Installing PyTorch on Ubuntu (CPU Only)

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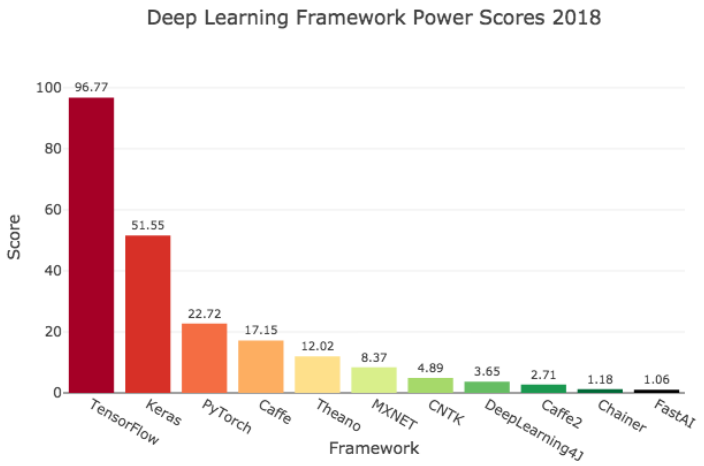
Deep learning frameworks



What is PyTorch

- **PyTorch** is a machine learning Python library, developed by the Facebook AI research group.
  - Python package for machine learning, backed by Facebook
- Documentation:
  - https://pytorch.org/docs/stable/
  - https://pytorch.org/docs/***<version>***
    - ***1.6.0, 1.5.1, 1.3.0, ...***
- Repository
  - https://github.com/pytorch/pytorch
- Examples
  - https://github.com/pytorch/examples

PYTORCH

Installing PyTorch: prerequisites

- Ubuntu >= 13 (use “$ lsb_release -a”) or CentOS >= 7.3
- glibc >= 2.1.7 (use “$ ldd ---version”)
- Python
  - Python >= 3.6 (use “$ python3 --version”) [Python 2.7 is also possible]
  - $ sudo apt install python
- Python package manager (one of below)
  - anaconda (https://www.anaconda.com/products/individual#linux)
    - <see next page>
  - pip
    - $ sudo apt install python3-pip

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Install Anaconda3 for Python 3.5 on Ubuntu 16.04 (1/2)

- Get Anaconda installer for Python 3.5
  - $ sudo apt install curl
  - $ curl -O https://repo.anaconda.com/archive/Anaconda3-4.2.0-Linux-x86_64.sh
- Install Anaconda
  - $ /bin/bash ./Anaconda3-4.2.0-Linux-x86_64.sh
    - Without '-p', "$HOME/anaconda3" will be install directory
- Make an environment
  - $ conda create --name *my_pytorch* python=3
- Start the environment
  - $ **source activate *my_pytorch***
- Install PyTorch in the Anaconda3 environment
  - (*my_pytorch*) $ conda install pytorch torchvision cpuonly -c pytorch

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Install Anaconda3 for Python 3.5 on Ubuntu 16.04 (2/2)

- Check version
  - (my_pytorch) [guest@barebone] python --version
    - Python 3.9.2
  - (my_pytorch) [guest@barebone] python
    - Python 3.9.2 (default, Mar 3 2021, 20:02:32)
      - [GCC 7.3.0] :: Anaconda, Inc. on linux
    - Type "help", "copyright", "credits" or "license" for more information.
    - >>> import torch
    - >>> print(torch.__version__)
      - 1.8.1
    - >>> quit()
  - (my_pytorch) [guest@barebone] pip3 install matplotlib
  - (my_pytorch) [guest@barebone] pip install tensorboard tensorboardX
  - (my_pytorch) [guest@barebone] **source deactivate**
  - [guest@barebone]

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Installing PyTorch: Anaconda3 (1/2)

