Cài đặt môi trường Nvidia, CUDA, CuDNN cho Linux

# 1. Cài đặt Nvida driver

## 1.1. Cài đặt Nvida-tool-kit

apt install nvidia-cuda-toolkit

## 1.2. Check version CUDA

nvcc --version

## 1.3. Verify that your GPU is CUDA-capable

lspci | grep -i nvidia

## 1.4. Verify Supported Version of Linux

uname -m && cat /etc/\*release

## 1.5. Verify the System Has gcc Installed

gcc --version

## 1.6. Verify the System has the Correct Kernel Headers and Development Packages Installed

uname -r

### 1.6.1. if not run this comamand (Ubuntu)

sudo apt-get install linux-headers-$(uname -r)

#### 1.6.1.1. Use the following command to uninstall a Toolkit runfile installation

sudo /usr/local/cuda-X.Y/bin/cuda-uninstaller

*thay cuda-X.Y thành version cuda tương ứng*

#### 1.6.1.2. Use the following command to uninstall a Driver runfile installation

sudo /usr/bin/nvidia-uninstall

## 1.7. Cài đặt CUDA cho Linux Ubuntu 20.04 x86\_64

### 1.7.1. Download Installer CUDA for Linux Ubuntu 20.04 x86\_64

wget https://developer.download.nvidia.com/compute/cuda/repos/ubuntu2004/x86\_64/cuda-ubuntu2004.pin

sudo mv cuda-ubuntu2004.pin /etc/apt/preferences.d/cuda-repository-pin-600

wget https://developer.download.nvidia.com/compute/cuda/11.6.2/local\_installers/cuda-repo-ubuntu2004-11-6-local\_11.6.2-510.47.03-1\_amd64.deb

sudo dpkg -i cuda-repo-ubuntu2004-11-6-local\_11.6.2-510.47.03-1\_amd64.deb

sudo apt-key add /var/cuda-repo-ubuntu2004-11-6-local/7fa2af80.pub

sudo apt-get update

sudo apt-get -y install cuda

## 1.8. Cài đặt CuDNN cho Linux Ubuntu 20.04 x86\_64

### 1.8.1. Download file cudnn-local-repo-ubuntu2004-8.3.3.40\_1.0-1\_amd64.deb về

### 1.8.2. Enable the local repository

sudo dpkg -i cudnn-local-repo-ubuntu2004-8.3.3.40\_1.0-1\_amd64.deb

L*ưu ý thay đổi version cho phù hợp CUDA và CuDNN*

### 1.8.3. Import the CUDA GPG key

sudo apt-key add /var/cudnn-local-repo-\*/7fa2af80.pub

### 1.8.4. Refresh the repository metadata

sudo apt-get update

### 1.8.5. Install the runtime library

sudo apt-get install libcudnn8=8.8.3.3.40-1+cuda11.5

### 1.8.6. Install the developer library

sudo apt-get install libcudnn8-dev=8.8.3.3.40-1+cuda11.5

### 1.8.7. Install the code samples and the cuDNN library documentation

sudo apt-get install libcudnn8-samples=8.8.3.3.40-1+cuda11.5

# 2. Option-network-install

## 2.1. Ubuntu Network Installation

These are the installation instructions for Ubuntu 18.04 and 20.04 users.

Procedure

### 2.1.1. Enable the repository. The following commands enable the repository containing information about the appropriate cuDNN libraries online for Ubuntu 18.04 and 20.04

<Lưu ý thay đổi version và OS cho phù hợp CUDA và CuDNN>

wget https://developer.download.nvidia.com/compute/cuda/repos/${OS}/x86\_64/cuda-${OS}.pin

sudo mv cuda-${OS}.pin /etc/apt/preferences.d/cuda-repository-pin-600

sudo apt-key adv --fetch-keys https://developer.download.nvidia.com/compute/cuda/repos/${OS}/x86\_64/7fa2af80.pub

sudo add-apt-repository "deb https://developer.download.nvidia.com/compute/cuda/repos/${OS}/x86\_64/ /"

sudo apt-get update

### 2.1.2. Install the cuDNN library

sudo apt-get install libcudnn8=${cudnn\_version}-1+${cuda\_version}

sudo apt-get install libcudnn8-dev=${cudnn\_version}-1+${cuda\_version}

Where:

${cudnn\_version} is 8.4.0.\*

${cuda\_version} is cuda10.2 or cuda11.6