(https://gurus.pyimagesearch.com/)

PyImageSearch Gurus Course

(HTTPS://GURUS.PYIMAGESEARCH.COM) ›

2.2.1: How to install dlib

Topic Progress: (https://gurus.pyimagesearch.com/topic/how-to-install-dlib/)

(https://gurus.pyimagesearch.com/topic/object-detection-made-easy/)

← Back to Lesson (https://gurus.pyimagesearch.com/lessons/object-detection-the-easy-way/)

One library I haven't mentioned much in the PyImageSearch Gurus course or the PyImageSearch blog yet is **dlib (http://dlib.net/)**. Developed by Davis King (https://github.com/davisking), the dlib C++ library is a cross-platform package for threading, networking, numerical operations, machine learning, computer vision, and compression, placing a strong emphasis on *extremely high-quality* and *portable code*. The documentation for the library is also *fantastic*.

From a computer vision perspective, dlib has a number of state-of-the-art implementations, most of which involve object detection and tracking. Out of all the computer vision packages I have used in my lifetime, dlib is ***by far the best for training your own custom object detector.***

We'll be making heavy use of dlib in this module, so let's go ahead and get it installed and configured on your system.

Note: If you are using the > *v1.1* of the PyImageSearch Gurus virtual machine (https://gurus.pyimagesearch.com/pyimagesearch-virtual-machine/), then dlib is already installed on your system. However, if you are following along with this course using your own native development environment, you'll want to use these instructions to install dlib.

Feedback

Objectives:

This lesson has only one objective: configure and install the dlib library on your system.

How to install dlib

In the remainder of this tutorial, I will detail how to install dlib on both Ubuntu and OSX. As you'll see, the installation process is quite simple. If you are using Windows (which this course does not support), please see the official dlib installation instructions (http://dlib.net/compile.html) for more information.

(2018-04-03) Removal of Boost Dependency: *For years, dlib has made use of Boost and as of January 2018, Boost is no-longer a requirement for dlib. This is fantastic news especially for macOS users because previously the install was a pain in the ass. Enjoy the boost-free dlib!*

Step 1 – Set up your Python virtual environment

Again, if you are following along with this course, then you have already created the `gurus` virtual environment. Executing the following command will drop you into the `gurus` environment:

How to install dlib Shell

```
$ workon gurus
```

Step 2 – Install the required Python packages

All pre-requisites required to compile dlib should already be installed to your `gurus` environment. If not, let pip install them:

How to install dlib Shell

```
$ pip install numpy
$ pip install scipy
$ pip install -U scikit-image
```

Step 3 (Option A) – PIP

The simplest way to install dlib is with PIP.

To install dlib via PIP, simply enter the following command in your environment:

How to install dlib Shell

```
$ pip install dlib
```

You can now safely skip to **Step 4**, but just be aware that imglab isn't available.

Feedback

Step 3 (Option B) – Compile and install dlib

Unlike OpenCV, the dlib library with Python bindings is very easy to install. The first step is to head to the dlib homepage (http://dlib.net/) and grab the latest release of the library. At the time of this writing, the latest version of dlib is *19.10* and can be downloaded using the following link:

http://dlib.net/files/dlib-19.10.tar.bz2 (http://dlib.net/files/dlib-19.10.tar.bz2)

...or using `wget` as shown below.

Once dlib has been downloaded, we need to unpack it and setup the `build` directory:

How to install dlib Shell

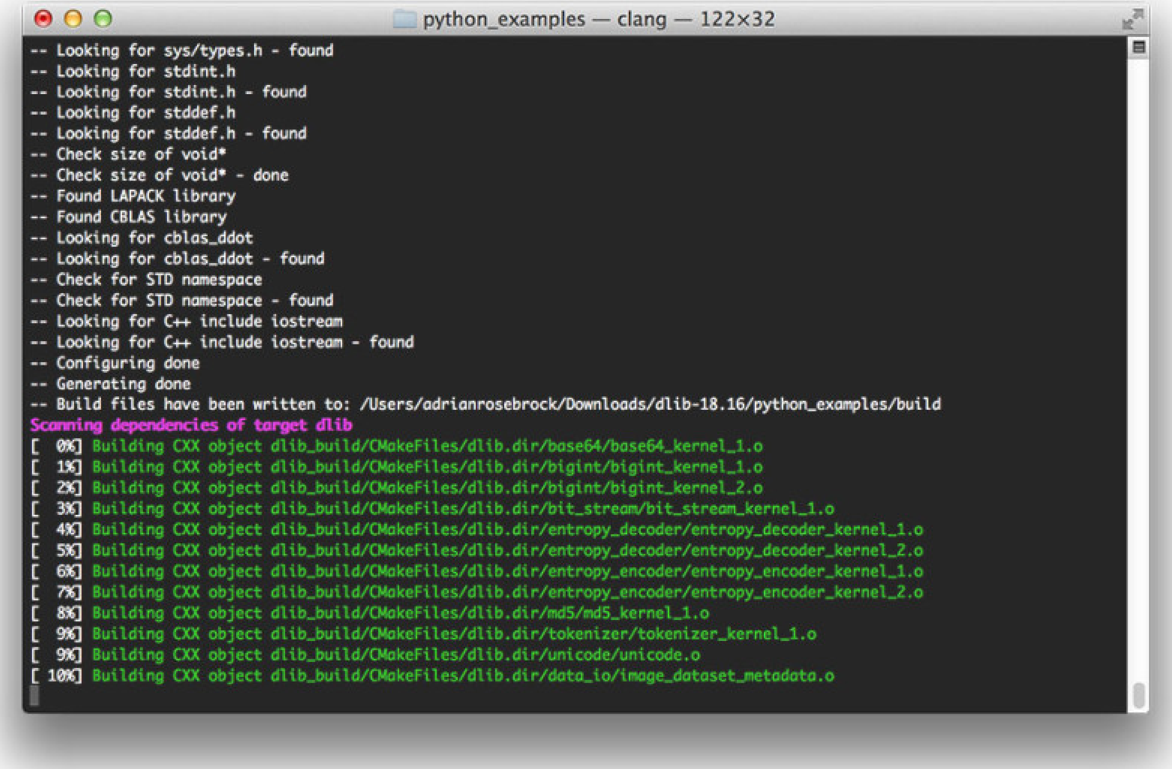
```
$ wget http://dlib.net/files/dlib-19.10.tar.bz2
$ tar xvjf dlib-19.10.tar.bz2
$ cd dlib-19.10/python_examples/
$ for req in $(cat requirements.txt); do pip install $req; done
```

