# Night and Day Instance Segmented Park (NDISPark) Dataset

NDIS Park is a collection of images of parking lots for *vehicle detection, segmentation, and counting*.

Each image is *manually* labeled with pixel-wise masks and bounding boxes localizing vehicle instances.

The dataset includes 259 images depicting several parking areas describing most of the problematic situations that we can find in a real scenario: seven different cameras capture the images under various weather conditions and viewing angles. Another challenging aspect is the presence of partial occlusion patterns in many scenes such as obstacles (trees, lampposts, other cars) and shadowed cars.

The main peculiarity is that *images are taken during the day and the night*, showing utterly different lighting conditions.

We suggest a three-way split (train-validation-test). The train split contains images taken during the daytime while validation and test splits include images gathered at night.

In line with these splits we provide some annotation files:

- *train_coco_annotations.json* and *val_coco_annotations.json* --> JSON files that follow the golden standard MS COCO data format (for more info see https://cocodataset.org/#format-data) for the training and the validation splits, respectively. All the vehicles are labeled with the COCO category *'car'*. They are suitable for vehicle detection and instance segmentation.

- *train_dot_annotations.csv* and *val_dot_annotations.csv* --> CSV files that contain xy coordinates of the centroids of the vehicles for the training and the validation splits, respectively. Dot annotation is commonly used for the visual counting task. Specifically, they have the following columns:
    - imgName - filename of the image containing the vehicles.
    - X,Y - 2D coordinates of the vehicles in the image space.
    - class - vehicle class (always to 0)

- *ground_truth_test_counting.csv* --> CSV file that contains the number of vehicles present in each image. It is only suitable for testing vehicle counting solutions. Specifically, it has the following columns:
    - imgName - filename of the image containing the vehicles.
    - numVehicles - total number of vehicles present in the image.

**Contact Information**

If you would like further information about the dataset or if you experience any issues downloading files, please contact us at luca.ciampi@isti.cnr.it