

Install Nighres in Docker container (for Mac OS)

* Download and install Docker Desktop

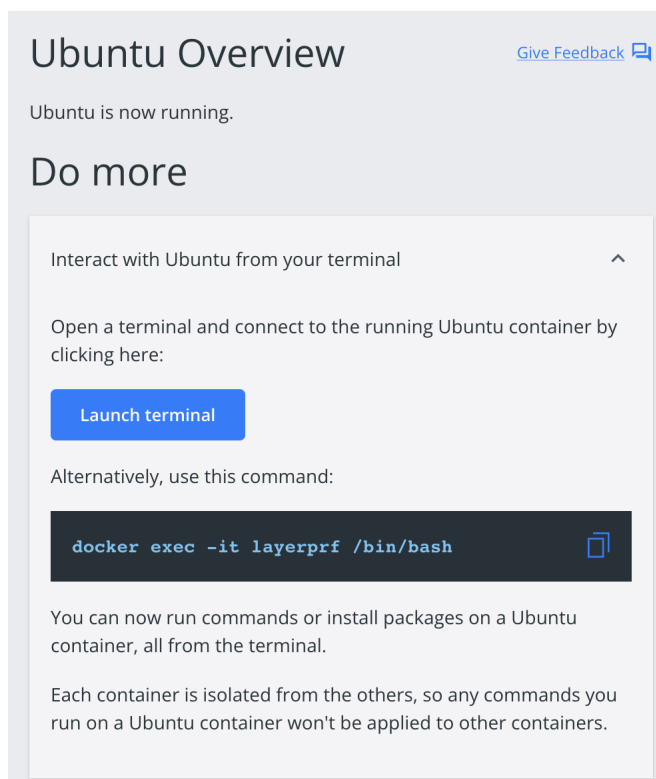
<https://www.docker.com/>

* Initiate Ubuntu v 22.04

Command: `docker exec -it <your_container_name> /bin/bash`

Description:

This will create a Ubuntu container with root right and you can also open it in Terminal.



* Install sudo

Command:

`apt-get update -y`

`apt-get install -y sudo`

Description:

This will install sudo package in the virtual container

* Install python

Command:

```
sudo apt-get update -y
```

```
sudo apt-get install -y python
```

Description:

This will install python in the virtual container, and in case python-pip is not installed along with python, use command to install pip:

```
sudo apt-get -y install python3-pip
```

* Install git

Command:

```
sudo apt install git
```

Description:

This will install the git package in the virtual container.

*** This instruction is not yet fully completed, will update soon as we try out the entire processing pipeline.**

The following instruction was provided by Dr. Falk Luesebrink

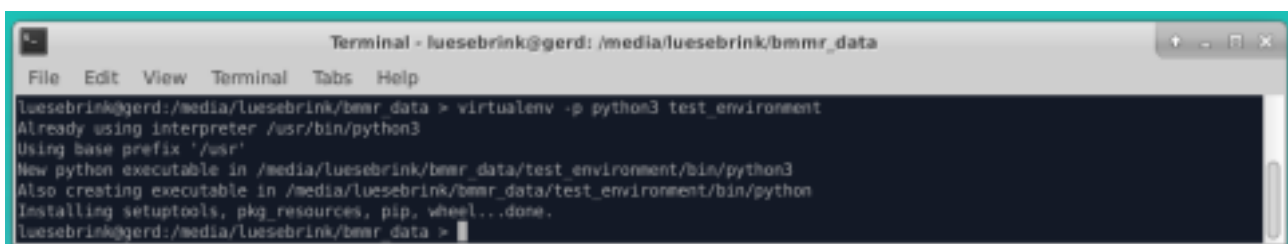
* Create virtual environment for Python

Command:

```
virtualenv -p python3 <your_projects_name>
```

Description:

This will create the folder "your_projects_name" into the directory from where you run it with the sub directories "bin", "include", "lib", and "share". A virtual environment is used to avoid conflicts between different versions of Python and its packages.



```
Terminal - luesebrink@gerd: /media/luesebrink/bmmr_data
File Edit View Terminal Tabs Help
luesebrink@gerd:/media/luesebrink/bmmr_data > virtualenv -p python3 test_environment
Already using interpreter /usr/bin/python3
Using base prefix '/usr'
New python executable in /media/luesebrink/bmmr_data/test_environment/bin/python3
Also creating executable in /media/luesebrink/bmmr_data/test_environment/bin/python
Installing setuptools, pkg_resources, pip, wheel...done.
luesebrink@gerd:/media/luesebrink/bmmr_data >
```

Other options:

In case the tool "virtualenv" is not yet installed on your computer, the most easy solution would be by typing "python -m pip install --user virtualenv". In case this doesn't work, please refer to the following website "<https://virtualenv.pypa.io/en/latest/installation.html>" for further instructions.

