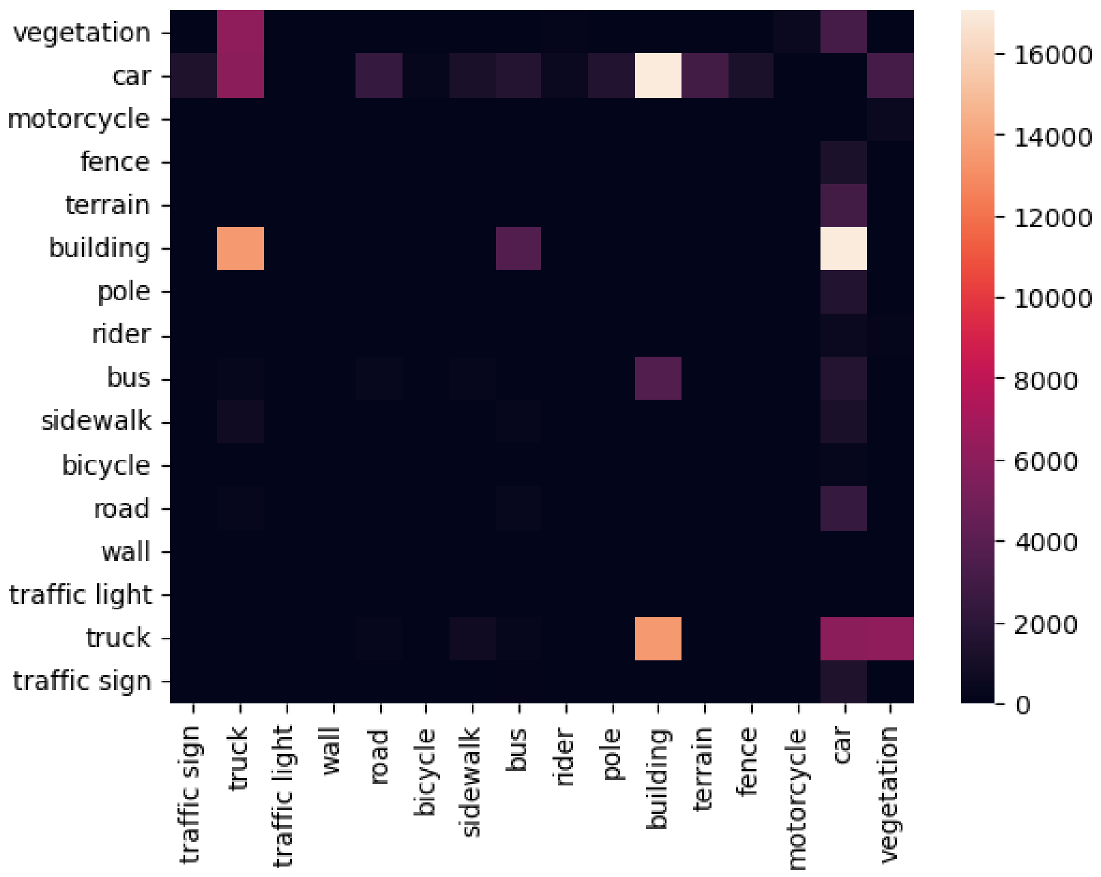
```
[ ]: gen_heatmap(3, normalized=False, label='sky')
```



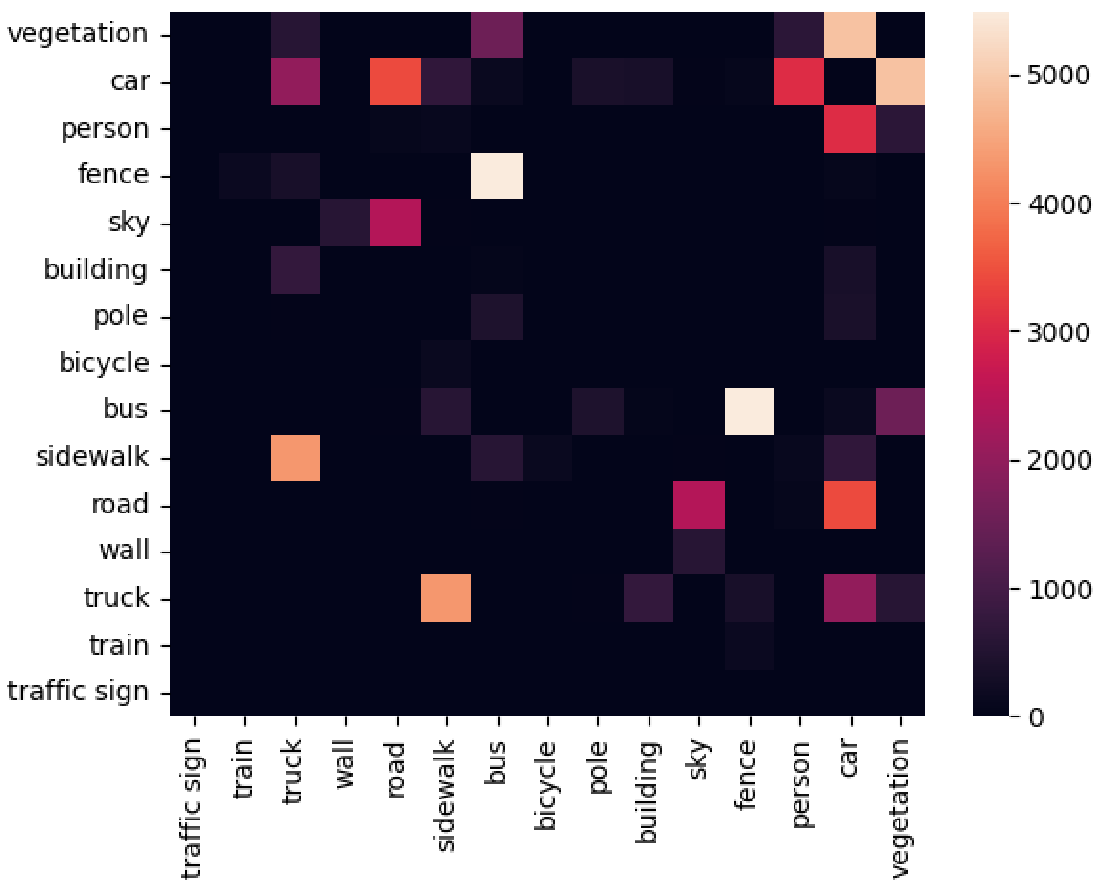
```
[ ]: gen_heatmap(3, normalized=False, label='pole')
```



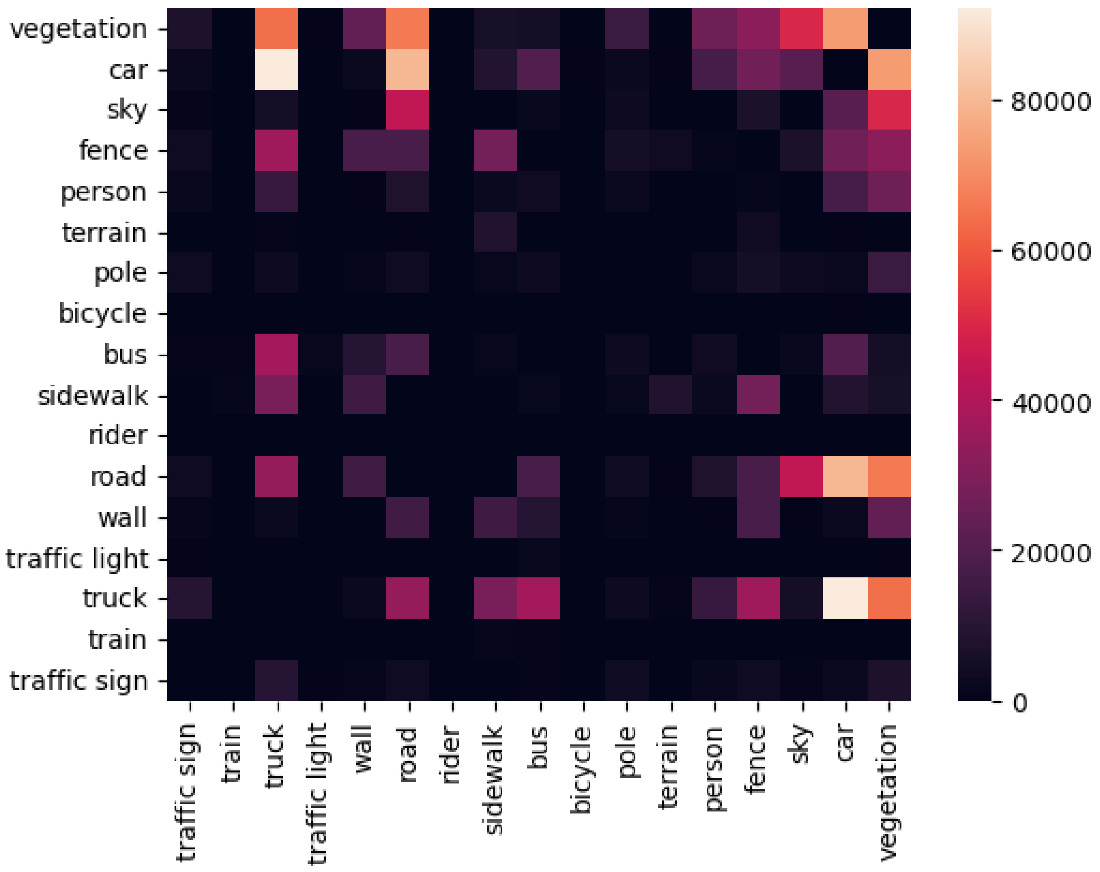
```
[ ]: gen_heatmap(3, normalized=False, label='person')
```



```
[ ]: gen_heatmap(3, normalized=False, label='terrain')
```

