Documentation
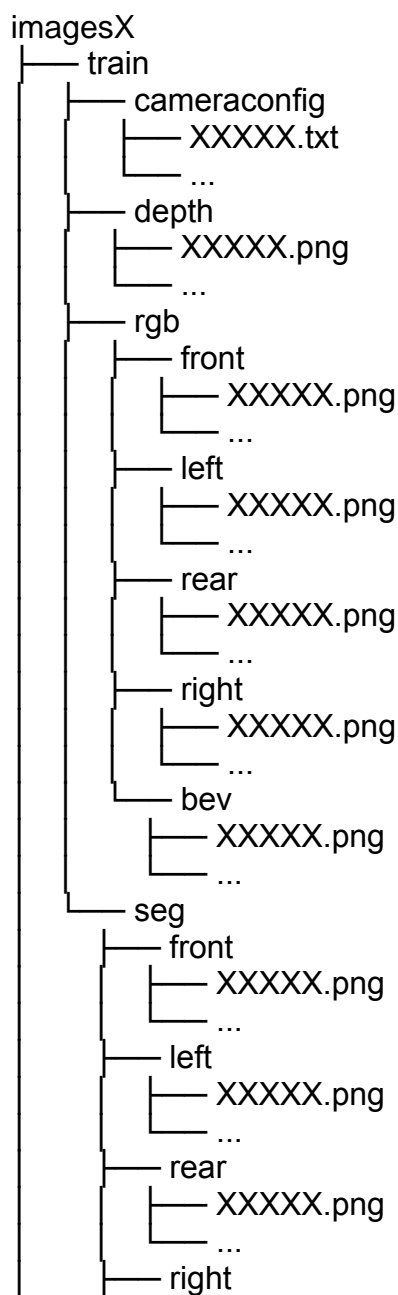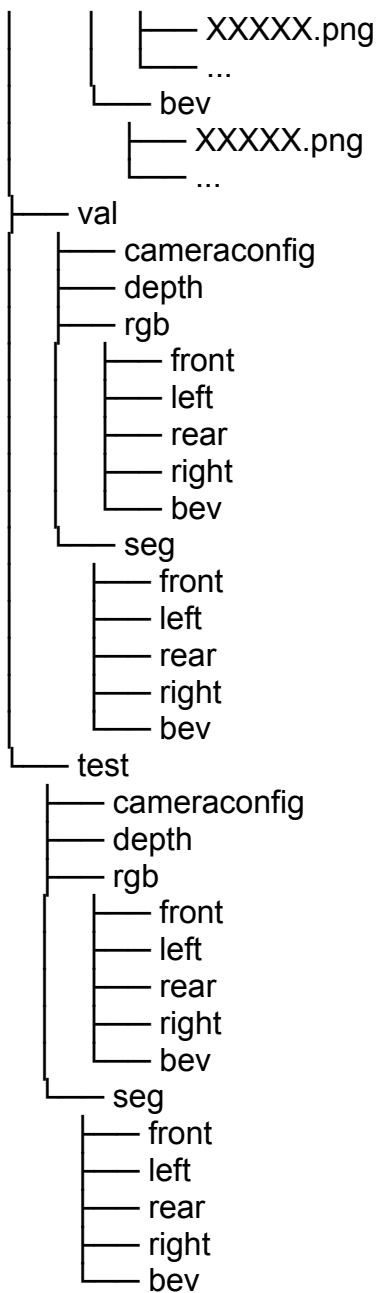The FB-SSEM dataset is a synthetic datasetconsisting of surround-view fisheye camera images and BEV maps from simulated sequences of ego car motion

We use the Unity game engine to simulate a parking lot environment for our dataset. The parking lot consists of parked cars/trucks, buses, electric vehicle (EV) charging stations of varying dimensions, and large containers of varying heights (on the boundaries). All the vehicles in the parking lot, except the ego car, are static. For the ego car, we use a forward-looking wide camera to simulate its four surround-view fisheye cameras. Our dataset consists of 20 sequences of ego car motion through the parking lot environment. Each sequence represents a different parking lot setup, i.e., different placement of all the vehicles in the lot and ground textures. Each sequence consists of 1000 samples; each sample consists of RGB images from the four car-mounted fisheye cameras (i.e., front, left, rear, and right cameras) and the BEV camera. Corresponding semantic segmentation maps for all five views and normalized height maps for the BEV are also generated. In addition, ego-motion information (3D rotation and translation) corresponding to every sample is obtained. We consider five semantic classes for the BEV segmentation map: car (ego car and parked cars/trucks), bus, EV charger, ground, and a non-driveable area.

Folder Structure for every sequence:

```
imagesX
├──── train
│     ├──── cameraconfig
│     │     ├──── XXXXX.txt
│     │     └──── ...
│     ├──── depth
│     │     ├──── XXXXX.png
│     │     └──── ...
│     ├──── rgb
│     │     ├──── front
│     │     │     ├──── XXXXX.png
│     │     │     └──── ...
│     │     ├──── left
│     │     │     ├──── XXXXX.png
│     │     │     └──── ...
│     │     ├──── rear
│     │     │     ├──── XXXXX.png
│     │     │     └──── ...
│     │     ├──── right
│     │     │     ├──── XXXXX.png
│     │     │     └──── ...
│     │     └──── bev
│     │           ├──── XXXXX.png
│     │           └──── ...
│     └──── seg
│           ├──── front
│           │     ├──── XXXXX.png
│           │     └──── ...
│           ├──── left
│           │     ├──── XXXXX.png
│           │     └──── ...
│           ├──── rear
│           │     ├──── XXXXX.png
│           │     └──── ...
│           ├──── right
```

```
│           ├── XXXXX.png
│           └── ...
│       └── bev
│           ├── XXXXX.png
│           └── ...
├── val
│   ├── cameraconfig
│   ├── depth
│   ├── rgb
│   │   ├── front
│   │   ├── left
│   │   ├── rear
│   │   ├── right
│   │   └── bev
│   └── seg
│       ├── front
│       ├── left
│       ├── rear
│       ├── right
│       └── bev
└── test
    ├── cameraconfig
    ├── depth
    ├── rgb
    │   ├── front
    │   ├── left
    │   ├── rear
    │   ├── right
    │   └── bev
    └── seg
        ├── front
        ├── left
        ├── rear
        ├── right
        └── bev
```

(12000 files per image sequence)

Note
-- depth folder consists of normalized height maps generated from Unity using the depth buffer
-- cameraconfig folder consists of locations of all five cameras at timestep XXXXX that can be used to infer ego motion information

The following color pallet is used for segmentation annotation
Color   Tag
[0,   0,   0], Ground
[60, 60,   0], Non-driveable area
[0,   0, 120], EV charger
[150, 150, 150], Bus
[255, 255, 255], Car