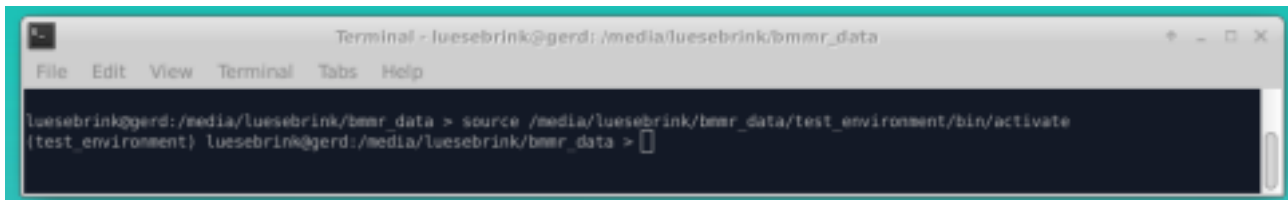
* Activate virtual environment

Command:

`source /path/to/your/virtual/environment/<your_projects_name>/bin/activate`

Description:

This will activate your virtual environment. If successful it will be indicated by the name of your project at the beginning of the command line.

A terminal window titled "Terminal - luesebrink@gerd: /media/luesebrink/bmmr_data". The prompt is "(test_environment) luesebrink@gerd:/media/luesebrink/bmmr_data >". The command entered is `source /media/luesebrink/bmmr_data/test_environment/bin/activate`. The prompt changes to `(test_environment) luesebrink@gerd:/media/luesebrink/bmmr_data >` with the project name in parentheses.

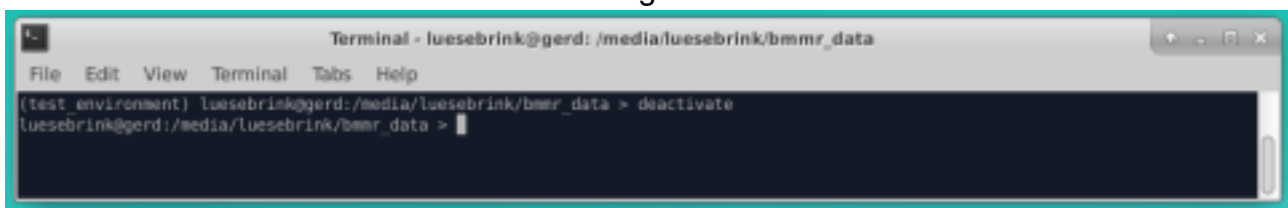
* Deactivate virtual environment

Command:

`deactivate`

Description:

This will deactivate the virtual environment again

A terminal window titled "Terminal - luesebrink@gerd: /media/luesebrink/bmmr_data". The prompt is "(test_environment) luesebrink@gerd:/media/luesebrink/bmmr_data >". The command entered is `deactivate`. The prompt returns to `luesebrink@gerd:/media/luesebrink/bmmr_data >`.

* Download nighres

Command:

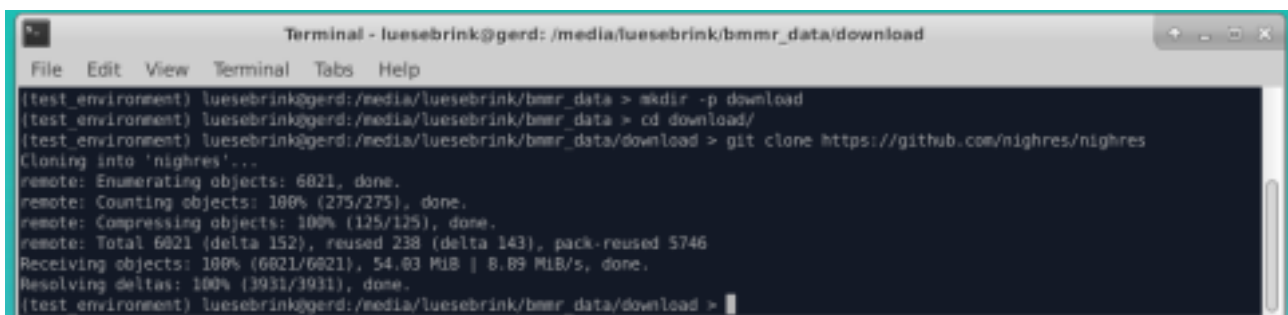
`git clone https://github.com/nighres/nighres`

Description:

This will download nighres into the folder you are currently at.

