Train Caffe model for object detection.

We consider that you have already installed SIMCAM SDK and toolchain in your Ubuntu system.

1. Prepare data for training

1. Copy your all image data and annotation files (*.xml files) into train_model/data/Images_xmls/JPEGImages and train_model/data/Images_xmls/Annotations folders respectively.
2. Open terminal inside the Images_xmls folder and run below command:
   - python3 create_txt.py

     This python script will create train.txt, test.txt, trainval.txt and val.txt files in the ImageSets/Main folder
3. Go in data/lmdb_files folder and create your own labelmap.prototxt file, example has exist in the folder, you can change it according to your dataset.
4. In the terminal run:
   - ./create_list.sh

     It will generate trainval.txt, test.txt, test_name_size.txt files in the folder
5. Last step is generating lmdb files, lmdb is caffe's data format for training.
   In the terminal:
   - ./create_data.sh

     It will create trainval_lmdb and test_lmdb files in the lmdb folder.

2. Train model

So now, you nearly got everything ready to train the Network with the data prepared by yourself. The last thing is, the Network! SIMCAM team provide a robust Network and all necessary scripts for you to train and deploy your own model on the SIMCAM products.

1. Run gen_model.sh script to generate Network:
   - ./gen_model.sh <num>

     "num" is number of classes in your dataset including the background class. It will create prototxts folder and .prototxt files inside the folder for training, testing and deploying the model
2. To start training run train.sh script:
   - ./train.sh

After all, you will get **simcam_iter_xxxxx.caffemodel** inside snapshot folder. And **deploy.prototxt** file inside prototxts folder.