ORB-SLAM2详细安装教程

在刚装好的 Ubuntu16.04 系统上安装 ORB-SLAM2

Pangolin、OpenCV、Eigen、g2o 与 DBoW2（ORB-SLAM2 自带）

> **安装前的准备：** 安装 vim、cmake、git、gcc、g++

```
sudo apt-get install vim cmake
sudo apt-get install git
sudo apt-get install gcc g++
```

> **安装Pangolin** (建议源码安装)

1) 安装依赖项

```
sudo apt-get install libglew-dev
```

```
sudo apt-get install libboost-dev libboost-thread-dev libboost-filesystem-dev
```

```
sudo apt-get install libpython2.7-dev
```

2) 安装 Pangolin

```
git clone https://github.com/stevenlovegrove/Pangolin.git
```

```
cd Pangolin
```

```
mkdir build
cd build
cmake -DCPP11_NO_BOOSR=1 ..
make -j
```

> **安装OpenCV3.4** (建议源码安装 安装时间较长 耐心等待) OpenCV3.4.5链接 提取码：slam

1) 安装依赖项

```
sudo apt-get install build-essential libgtk2.0-dev libavcodec-dev libavformat-dev libjpeg.dev
```

```
sudo apt-get install libtiff4.dev libswscale-dev libjasper-dev
```

ubuntu 18.04 替换为以下

```
sudo apt-get install build-essential libgtk2.0-dev libavcodec-dev libavformat-dev libjpeg.dev
sudo apt-get install libtiff5-dev libswscale-dev
sudo add-apt-repository "deb http://security.ubuntu.com/ubuntu xenial-security main"
sudo apt update
sudo apt install libjasper1 libjasper-dev
```

2) 安装 OpenCV3.4

进入下载的安装压缩包，解压到某文件夹，然后进去该文件夹建立build文件夹 编译文件夹

```
cd opencv-3.4.5
mkdir build
cd build
cmake ..
```

```
make
sudo make install
```

3) 配置环境变量

```
sudo vim /etc/ld.so.conf.d/opencv.conf
```

在打开的空白文件中添加 `/usr/local/lib`

执行 `sudo ldconfig`,使配置的环境变量生效

4) 配置 `.bashrc`，末尾添加下面两行

```
//打开.bashrc
sudo vim /etc/bash.bashrc

//添加以下两行内容到.bashrc
PKG_CONFIG_PATH=$PKG_CONFIG_PATH:/usr/local/lib/pkgconfig
export PKG_CONFIG_PATH
```

5) source 与 update

```
source /etc/bash.bashrc

sudo updatedb
```

6) 测试是否正常安装 (成功会出现带 “hello opcv” 字样的窗口)

```
cd opencv-3.4.5/samples/cpp/example_cmake
cmake .
make
./opencv_example
```

> **安装Eigen3.3.7** (建议源码安装) Eigen3.3.7链接 提取码：slam

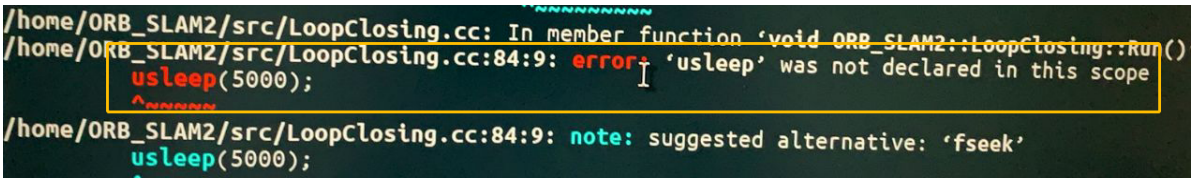
```
解压缩安装包

安装
cd eigen-git-mirror
mkdir build
cd build
cmake ..
sudo make install

#安装后   头文件安装在/usr/local/include/eigen3/

#移动头文件

sudo cp -r /usr/local/include/eigen3/Eigen /usr/local/include
```

备注：在很多程序中 `include` 时经常使用 `#include <Eigen/Dense>` 而不是使用 `#include <eigen3/Eigen/Dense>` 所以要做下处理

> **安装 运行ORB_SLAM2** (如果在ROS下 推荐工程目录:`orbslam_ws/src`)

```
git clone https://github.com/raulmur/ORB_SLAM2.git ORB_SLAM2
cd ORB_SLAM2
chmod +x build.sh
./build.sh
```

编译时如果有如下错误：**在对应的头文件中加上** `#include <unistd.h>`



如果需要在`ROS`环境下运行`ORB_SLAM2`：

`chmod +x build_ros.sh`

`export ROS_PACKAGE_PATH=${ROS_PACKAGE_PATH}:~/orbslam_ws/src/ORB_SLAM2/Examples/ROS`

`./build_ros.sh`

编译时如果提示`boost库`相关错误：`修改Examples/ROS/ORB_SLAM2/文件夹下的CMakeLists.txt文件`

```
51  set(LIBS
52  ${OpenCV_LIBS}
53  ${EIGEN3_LIBS}
54  ${Pangolin_LIBRARIES}
55  ${PROJECT_SOURCE_DIR}/../../../Thirdparty/DBoW2/lib/libDBoW2.so
56  ${PROJECT_SOURCE_DIR}/../../../Thirdparty/g2o/lib/libg2o.so
57  ${PROJECT_SOURCE_DIR}/../../../lib/libORB_SLAM2.so
58  -lboost_system
59  )
60
```

`#运行`

`./Examples/Monocular/mono_tum Vocabulary/ORBvoc.txt Examples/Monocular/TUM1.yaml Data/rgbd_dataset_freburg1_desk`

`eigen3.3.7链接：https://pan.baidu.com/s/1AOKO3Xk9_Rg_qUPTaTKoWg`

`opencv3.4.5链接：https://pan.baidu.com/s/1XFsJMEgDPWRLiyGrAzVl4A`

`提取码都是：slam`

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