tvtLane Dataset

Description:

This dataset contains 19383 image sequences for lane detection, and 39460 frames of them are labeled. These images were divided into two parts, a training dataset contains 9548 labeled images and augmented by four times, and a test dataset has 1268 labeled images. The size of images in this dataset is 128*256.

- ***Training set:***

✓ *Data augmentation:*

The training set is augmented. By flipping and rotating the images in three degrees, the data volume is quadruple. These augmented data are separated from the original training set, which is name as "origin". "f" and "3d" after "-" are represent for flipping and rotation. Namely, the "origin-3df" folder is the rotated and flipped training set.

✓ *Data construction:*

The original training set contains continuous driving scenes images, and they are divided into images sequences by every twenty. All images are contained in "clips_all", and there are 19096 sequences for training. Each 13^{th} and 20^{th} frame in a sequence are labeled, and the 38192 image and their labels are in "clips_13(_truth)" and "clips_20(_truth)".

The original training dataset has two parts. Sequences in "0313", "0531" and "0601" subfolders are constructed on TuSimple lane detection dataset, containing scenes in American highway. The four "weadd" folders are added images in rural road in China.

- ***Test set:***

✓ *Testset #1:*

The normal testset, named Testset #1, is used for testing the overall performance of algorithms. 270 sequences are contained, and each 13^{th} and 20^{th} image is labeled.

✓ *Testset #2:*

The Testset #2 is used for testing the robustness of algorithms. 17 kinds of hard scenes for human eyes are contained. All frames are labeled.

The construction and content of the dataset is shown as below.

TABLE I: Construction and Content of original dataset

Part	Including	Labeled Frames	Labeled Images
Trainset	TuSimple (Highway)	$13th$ and $20th$	7,252
	Ours (Rural Road)	$13th$ and $20th$	2,296
Testset	Testset #1	$13th$ and $20th$	540
	Testset #2	all frames	728

- **Using:**

Index are contained. For detecting lanes in continuous scenes, the input size is 5 in our paper. Thus, the former images are additional information to predict lanes in the last frame, and the last frame is the labeled one.

We use different sampling strides to get 5 continuous images, as shown below. Each row in the index represents for a sequence and its label for training.

TABLE II: Sampling method for continuous input images

Stride	Sampled frames	Ground Truth
1	$9th$ $10th$ $11th$ $12th$ $13th$	$13th$
2	$5th$ $7th$ $9th$ $11th$ $13th$	$13th$
3	$1th$ $4th$ $7th$ $10th$ $13th$	$13th$
1	$16th$ $17th$ $18th$ $19th$ $20th$	$20th$
2	$12th$ $14th$ $16th$ $18th$ $20th$	$20th$
3	$8th$ $11th$ $14th$ $17th$ $20th$	$20th$

Download:
链接：https://pan.baidu.com/s/1lE2CjuFa9OQwLIbi-OomTQ
提取码：tf9x

- **References:**

1. Q. Zou, H. Jiang, Q. Dai, Y. Yue, L. Chen, Q. Wang, Robust Lane Detection from Continuous Driving Scenes Using Deep Neural Networks, IEEE Transactions on Vehicular Technology, 2019.
2. Tusimple lane-detection dataset. http://benchmark.tusimple.ai/#/t/1/dataset