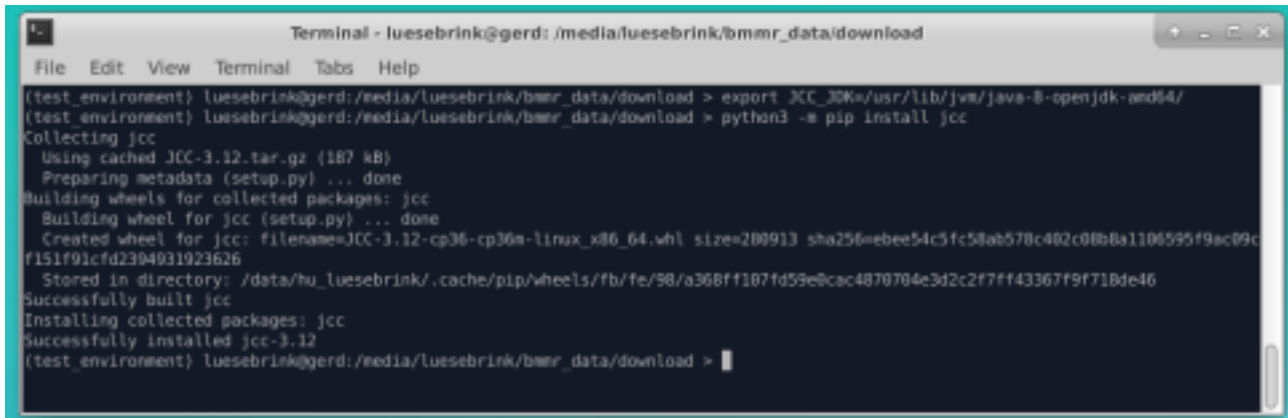
Other options:

In case git is not installed on your system, you can also download nighres from the Github website at "<https://github.com/nighres/nighres>" by clicking on the green "Code" button and selecting "Download ZIP". You can continue with the installation instructions after decompressing the downloaded ZIP file.

A terminal window titled "Terminal - luesebrink@gerd: /media/luesebrink/bmmr_data/download". The prompt is "(test_environment) luesebrink@gerd:/media/luesebrink/bmmr_data/download >". The commands entered are `mkdir -p download`, `cd download/`, and `git clone https://github.com/nighres/nighres`. The output shows the cloning progress: "Cloning into 'nighres'...", "remote: Enumerating objects: 6021, done.", "remote: Counting objects: 100% (275/275), done.", "remote: Compressing objects: 100% (125/125), done.", "remote: Total 6021 (delta 152), reused 238 (delta 143), pack-reused 5746", "Receiving objects: 100% (6021/6021), 54.03 MiB | 8.09 MiB/s, done.", "Resolving deltas: 100% (3931/3931), done." The prompt returns to `(test_environment) luesebrink@gerd:/media/luesebrink/bmmr_data/download >`.

* Install JAVA

Command:
export JCC_JDK=/usr/lib/jvm/java-8-openjdk-amd64
python3 -m pip install jcc



```
Terminal - luesebrink@gerd: /media/luesebrink/bmmr_data/download
File Edit View Terminal Tabs Help
(test_environment) luesebrink@gerd:/media/luesebrink/bmmr_data/download > export JCC_JDK=/usr/lib/jvm/java-8-openjdk-amd64/
(test_environment) luesebrink@gerd:/media/luesebrink/bmmr_data/download > python3 -m pip install jcc
Collecting jcc
  Using cached JCC-3.12.tar.gz (187 kB)
  Preparing metadata (setup.py) ... done
Building wheels for collected packages: jcc
  Building wheel for jcc (setup.py) ... done
  Created wheel for jcc: filename=JCC-3.12-cp36-cp36m-linux_x86_64.whl size=200913 sha256=ebee54c5fc58ab578c402c08b8a1106595f9ac09c
f151f91cfd2394931923626
  Stored in directory: /data/hu_luesebrink/.cache/pip/wheels/fb/fe/98/a368ff107fd59e0cac4870704e3d2c2f7ff43367f9f718de46
Successfully built jcc
Installing collected packages: jcc
Successfully installed jcc-3.12
(test_environment) luesebrink@gerd:/media/luesebrink/bmmr_data/download >
```

