1. Brief introduction

We provide 1063 frames data sampled on a highway for localization test. It consists of two groups, *testdata1* and *testdata2*, with 586 and 477 consecutive frames, respectively. Each test frame is made up of 3 parts: 1) a RGB image, 2) GNSS data of low precision, and 3) INS data of high precision, which only served as ground truth. The resolution of RGB image is 1920×1208, and the sampling frequency is 30 Hz. The GNSS sampling frequency is 8 Hz and INS 20 Hz.

2. Data characteristics

This data set focuses on testing the performance of elo algorithm in a normal highway setting where the vehicle travels at about 100km/h without traffic jam. The following situations are included, such as cruising, lane change, overtaken by side cars and so on.
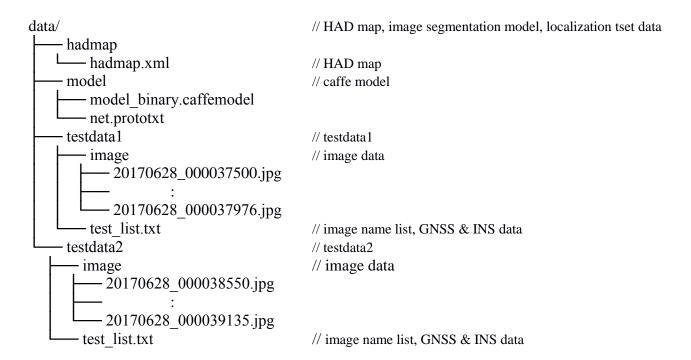
3. Device introduction

This data set contains images, low-precision GNSS data, and high-precision INS data. The images are sampled by SEKONIX SF332. The GNSS data is sampled by U-blox UBX-M8030. And the INS data is sampled by NovAtel SPAN-CPT. The camera is mounted at the inner center of the windshield. The antenna of U-blox UBX-M8030 is just outside of the car as long as it can receive GNSS data. And the antenna of NovAtel SPAN-CPT is attached to the center of the trunk surface. The details of the devices are showed in the table:

camera	SEKONIX SF3323
Resolution & frequency	1920×1208 @ 30fps
FOV	H60°, V36.6°
Focal length	5.8mm
Pixel size	3um ×3um
color type	RCCB
hardware interface	FAKRA
GNSS sensor	U-blox UBX-M8030
hardware interface	RS232
INS sensor	NovAtel SPAN-CPT
hardware interface	RS232

4. Folder description

The folder of data set

```
data/                                   // HAD map, image segmentation model, localization tset data
├── hadmap
│   └── hadmap.xml                       // HAD map
├── model                               // caffe model
│   ├── model_binary.caffemodel
│   └── net.prototxt
├── testdata1                           // testdata1
│   ├── image                           // image data
│   │   ├── 20170628_000037500.jpg
│   │   :
│   │   └── 20170628_000037976.jpg
│   └── test_list.txt                   // image name list, GNSS & INS data
└── testdata2                           // testdata2
    ├── image                           // image data
    │   ├── 20170628_000038550.jpg
    │   :
    │   └── 20170628_000039135.jpg
    └── test_list.txt                   // image name list, GNSS & INS data
```

Each row of test_list.txt is organized as:
  "Image name GNSS longitude GNSS latitude INS longitude INS latitude"