And then we can configure and start the compile.

How to install dlib Shell

```
$ cd ..
$ python setup.py install
```

This will kick off the compile:



```
-- Looking for sys/types.h - found
-- Looking for stdint.h
-- Looking for stdint.h - found
-- Looking for stddef.h
-- Looking for stddef.h - found
-- Check size of void*
-- Check size of void* - done
-- Found LAPACK library
-- Found CBLAS library
-- Looking for cblas_ddot
-- Looking for cblas_ddot - found
-- Check for STD namespace
-- Check for STD namespace - found
-- Looking for C++ include iostream
-- Looking for C++ include iostream - found
-- Configuring done
-- Generating done
-- Build files have been written to: /Users/adrianrosebrock/Downloads/dlib-18.16/python_examples/build
Scanning dependencies of target dlib
[  0%] Building CXX object dlib_build/CMakeFiles/dlib.dir/base64/base64_kernel_1.o
[  1%] Building CXX object dlib_build/CMakeFiles/dlib.dir/bigint/bigint_kernel_1.o
[  2%] Building CXX object dlib_build/CMakeFiles/dlib.dir/bigint/bigint_kernel_2.o
[  3%] Building CXX object dlib_build/CMakeFiles/dlib.dir/bit_stream/bit_stream_kernel_1.o
[  4%] Building CXX object dlib_build/CMakeFiles/dlib.dir/entropy_decoder/entropy_decoder_kernel_1.o
[  5%] Building CXX object dlib_build/CMakeFiles/dlib.dir/entropy_decoder/entropy_decoder_kernel_2.o
[  6%] Building CXX object dlib_build/CMakeFiles/dlib.dir/entropy_encoder/entropy_encoder_kernel_1.o
[  7%] Building CXX object dlib_build/CMakeFiles/dlib.dir/entropy_encoder/entropy_encoder_kernel_2.o
[  8%] Building CXX object dlib_build/CMakeFiles/dlib.dir/md5/md5_kernel_1.o
[  9%] Building CXX object dlib_build/CMakeFiles/dlib.dir/tokenizer/tokenizer_kernel_1.o
[  9%] Building CXX object dlib_build/CMakeFiles/dlib.dir/unicode/unicode.o
[ 10%] Building CXX object dlib_build/CMakeFiles/dlib.dir/data_io/image_dataset_metadata.o
```

(https://gurus.pyimagesearch.com/wp-content/uploads/2015/08/dlib_compiling.jpg)

FIGURE 1: STARTING THE DLIB LIBRARY COMPILE.

On my machine, the compile was quite speedy, clocking in at 2m 12s.

At this point, our `dlib` Python bindings are installed on our system.

Step 4 – Test out dlib installation

Before we move on to the next lesson, let's perform a sanity check and ensure that we can import dlib from our Python shell:

How to install dlib Shell

```
$ python
>>> import dlib
>>>
```

And sure enough, our `dlib` package is able to import without an issue.

The imglab tool

If you're looking to setup the dlib imglab tool, head over to **Lesson 2.11: Training your custom object detector (https://gurus.pyimagesearch.com/lessons/training-your-custom-object-detector/)**.

Summary

In this lesson, I have detailed how to install dlib (http://dlib.net/) with Python bindings. Overall, the installation is quite simple.

We'll be using dlib extensively in this module, starting with our next lesson on building a custom object detector. Once you have dlib installed on your system, be sure to proceed to the next lesson where we build our first custom object detector.

Mark Complete

Next Topic → (https://gurus.pyimagesearch.com/topic/object-detection-made-easy/)

Course Progress

Feedback

Ready to continue the course?

Click the button below to **continue your journey to computer vision guru**.

I'm ready, let's go! (/pyimagesearch-gurus-course/)

Resources & Links

- PyImageSearch Gurus Community (https://community.pyimagesearch.com/)
- PyImageSearch Virtual Machine (https://gurus.pyimagesearch.com/pyimagesearch-virtual-machine/)
- Setting up your own Python + OpenCV environment (https://gurus.pyimagesearch.com/setting-up-your-python-opencv-development-environment/)
- Course Syllabus & Content Release Schedule (https://gurus.pyimagesearch.com/course-syllabus-content-release-schedule/)
- Member Perks & Discounts (https://gurus.pyimagesearch.com/pyimagesearch-gurus-discounts-perks/)
- Your Achievements (https://gurus.pyimagesearch.com/achievements/)
- Official OpenCV documentation (http://docs.opencv.org/index.html)

Your Account

- Account Info (https://gurus.pyimagesearch.com/account/)
- Support (https://gurus.pyimagesearch.com/contact/)

- Logout (https://gurus.pyimagesearch.com/wp-login.php?action=logout&redirect_to=https%3A%2F%2Fgurus.pyimagesearch.com%2F&_wpnonce=5736b21cae)

Search

Feedback