

ubuntu18.04安装kaldi及srilm

摘要

- kaldi安装
- srilm安装

提示

1. `{your_kaldi}` 为你克隆到本地的kaldi目录。
2. 如果是用cuda，请提前安装。

1. 克隆kaldi

```
git clone https://github.com/kaldi-asr/kaldi.git
```

2. 安装kaldi

Step 2.1 编译tools

进入tools目录，命令如下：

```
cd {your_kaldi}/tools
```

检查依赖是否满足条件，命令如下：

```
extras/check_dependencies.sh
```

如果有不满足的条件，按照提示安装所需软件即可--可能需要root权限，如本人提示如下问题：

```
extras/check_dependencies.sh: Intel MKL is not installed. Run
extras/install_mkl.sh to install it.
... You can also use other matrix algebra libraries. For
information, see:
... http://kaldi-asr.org/doc/matrixwrap.html
```

安装完成后，可再次用 `extras/check_dependencies.sh` 命令检查是否满足条件。结果如下：

```
extras/check_dependencies.sh: all OK.
```

满足依赖条件后，编译，如果是多线程编译可根据你的机器配置选择线程数。命令如下：

```
# 单线程编译
make
# or多线程编译
make -j 16
```

编译完成提示如下图所示，srilm另在第三小节安装。

```
Warning:IRSTLM is not installed by default anymore. If you need IRSTLM
Warning: use the script extras/install_irstlm.sh
All done OK.
```

Step 2.2 src编译

进入src目录，命令如下：

```
cd {your_kaldi}/src
```

运行配置脚本，命令如下：

```
./configure --shared
```

结果如下图所示：

```
Configuring KALDI to use MKL.
Checking compiler g++ ...
Checking OpenFst library in /home/xingchaolong/source_code/kaldi/tools/openfst-1.6.7 ...
Checking cub library in /home/xingchaolong/source_code/kaldi/tools/cub-1.8.0 ...
Doing OS specific configurations ...
On Linux: Checking for linear algebra header files ...
Configuring MKL library directory: Found: /opt/intel/mkl/lib/intel64
MKL configured with threading: sequential, libs: -L/opt/intel/mkl/lib/intel64 -Wl,-rpath=/opt/intel/mkl/lib/intel64 -lmkl_intel_lp64 -lmkl_core -lmkl_sequential
MKL include directory configured as: /opt/intel/mkl/include
Configuring MKL threading as sequential
MKL threading libraries configured as -ldl -lpthread -lm
Using Intel MKL as the linear algebra library.
Intel(R) Math Kernel Library Version 2020.0.0 Product Build 20191122 for Intel(R) 64 architecture applications
Successfully configured for Linux with MKL libs from /opt/intel/mkl
WARNING: CUDA will not be used! If you have already installed cuda drivers
and CUDA toolkit, try using the --cuda-toolkit-dir option. A GPU and CUDA
are required to run neural net experiments in a realistic time.
INFO: Configuring Kaldi not to link with Speex. Don't worry, it's only needed if
you intend to use 'compress-uncompress-speex', which is very unlikely.
Kaldi has been successfully configured. To compile:

    make -j clean depend; make -j <NCPUs>

where <NCPUs> is the number of parallel builds you can afford to do. If unsure,
use the smaller of the number of CPUs or the amount of RAM in GB divided by 2,
to stay within safe limits. 'make -j' without the numeric value may not limit
the number of parallel jobs at all, and overwhelm even a powerful workstation,
since Kaldi build is highly parallelized.
```

注意这里配置使用的是 MKL 数学库，也可以使用 CUDA，配置命令如下：

```
./configure --shared --cuda-toolkit-dir=/usr/local/cuda-10.0
```