Description:

The first command will create a variable pointing to your JAVA JDK. Usually it should be in given folder for Debian/Ubuntu amd64 systems. In case it is not in that location please use following command to find it:

```
find / -type d -name "java-8-openjdk-amd64" 2>/dev/null
```

This will search on your entire hard disk for the JAVA JDK. The part "2>dev/null" will suppress any errors e.g. in case you don't have permission to access a given folder. Depending on the amount of data on your hard disk, this may take some time to finish. If the folder is found it should be shown in the terminal and please change the line with the export command above accordingly. E.g. if the output would be "/usr/share/gdb/auto-load/usr/lib/jvm/java-8-openjdk-amd64" then the command should be changed to "export JCC_JDK=/usr/share/gdb/auto-load/usr/lib/jvm/java-8-openjdk-amd64".

Other options:

In case no folder with the JAVA JDK is found, you need to install it. This requires administrator (sudo) rights. If you don't have them contact your IT staff. The installation is done by typing: "sudo apt-get install openjdk-8-jdk"



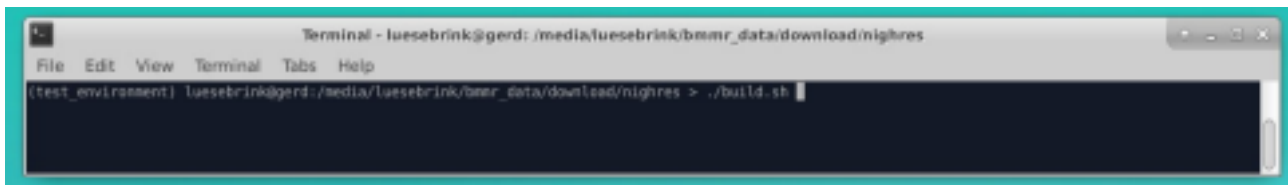
```
Terminal - luesebrink@gerd: /media/luesebrink/bmmr_data/download/nighres
File Edit View Terminal Tabs Help
(test_environment) luesebrink@gerd:/media/luesebrink/bmmr_data/download/nighres > find /usr/ -type d -name "java-8-openjdk-amd64" 2>/dev/null
/usr/share/gdb/auto-load/usr/lib/jvm/java-8-openjdk-amd64
/usr/lib/jvm/java-8-openjdk-amd64
(test_environment) luesebrink@gerd:/media/luesebrink/bmmr_data/download/nighres >
```

* Build nighres

Command:
./build.sh

Description:

Navigate to the directory in which you downloaded nighres to, then run the given command. This will build nighres on your computer.

A terminal window titled "Terminal - luesebriink@gerd: /media/luesebriink/bmmr_data/download/nighres". The prompt is "(test_environment) luesebriink@gerd:/media/luesebriink/bmmr_data/download/nighres >". The command being entered is "./build.sh".

```
Terminal - luesebriink@gerd: /media/luesebriink/bmmr_data/download/nighres
File Edit View Terminal Tabs Help
(test_environment) luesebriink@gerd:/media/luesebriink/bmmr_data/download/nighres > ./build.sh
```

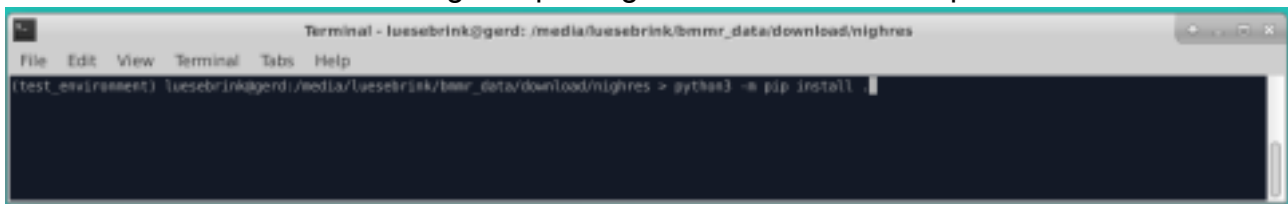
* Install nighres

Command:

`python3 -m pip install .`

Description:

The command will install the nighres package and download its dependencies.

