

Self-Driving Cars Final Presentation



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Outline

Contribution

Discussions

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Design of the Algorithm

```
46 matched_indices = []
47
48 if dist.shape[1] == 0:
49     return np.array(matched_indices, np.int32).reshape(-1, 2)
50
51 for i in range(dist.shape[0]):
52     j = dist[i].argmin()
53     if dist[i][j] < 1e16:
54         dist[:, j] = 1e18
55         matched_indices.append([i, j])
56
57 return np.array(matched_indices, np.int32).reshape(-1, 2)
```

Resulted AMOTA = 0.680 & AMOTP = 0.530

The Provided Hungarian resulted in AMOTA = 0.616

Tuning the Velocity Error

```
24 NUSCENE_CLS_VELOCITY_ERROR = {  
25     'car': 3,  
26     'truck': 4,  
27     'bus': 5.5,  
28     'trailer': 2,  
29     'pedestrian': 1,  
30     'motorcycle': 4,  
31     'bicycle': 2.5,  
32     'construction_vehicle': 1,  
33     'barrier': 1,  
34     'traffic_cone': 1,  
35 }
```

Original

AMOTA = 0.680 & AMOTP = 0.530

```
24 NUSCENE_CLS_VELOCITY_ERROR = {  
25     'car': 2.125,  
26     'truck': 2.125,  
27     'bus': 6.4,  
28     'trailer': 5,  
29     'pedestrian': 2,  
30     'motorcycle': 3.875,  
31     'bicycle': 2,  
32     'construction_vehicle': 1,  
33     'barrier': 1,  
34     'traffic_cone': 1,  
35 }
```

Fine-Tuned

AMOTA = 0.684 & AMOTP = 0.534

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Factors Holding Back the Tracking Results

```
### Final results ###  
  
Per-class results:  
                AMOTA  AMOTP  
bicycle         0.480  0.446  
bus             0.871  0.500  
car             0.844  0.343  
motorcy        0.664  0.469  
pedestr        0.763  0.360  
trailer         0.450  0.987  
truck          0.689  0.603  
  
Aggregated results:  
AMOTA  0.680  
AMOTP  0.530
```

