VSD 3DRCNN Ego\_centric

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| Data | Author | Version | Update |
| 2017/08/11 | Zhang　Wenming | 1.0 | First　Version |
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## Foreword

This document will give a brief explanation about how to use and update functions in the demo.

## Project structure

1. Python tensorflow 3DRCNN: Gesture recognition algorithm. It will train and test tensorflow graph, at last saving the graph status to protobuf file.
2. C++ tensorflow graph load lib: Using bazel to compiler tensforflow source code and generate c++ 3DRCNN graph loader interface.
3. Ego\_centric:
   1. Get the deep video of hand and computer the 14 points hand coordinate data.
   2. Using 14 points hand coordinate data and the graph loader interface to get the gesture recognition result.
   3. Get and show the recognition result which has the max probability value in latest three times.

## Development environment

1. Python tensorflow:

Both GPU and CPU version is ok.

<https://storage.googleapis.com/tensorflow/linux/gpu/tensorflow-0.10.0-cp27-none-linux_x86_64.whl>

<https://storage.googleapis.com/tensorflow/linux/cpu/tensorflow-0.10.0-cp27-none-linux_x86_64.whl>

pip --proxy http://username:password@43.82.218.50:8080 install --upgrade https://storage.googleapis.com/tensorflow/linux/gpu/tensorflow-0.10.0-cp27-none-linux\_x86\_64.whl

1. Cudnn:

If using python tensorflow GPU version0.10.0, cudnn-7.5-linux-x64-v5.1.tgz is needed.

Software location: /home/mard1/share/Softwares/cudnn-7.5-linux-x64-v5.1.tgz

Decompress it and set the environment:

#tar -xzvf cudnn-7.5-linux-x64-v5.1.tgz

#export LD\_LIBRARY\_PATH=/home/mard1/share/Softwares/cuda/lib64/:${LD\_LIBRARY\_PATH}

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1. C++ tensorflow:

Using the latest tensorflow sorce code(1.2.0):<https://github.com/tensorflow/tensorflow.git>

Build development environment: in the source code root folder run command:

# ./configure

#bazel build

1. Ego\_centric:

<http://43.82.40.24/zwm/release_ego_centric_demo.git>

Branch master is for 29 gestures.

Branch 3g\_2017\_05\_03 is for 3 gestures

The nvidia-docker is configured with protobuf3.2.0

## 4. Development steps

1. Download the project:

#git clone <http://43.82.40.24/zwm/release_ego_centric_demo.git> -b master release\_ego\_centric\_demo\_master

3DRCNN:

release\_ego\_centric\_demo\_master/release/3DRCNN\_Hand\_Gesture\_Recognizer/

C++ Tensorflow code:

release\_ego\_centric\_demo\_master/release/tensorflow/loader/

C++ Tensorflow lib:

release\_ego\_centric\_demo\_master/release/tensorflow/lib/

2. Train the python 3DRCNN, graph will be saved into 3DRCNN\_Hand\_Gesture\_Recognizer/models/

# cd release\_ego\_centric\_demo\_master/release/3DRCNN\_Hand\_Gesture\_Recognizer/

# python VSD\_Hand\_3DRCNN\_SaveModel\_0426.py

3. Build the c++ tensorflow lib:

Copy the loader file to tensorflow project and compile it with bazel

#cp release\_ego\_centric\_demo\_master/release/tensorflow/loader/ ../tensorflow/tensorflow/ -r

#cd tensorflow/tensorflow/loader/

#bazel build :libvsd\_loader.so

#ls ../../bazel-bin/tensorflow/loader/

#cp ../../bazel-bin/tensorflow/loader/libvsd\_loader.so ../../../release\_ego\_centric\_demo\_master/release/tensorflow/lib/

4. Build and run the Ego\_centric project following the steps: release\_ego\_centric\_demo\_master/release/how\_to\_run\_on\_docker.txt