ML Training Benchmark

Now we are Using PYTORCH Framework follow the Below Link
https://github.com/NVIDIA/DeepLearningExamples/tree/master/PyTorch/Segmentation/nnUNet

PyTorch/Segmentation/nnUNet

nnU-Net For PyTorch

Model architecture

The nnU-Net allows the training of two types of networks: 2D U-Net and 3D U-Net to perform semantic segmentation of 3D images, with high accuracy and performance. The following figure shows the architecture of the 3D U-Net model and its different components. U-Net is composed of a contractive and an expanding path, that aims at building a bottleneck in its centremost part through a combination of convolution, instance norm, and leaky ReLU operations. After this bottleneck, the image is reconstructed through a combination of convolutions and upsampling. Skip connections are added with the goal of helping the backward flow of gradients to improve the training.

Setup

The following section lists the requirements that you need to meet to start training the nnU-Net model.

Requirements

This repository contains Dockerfile which extends the PyTorch NGC container and encapsulates some dependencies. Aside from these dependencies, ensure you have the following components:

- NVIDIA Docker
- PyTorch 22.11 NGC container
- Supported GPUs:
- NVIDIA Volta architecture
- NVIDIA Turing architecture
- NVIDIA Ampere architecture

Quick Start Guide

To train your model using mixed or TF32 precision with Tensor Cores or using FP32, perform the following steps using the default parameters of the nnUNet model on the Medical Segmentation Decathlon dataset. For the specifics on training and inference, see the Advanced section.
I am pulling Docker Images from NGC Catalog the Requirement .
nvcr.io/nvidia/pytorch:22.11-py3

```
root@mpcl-master:~# docker images
REPOSITORY                  TAG              IMAGE ID       CREATED       SIZE
nvcr.io/nvidia/tensorflow   24.07-tf2-py3    4574f4bf6f57   7 weeks ago   15.1GB
nvcr.io/nvidia/pytorch      22.08-py3        b3d16c039217   2 years ago   14.6GB
nvcr.io/nvidia/tensorflow   20.06-tf2-py3    4ebde669c238   4 years ago   9.45GB
root@mpcl-master:~# docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED          STATUS                      PORTS                                                                                  NAME
S
4f26082dd7c1   b3d16c039217   "/opt/nvidia/nvidia_…"   27 minutes ago   Up 27 minutes               6006/tcp, 8888/tcp, 0.0.0.0:1004->8989/tcp, :::1004->8989/tcp   blis
sful_kapitsa
6cf2d1c268f6   b3d16c039217   "/opt/nvidia/nvidia_…"   27 minutes ago   Exited (2) 27 minutes ago                                                                          joll
y_wilson
e5acd662193f   b3d16c039217   "/opt/nvidia/nvidia_…"   47 hours ago     Up 2 hours                  6006/tcp, 8888/tcp, 0.0.0.0:1002->8889/tcp, :::1002->8889/tcp   mahe
sh
fb545d1ab8b5   4574f4bf6f57   "/opt/nvidia/nvidia_…"   3 weeks ago      Exited (0) 46 hours ago                                                                            mode
st_gates
root@mpcl-master:~#
```

```
CONTAINER ID   IMAGE          COMMAND                  CREATED          STATUS          PORTS                                                                                  NAME
S
4f26082dd7c1   b3d16c039217   "/opt/nvidia/nvidia_…"   27 minutes ago   Up 27 minutes   6006/tcp, 8888/tcp, 0.0.0.0:1004->8989/tcp, :::1004->8989/tcp   blis
sful_kapitsa
```