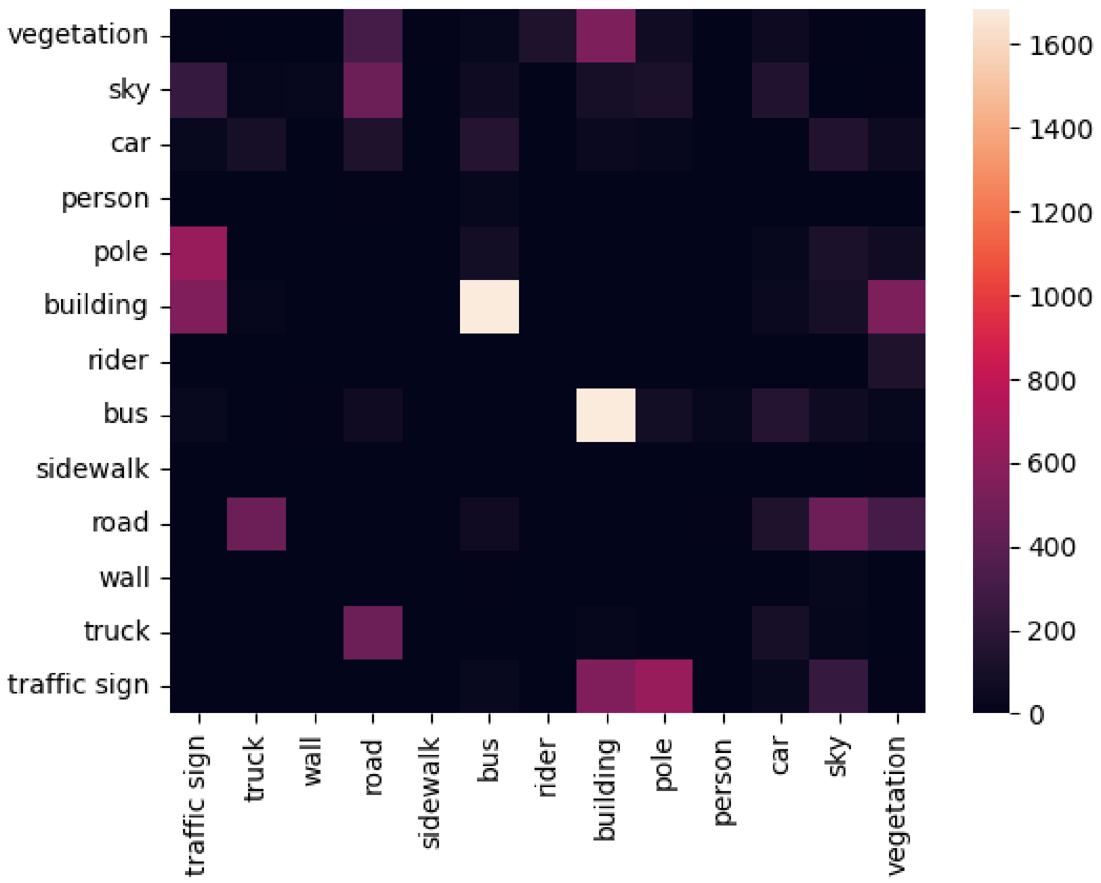


```
[ ]: gen_heatmap(3, normalized=False, label='building')
```



```
[ ]: gen_heatmap(3, normalized=False, label='bicycle')
```

```
[ ]: gen_heatmap(3, normalized=False, label='traffic light')
```



```
[ ]: pc_certified_dict = pickle.load(open('/BS/mlcysec/work/robust-segmentation/code/
     ↪hrnet_seg/tblogs1024/cached_stats/percentage_certified_11.pkl', 'rb'))
     m_pc = np.array(list(pc_certified_dict.values())).mean(0)
     for i in range(len(m_pc)):
         print(f"At set size: {i+1} percentage certified pixels = {np.
     ↪round(m_pc[i]*100, 2)}% ")
```

```
At set size: 1 percentage certified pixels = 79.83%
At set size: 2 percentage certified pixels = 94.45%
At set size: 3 percentage certified pixels = 98.97%
```