

Dataset Description

Dataset of *Leveraging Crowdsourced GPS Data for Road Extraction from Aerial Imagery*

Files

- **train_val/**
 - **image/**: contains 278 satellite images (`x_y_sat.png`)
 - **mask/**: contains 278 mask images (`x_y_mask.png`)
- **test/**
 - **image/**: contains 70 satellite images (`x_y_sat.png`)
 - **mask/**: contains 70 mask images (`x_y_mask.png`)
- **GPS/**
 - `beijing_gps_dir_speed_interval_sorted.pkl`: The pickle file storing all raw GPS records
 - **patch/**: contains 348 GPS patch files (`x_y_gps.pkl`). Each stores the GPS records located in the area of input image `x_y_sat.png`
- **coordinate/**: contains `x_y_coor.txt` (WGS format) and `x_y_coor2.txt` (GCJ format) files

Each input image `image/x_y_sat.png` is a RGB satellite image of 1024×1024 pixel size. Its corresponding GPS data is stored in file `/GPS/patch/x_y_gps.pkl`, and corresponding mask image is `mask/x_y_mask.png`.

Unfortunately, we haven't got the permission to publish the satellite images due to the license of the data provider. However, we provide all the GPS coordinates of each satellite image (available in WGS and GCJ format) in `/coordinate/`. You might apply for the access and download these images from Amap (高德地图) or DigitalGlobe referencing the coordinates.

GPS Data

The GPS dataset contains ~50m rows of GPS record collected from ~28k vehicles in Beijing.

To save the loading time, we publish the dataset in Python's Pickle format, which can be directly loaded like:

```
import pandas
import pickle
gps_data = pickle.load(open('beijing_gps_dir_speed_interval_sorted.pkl',
'rb'))
```

Here are first lines of this file:

	ID	time	lat	lon	dir	speed	timeinterval
0	0	1228061046	39.71743	116.61815	0	0	NaN
1	0	1228088457	39.71742	116.61798	0	0	177.5
2	0	1228088520	39.71670	116.61420	159	0	150.5
3	0	1228088758	39.71742	116.61798	0	0	272.5
4	0	1228090926	39.71670	116.61428	0	0	354.5
5	0	1228091249	39.73902	116.60902	12	308	318.0
6	0	1228091562	39.73770	116.56821	267	1080	264.0

Definition of columns:

- `ID`: Vehical ID (integer)
- `time`: Timestamp (UNIX format, in second)
- `lat`: Latitude (in degree)
- `lon`: Lontitude (in degree)
- `dir`: Heading (in degree, 0 means the vehical is heading north or isn't moving)
- `speed`: Speed (in meter per minute)
- `timeinterval`: The time interval between two records (in second)

The `lat`/`lon` are in the WGS System. The data table is sorted by `ID` and then by `time`.

Usage

```
python train.py \
  --model "dlink34" \
  --sat_dir "dataset/train_val/image" \
  --mask_dir "dataset/train_val/mask" \
  --gps_dir "dataset/GPS/patch" \
  --gps_type "data"
```

License



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