NOTE you have Two Option Run this Things

```
root@mpcl-master:~# git clone https://github.com/NVIDIA/DeepLearningExamples
Cloning into 'DeepLearningExamples'...
remote: Enumerating objects: 33828, done.
remote: Counting objects: 100% (5388/5388), done.
remote: Compressing objects: 100% (1905/1905), done.
remote: Total 33828 (delta 3723), reused 3841 (delta 3456), pack-reused 28440 (from 1)
Receiving objects: 100% (33828/33828), 108.42 MiB | 10.28 MiB/s, done.
Resolving deltas: 100% (23894/23894), done.
root@mpcl-master:~# cd DeepLearningExamples/PyTorch/Segmentation/nnUNet
root@mpcl-master:~/DeepLearningExamples/PyTorch/Segmentation/nnUNet# docker build -t nnunet .
[+] Building 34.5s (4/16)                                                                                          docker:default
 => [internal] load build definition from Dockerfile                                                                        0.0s
 => => transferring dockerfile: 615B                                                                                        0.0s
 => [internal] load metadata for nvcr.io/nvidia/pytorch:22.11-py3                                                           2.3s
 => [internal] load .dockerignore                                                                                           0.0s
 => => transferring context: 2B                                                                                             0.0s
 => [internal] load build context                                                                                           0.1s
 => => transferring context: 6.29MB                                                                                         0.1s
 => [ 1/12] FROM nvcr.io/nvidia/pytorch:22.11-py3@sha256:cbf761c3272cb0aadeec49aa188c3140ae79674e950cd0bb846b3683f93318be   32.1s
 => => resolve nvcr.io/nvidia/pytorch:22.11-py3@sha256:cbf761c3272cb0aadeec49aa188c3140ae79674e950cd0bb846b3683f93318be     0.0s
 => => sha256:eaead16dc43bb8811d4ff450935d607f9ba4baffda4fc110cc402fa43f601d83 28.58MB / 28.58MB                           15.8s
 => => sha256:6b08e0981273a337a2162ece566ce3f03b653a83d2b4478c4a493e7b731d3e11 133.38MB / 133.38MB                         31.6s
 => => sha256:cbf761c3272cb0aadeec49aa188c3140ae79674e950cd0bb846b3683f93318be 743B / 743B                                  0.0s
 => => sha256:0055b6d22e7ec6f933a15b7bdcab706ed12ded599486bde744d32db84ea1d305 44.77kB / 44.77kB                            0.0s
 => => sha256:d86e6ecee9abb2d8b4bb66be318ab956861cec12f33d1143f38cc1399a59b2f4 111.54MB / 111.54MB                         31.8s
 => => sha256:adea16a3d7a2ba57236261470cc95a61068787b87eb7580b62e56094774d99fb 9.81kB / 9.81kB                              0.0s
 => => extracting sha256:eaead16dc43bb8811d4ff450935d607f9ba4baffda4fc110cc402fa43f601d83                                   1.3s
 => => sha256:54de03fa67ca69629e43a9eb9cd6cf22355d84e6e0a8b33752e2c04f48be32f1 182.14kB / 182.14kB                         16.2s
 => => sha256:d0067f8e474411db12a6934f75336ab376aa0be5c8d4605d4e5e5a3adf7a9667 69.21MB / 2.78GB                            32.1s
 => => sha256:9e8473502f86a85ce48e2be4da9668b7f9376041d3e4d6b75bafbe03122a7fb1 0B / 11.55kB                                32.1s
 => => sha256:62cbcf4cbe13004e618b6dfbcb0aff50ad77d8d76900b7dab97cf2df07c4efad 0B / 185B                                   32.1s
 => => extracting sha256:d86e6ecee9abb2d8b4bb66be318ab956861cec12f33d1143f38cc1399a59b2f4                                   0.2s
]
```

```
 => => naming to docker.io/library/nnunet                                                                                   0.0s
:oot@mpcl-master:~/DeepLearningExamples/PyTorch/Segmentation/nnUNet# mkdir data results
:oot@mpcl-master:~/DeepLearningExamples/PyTorch/Segmentation/nnUNet# docker run -it --privileged --runtime=nvidia --shm-size=8g --ulimit memlock=-1 --ulimit stack=67108
364 --rm -v ${PWD}/data:/data -v ${PWD}/results:/results nnunet:latest /bin/bash
locker: Error response from daemon: unknown or invalid runtime name: nvidia.
See 'docker run --help'.
:oot@mpcl-master:~/DeepLearningExamples/PyTorch/Segmentation/nnUNet# ls
lata          data_preprocessing  Dockerfile-Triton  evaluate.py  LICENSE  nnunet     preprocess.py  requirements.txt  scripts  utils
lata_loading  Dockerfile          download.py        images       main.py  notebooks  README.md      results           triton
:oot@mpcl-master:~/DeepLearningExamples/PyTorch/Segmentation/nnUNet# ^C
:oot@mpcl-master:~/DeepLearningExamples/PyTorch/Segmentation/nnUNet# distribution=$(. /etc/os-release;echo $ID$VERSION_ID)
sudo apt-get update
sudo apt-get install -y nvidia-docker2
sudo systemctl restart docker
:oot@mpcl-master:~/DeepLearningExamples/PyTorch/Segmentation/nnUNet# curl -s -L https://nvidia.github.io/nvidia-docker/gpgkey | sudo apt-key add -
OK
:oot@mpcl-master:~/DeepLearningExamples/PyTorch/Segmentation/nnUNet# curl -s -L https://nvidia.github.io/nvidia-docker/$distribution/nvidia-docker.list | sudo tee /etc/