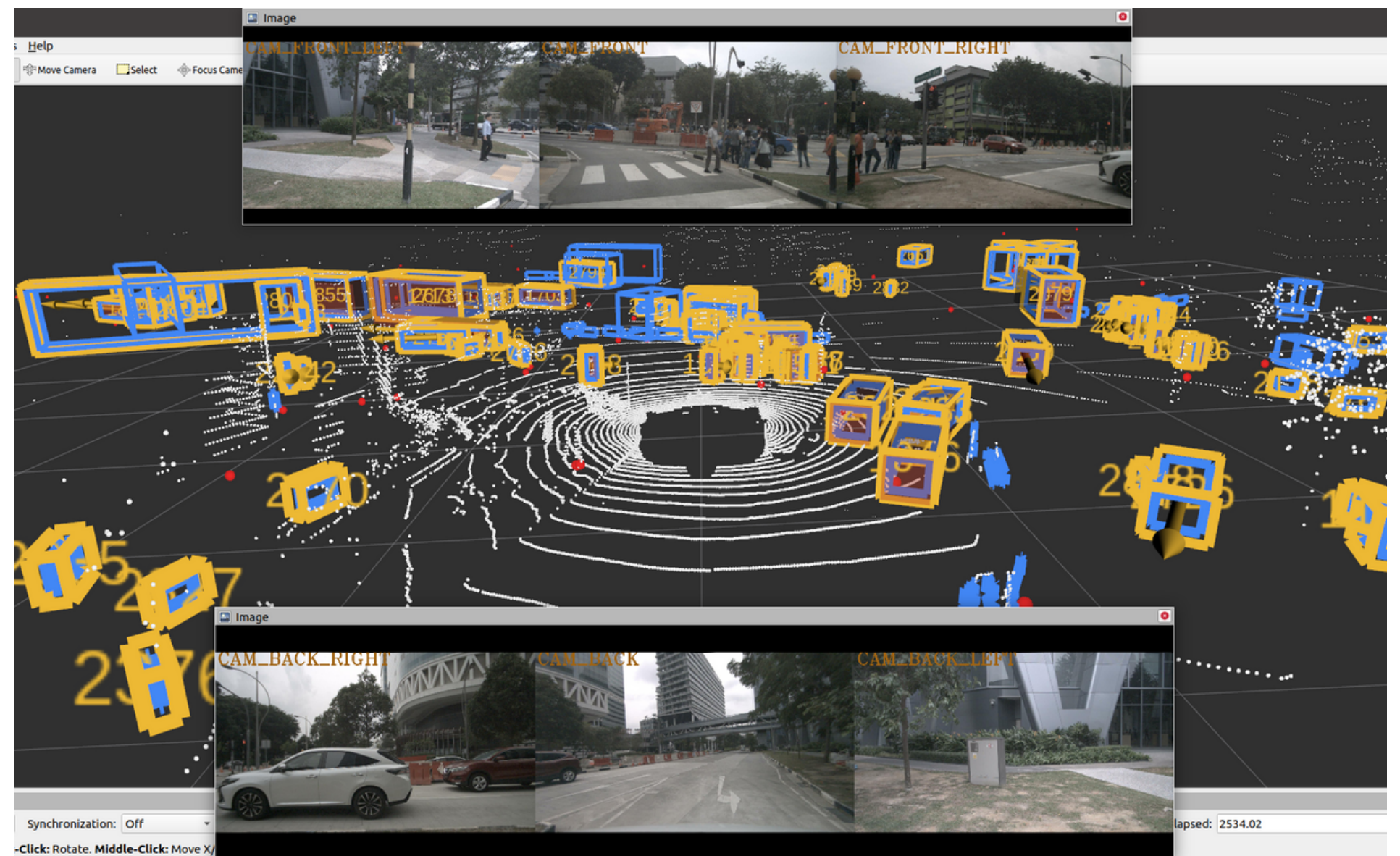
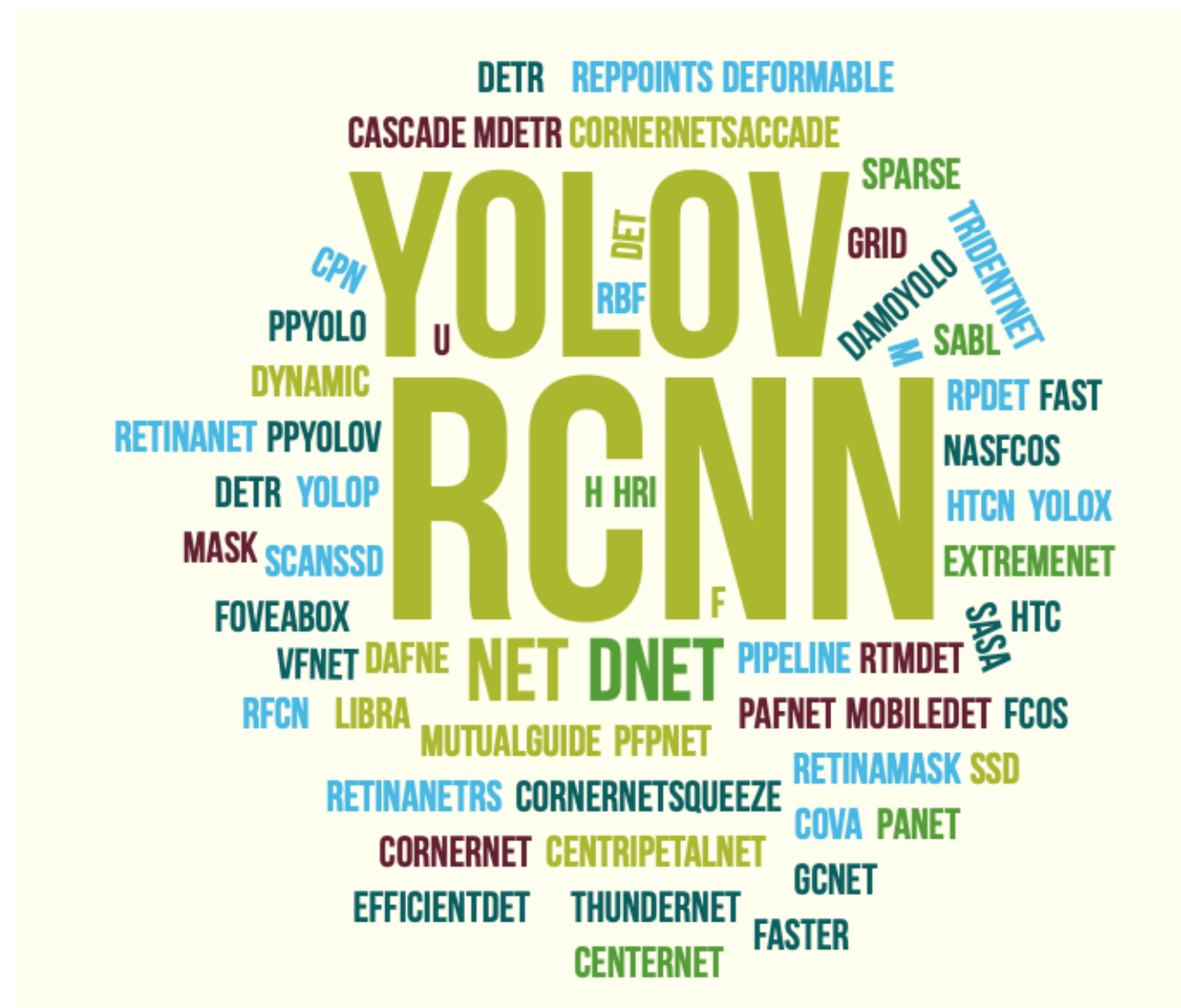
Original

```
### Final results ###  
  
Per-class results:  
                AMOTA  AMOTP  
bicycle         0.487  0.451  
bus             0.872  0.501  
car             0.848  0.342  
motorcy        0.666  0.468  
pedestr        0.765  0.370  
trailer         0.455  0.995  
truck          0.696  0.601  
  
Aggregated results:  
AMOTA  0.684  
AMOTP  0.532
```

Fine-Tuned

Bicycles & Trailers are Holding Back the Tracking Results

Other Fancy Detection Methods



Thank You



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