此处需要你提前安装 cuda toolkit，如何安装此处不做赘述。

使用 CUDA 配置结果如下图所示：

```
Configuring KALDI to use MKL.
Backing up kaldi.mk to kaldi.mk.bak ...
Checking compiler g++ ...
Checking OpenFst library in /home/xingchaolong/source_code/kaldi/tools/openfst-1.6.7 ...
Checking cub library in /home/xingchaolong/source_code/kaldi/tools/cub-1.8.0 ...
Doing OS specific configurations ...
On Linux: Checking for linear algebra header files ...
Configuring MKL library directory: Found: /opt/intel/mkl/lib/intel64
MKL configured with threading: sequential, libs: -L/opt/intel/mkl/lib/intel64 -Wl,-rpath=/opt/intel/mkl/lib/intel64 -lmkl_intel_lp64 -lmkl_core -lmkl_sequential
MKL include directory configured as: /opt/intel/mkl/include
Configuring MKL threading as sequential
MKL threading libraries configured as -ldl -lpthread -lm
Using Intel MKL as the linear algebra library.
Intel(R) Math Kernel Library Version 2020.0.0 Product Build 20191122 for Intel(R) 64 architecture applications
Successfully configured for Linux with MKL libs from /opt/intel/mkl
Using CUDA toolkit /usr/local/cuda-10.0 (nvcc compiler and runtime libraries)
INFO: Configuring Kaldi not to link with Speex. Don't worry, it's only needed if
you intend to use 'compress-uncompress-speex', which is very unlikely.
Kaldi has been successfully configured. To compile:

    make -j clean depend; make -j <NCPUs>

where <NCPUs> is the number of parallel builds you can afford to do. If unsure,
use the smaller of the number of CPUs or the amount of RAM in GB divided by 2,
to stay within safe limits. 'make -j' without the numeric value may not limit
the number of parallel jobs at all, and overwhelm even a powerful workstation,
since Kaldi build is highly parallelized.
```

编译，命令如下：

```
# 根据你的机器配置选择合适的线程数
make depend -j 16
make -j 16
```

上面两个命令的结果分别如下图所示。

```
make[1]: Leaving directory '/home/xingchaolong/source_code/kaldi/src/featbin'
make[1]: Leaving directory '/home/xingchaolong/source_code/kaldi/src/cudadecoder'
make[1]: Leaving directory '/home/xingchaolong/source_code/kaldi/src/online2bin'
make[1]: Leaving directory '/home/xingchaolong/source_code/kaldi/src/ivectorbin'
make[1]: Leaving directory '/home/xingchaolong/source_code/kaldi/src/chainbin'
make[1]: Leaving directory '/home/xingchaolong/source_code/kaldi/src/nnet2'
make[1]: Leaving directory '/home/xingchaolong/source_code/kaldi/src/gmmbin'
make[1]: Leaving directory '/home/xingchaolong/source_code/kaldi/src/nnet3bin'
make[1]: Leaving directory '/home/xingchaolong/source_code/kaldi/src/latbin'
make[1]: Leaving directory '/home/xingchaolong/source_code/kaldi/src/bin'
make[1]: Leaving directory '/home/xingchaolong/source_code/kaldi/src/nnet2bin'
make[1]: Leaving directory '/home/xingchaolong/source_code/kaldi/src/nnet3'
```

```
make[1]: Leaving directory '/home/xingchaolong/source_code/kaldi/src/latbin'
echo Done
Done
```

3. 安装srilm

Step 3.1 下载srilm

进入[下载地址](#)，填写适当的信息并下载 `srilm-1.7.3.tar.gz`。需要填写的信息如下图所示。

Download

To download the source code, please first fill in the form below. Read the [License document](#) and indicate your agreement to comply with it by pressing the button below. This will start the download. The distribution is in gzipped tar format, so you should tell your browser to store the data in a file ending in ".tar.gz". You will need the "gunzip" and "tar" utilities to unpack the downloaded file into a directory structure.

Clear Input

Version: 1.7.3

Name:

Organization:

Address:

Email:

Web site: (optional)

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Step 3.2 安装srilm

将 `srilm-1.7.3.tar.gz` 拷贝或上传到 `{your_kaldi}/tools` 目录下，重命名文件并安装。命令如下：

```
cd {your_kaldi}/tools
mv srilm-1.7.3.tar.gz srilm.tgz
./install_srilm.sh
```

安装完成如下图所示。

```
make[2]: Leaving directory '/home/xingchaolong/source_code/kaldi/tools/srilm/utils/src'
make[2]: Entering directory '/home/xingchaolong/source_code/kaldi/tools/srilm/zlib/src'
make[2]: Nothing to be done for 'release-scripts'.
make[2]: Leaving directory '/home/xingchaolong/source_code/kaldi/tools/srilm/zlib/src'
make[1]: Leaving directory '/home/xingchaolong/source_code/kaldi/tools/srilm'
SRILM variable is already defined. Undefining...
Installation of SRILM finished successfully
Please source the tools/env.sh in your path.sh to enable it
```

Step 3.3 配置环境变量

在 `.bashrc` 文件中增加环境变量。命令如下：

```
echo "#srilm" >> ~/.bashrc
cat env.sh >> ~/.bashrc
source ~/.bashrc
```

测试是否安装成功。命令如下：

```
ngram -version
```

测试结果如下图所示。

SRILM release 1.7.3 (with third-party contributions)
Built with GCC 5.4.0
and options -g -O3

Program version @(#) \$Id: ngram.cc,v 1.141 2019/09/09 23:13:13 stolcke Exp \$

Support for compressed files is included.
Using libLBFGS.
Using OpenMP version 201307.

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