A terminal window titled "Terminal - luesebriink@gerd: /media/luesebriink/bmmr_data/download/nighres". The prompt is "(test_environment) luesebriink@gerd:/media/luesebriink/bmmr_data/download/nighres >". The command being entered is "python3 -m pip install .".

```
Terminal - luesebriink@gerd: /media/luesebriink/bmmr_data/download/nighres
File Edit View Terminal Tabs Help
(test_environment) luesebriink@gerd:/media/luesebriink/bmmr_data/download/nighres > python3 -m pip install .
```

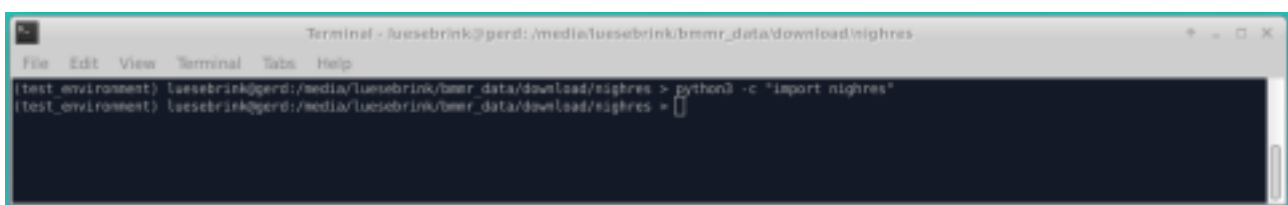
* Testing the installation

Command:

`python3 -c "import nighres"`

Description:

If that command doesn't produce any error, you should be good to go. You could try running one of the official tutorials before continuing with this pipeline from "<https://nighres.readthedocs.io>". Also, in case you run into any error please refer to that page for troubleshooting.

A terminal window titled "Terminal - luesebriink@gerd: /media/luesebriink/bmmr_data/download/nighres". The prompt is "(test_environment) luesebriink@gerd:/media/luesebriink/bmmr_data/download/nighres >". The command being entered is "python3 -c 'import nighres'".

```
Terminal - luesebriink@gerd: /media/luesebriink/bmmr_data/download/nighres
File Edit View Terminal Tabs Help
(test_environment) luesebriink@gerd:/media/luesebriink/bmmr_data/download/nighres > python3 -c "import nighres"
(test_environment) luesebriink@gerd:/media/luesebriink/bmmr_data/download/nighres >
```

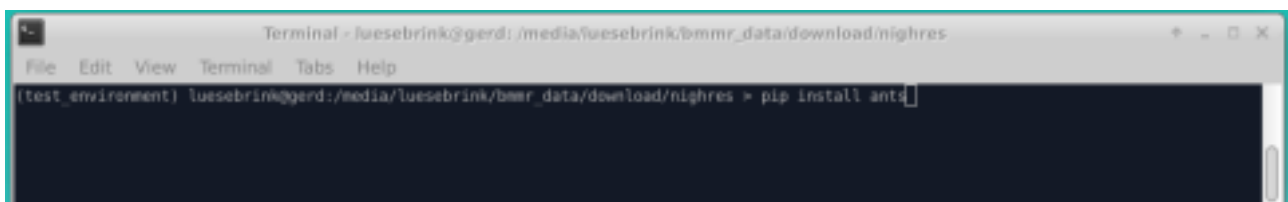
* Installing ANTs

Command:

`pip install ants`

Description:

Installs ANTsPy. Used for registration.

A terminal window titled "Terminal - luesebriink@gerd: /media/luesebriink/bmmr_data/download/nighres". The prompt is "(test_environment) luesebriink@gerd:/media/luesebriink/bmmr_data/download/nighres >". The command being entered is "pip install ants".

```
Terminal - luesebriink@gerd: /media/luesebriink/bmmr_data/download/nighres
File Edit View Terminal Tabs Help
(test_environment) luesebriink@gerd:/media/luesebriink/bmmr_data/download/nighres > pip install ants
```

* Installing Nilearn

Command:
pip install nilearn

Description:
Installs Nilearn. Used to generate a mean image and easy cropping to a ROI.