- Step 1: visit “https://www.anaconda.com/distribution/#download-section”
- Step 2: get Python 3.7 version of 64-bit Installer (for Linux)
- Step 3: run the script
  - ***$ sh ./Anaconda3-2019.03-Linux-x86_64.sh”***
    - Without ‘-p’, “$HOME/anaconda3” will be install directory
- Step 4: run script (may not need since .bashrc may have initialization script)
  - ***$ source $HOME/anaconda3/etc/profile.d/conda.sh***

```
// To check packages in the conda
$ conda list
```

- ***Now it is conda environment***

```
// To check conda environment
$ conda env list
```

- Step 5: deactivate anaconda
  - ***$ conda deactivate***

```
// To remove conda environment
$ conda-env remove -n my_env
or
$ conda remove --name my_env --all
```

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Installing PyTorch: Anaconda3 (2/2)

- Step 1: run script (may not need since .bashrc may have initialization script)
  - ***$ source $HOME/anaconda3/etc/profile.d/conda.sh***
- Step 2: install pytorch (see next page, i.e., visit https://pytorch.org/get-started/locally)
  - ***$ conda install pytorch torchvision cpuonly -c pytorch***
- ***Now ‘pytorch’ package will be available for the python***
  - ***I.e., you can import pytorch.***
- Step 3: deactivate anaconda
  - ***$ conda deactivate***

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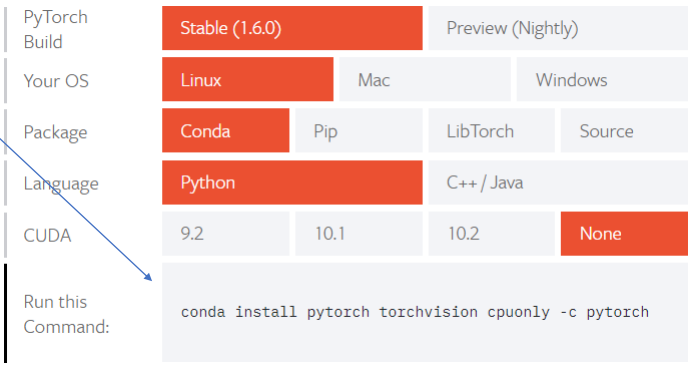
Installing PyTorch

- Visit: https://pytorch.org/get-started/locally/
- Select your preferences and run the install command.
- Run the command
  - note 'conda' is required.



Installing PyTorch: check installation

- Step 1: start Anaconda3 (It may not need when auto startup is enabled.)
  - $ source $HOME/anaconda3/etc/profile.d/conda.sh
- Step 2: run Python
  - (base) $ python –version
  - Python 3.7.6
  - (base) $ python
  - >>> import torch
  - >>> print(torch.__version__)
  - '1.4.0'
  - >>> quit()
- Step 4: deactivate Anaconda environment
  - (base) $ conda deactivate

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Install Pytorch on Python: Virtualenv

- $ sudo apt install python3-pip
- $ pip3 install --upgrade pip
- $ pip3 install virtualenv
- $ virtualenv pytorch-venv
- $ source pytorch-ven/bin/activate
- (pytorch-ven) $ pip list | grep torch
- (pytorch-ven) pip install torch==1.5.0+cpu torchvision==0.6.0+cpu -f https://download.pytorch.org/whl/torch_stable.html
- .....
- (pytorch-ven) deactivate
- $

- Refer following
  - $ sudo -H python3 -m pip install torch torchvision

(Alternative way) Installing PyTorch: Virtualenv

- Step 1: install pip and virtualenv
  - $ sudo apt-get install -y python3-venv
- Step 2: create virtualenv
  - $ python3 -m venv proj_pytorch
- Step 3: activate virtual environment
  - $ source ~/proj_pytorch/bin/activate
- Step 4: install pytorch
  - (proj_pytorch)$ pip install torch==1.3.0+cpu torchvision==0.4.1+cpu -f https://download.pytorch.org/whl/torch_stable.html
- Step 5: deactivate virtualenv
  - ***(proj_pytorch)$ deactivate***

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