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Vehicle Orientation Dataset

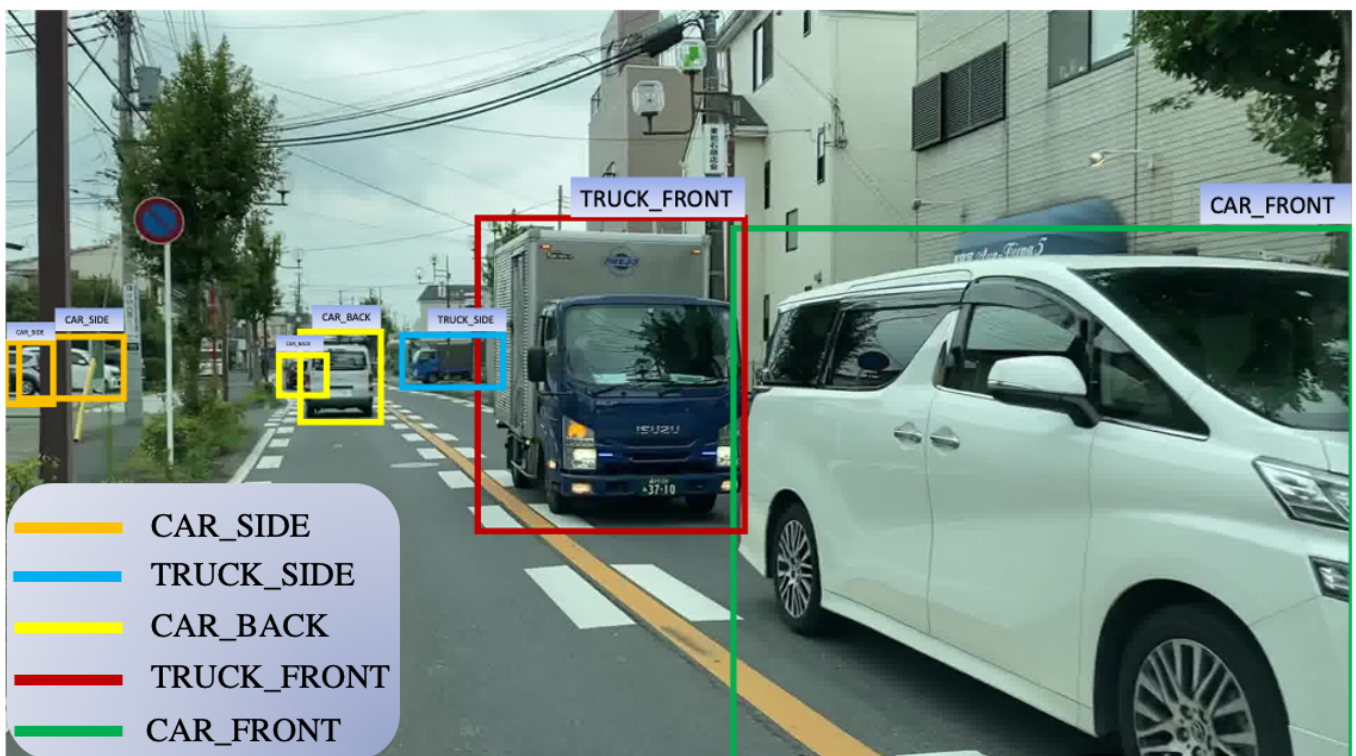
The Vehicle Orientation Dataset

The vehicle orientation dataset contains more than one million annotations of vehicles with orientation in more than 200,000 images. It reduces the need of a secondary neural network to classify orientation by simultaneously providing both vehicle class and direction.

[Read paper»](#)

· [Download Vehicle Orientation Dataset](#) · [Download Experiment Dataset \(Video and GPS\)](#)

Annotations style



All vehicles in the vehicle orientation dataset are labeled with both vehicle class (five categories) and its orientation (three types).

The five classes of vehicles are:

- Car

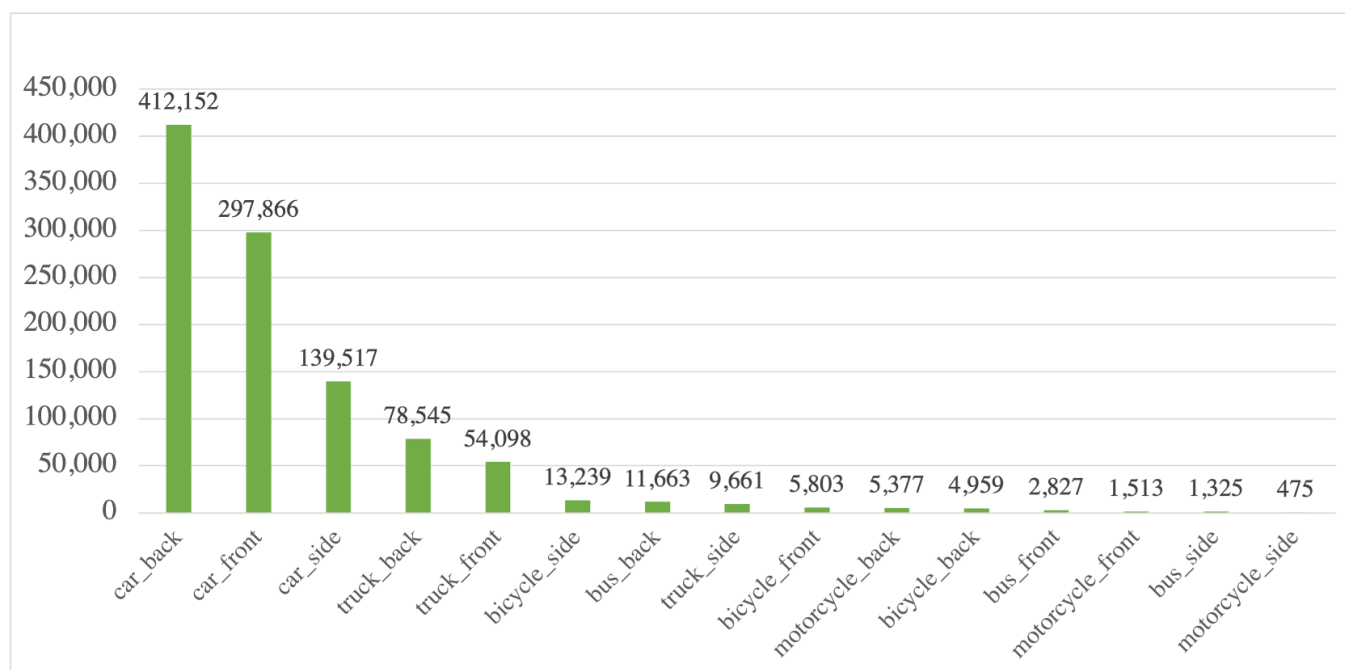
- Bus
- Truck
- Motorcycle
- Bicycle

The three types of orientations are:

- Front
- Back
- Side

So the vehicle orientation dataset has a total of 15 classes of vehicles with orientation such car_back, car_front, car_side, bus_back, bus_front, etc.

Annotations per class in the vehicle orientation dataset follows the long-tail distribution as commonly seen in other vehicle detection data sets.



Download Dataset

The vehicle orientation dataset is hosted on AWS S3 (Asia-pacific, Tokyo) bucket. Since the overall size of the dataset is quite big (~100GB), we have split the vehicle orientation dataset into five parts for convenience of users. Part 1 to Part 4 together contain 200,000 images (50,000 x 4) and Part 5 has 13,714 images.

Please note that the annotations are provided in YOLO format style. There is a `.txt`-file for each `.jpg`-image-file - in the same directory and with the same name. Each line contains the class and bounding box coordinates for a vehicle in the image. If there are multiple vehicles in the image, the number of lines will increase accordingly.

`<object-class> <x_center> <y_center> <width> <height>`

where:

- `<object-class>` - integer object number from 0 to (`classes-1`). Mapping file can be downloaded from here: [Vehicle Orientation Classes](#)

- `<x_center> <y_center> <width> <height>` - float values **relative** to width and height of image, it can be equal from `(0.0 to 1.0]`
- For example: `<x> = <absolute_x> / <image_width>` or `<height> = <absolute_height> / <image_height>`
- Attention: `<x_center> <y_center>` - are center of rectangle (Not top-left corner)

For example, for `SUG007M5MX5JAZGUI4EI.jpg` in vehicle-orientation-5 we have the corresponding annotation file `SUG007M5MX5JAZGUI4EI.txt` containing:

```
2 0.650000 0.573148 0.018750 0.027778
6 0.864062 0.449537 0.265625 0.793519
1 0.300000 0.581481 0.068750 0.051852
0 0.558594 0.625463 0.110937 0.217593
```

The first column indicates the class. 2 in the first row means `car_front`, 6 in the second row is `truck_back`, and so on. Please check [Vehicle Orientation Classes](#) file for all 15 classes.

Download links

- [Part-1, 50,000 images](#)
- [Part-2, 50,000 images](#)
- [Part-3, 50,000 images](#)
- [Part-4, 50,000 images](#)
- [Part-5, 13,714 images](#)

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Contact

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Citation

We will update this section as soon as our paper is published online.