apt/sources.list.d/nvidia-docker.list
leb https://nvidia.github.io/libnvidia-container/stable/ubuntu18.04/$(ARCH) /
#deb https://nvidia.github.io/libnvidia-container/experimental/ubuntu18.04/$(ARCH) /
leb https://nvidia.github.io/nvidia-container-runtime/stable/ubuntu18.04/$(ARCH) /
#deb https://nvidia.github.io/nvidia-container-runtime/experimental/ubuntu18.04/$(ARCH) /
leb https://nvidia.github.io/nvidia-docker/ubuntu18.04/$(ARCH) /
:oot@mpcl-master:~/DeepLearningExamples/PyTorch/Segmentation/nnUNet# sudo apt-get update
```

```
root@mpcl-master:~/DeepLearningExamples/PyTorch/Segmentation/nnUNet# sudo systemctl restart docker
root@mpcl-master:~/DeepLearningExamples/PyTorch/Segmentation/nnUNet# docker run -it --privileged --runtime=nvidia --shm-size=8g --ulimit memlock=-1 --ulimit stack=67108
864 --rm -v ${PWD}/data:/data -v ${PWD}/results:/results nnunet:latest /bin/bash

=============
== PyTorch ==
=============

NVIDIA Release 22.11 (build 48503342)
PyTorch Version 1.13.0a0+936e930

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root@eedff8347831:/workspace/nnunet_pyt# nvidia-smi
```

```
NOTE: The SHMEM allocation limit is set to the default of 64MB.  This may be
   insufficient for PyTorch.  NVIDIA recommends the use of the following flags:
   docker run --gpus all --ipc=host --ulimit memlock=-1 --ulimit stack=67108864 ...

root@09707b355550:/workspace# cd pandey/
root@09707b355550:/workspace/pandey# ls
DeepLearningExamples  LJSpeech-1.1  Task01_BrainTumour.tar
root@09707b355550:/workspace/pandey# cd DeepLearningExamples/PyTorch/Segmentation/nnUNet/
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# ls
Dockerfile         LICENSE    data          data_preprocessing  evaluate.py  main.py  notebooks      requirements.txt  scripts  utils
Dockerfile-Triton  README.md  data_loading  download.py         images       nnunet   preprocess.py  results           triton
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# python download.py --task 01
/bin/dash: 1: aws: not found
tar: /data/Task01_BrainTumour.tar: Cannot open: No such file or directory
tar: Error is not recoverable: exiting now
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# vi download.py
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# vi download.py
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# ^C
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# vi download.py
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# python download.py --task 01
/bin/dash: 1: aws: not found
tar: /data/Task01_BrainTumour.tar/Task01_BrainTumour.tar: Cannot open: No such file or directory
tar: Error is not recoverable: exiting now
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# vi download.py
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# python download.py --task 01
/bin/dash: 1: aws: not found
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# python preprocess.py --task 01 --dim 3
Traceback (most recent call last):
  File "preprocess.py", line 19, in <module>
    from data_preprocessing.preprocessor import Preprocessor
  File "/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/data_preprocessing/preprocessor.py", line 21, in <module>
    import monai.transforms as transforms
ModuleNotFoundError: No module named 'monai'
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# vi preprocess.py
```

```
oduleNotFoundError: No module named 'monai'
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# vi preprocess.py
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# vi preprocess.py
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# python preprocess.py --task 01 --dim 3
raceback (most recent call last):
 File "preprocess.py", line 19, in <module>
   from data_preprocessing.preprocessor import Preprocessor
 File "/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/data_preprocessing/preprocessor.py", line 21, in <module>
   import monai.transforms as transforms
oduleNotFoundError: No module named 'monai'
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# pip install -r requirements.txt
ooking in indexes: https://pypi.org/simple, https://pypi.ngc.nvidia.com
ollecting git+https://github.com/NVIDIA/dllogger (from -r requirements.txt (line 1))
 Cloning https://github.com/NVIDIA/dllogger to /tmp/pip-req-build-lwld28ln
 Running command git clone -q https://github.com/NVIDIA/dllogger /tmp/pip-req-build-lwld28ln
 Resolved https://github.com/NVIDIA/dllogger to commit 0540a43971f4a8a16693a9de9de73c1072020769
ollecting git+https://github.com/NVIDIA/mlperf-common.git (from -r requirements.txt (line 2))
 Cloning https://github.com/NVIDIA/mlperf-common.git to /tmp/pip-req-build-6vfbqn6f
 Running command git clone -q https://github.com/NVIDIA/mlperf-common.git /tmp/pip-req-build-6vfbqn6f
 Resolved https://github.com/NVIDIA/mlperf-common.git to commit 48f6edafcbda8947e24a9b46a116ab741797bbdb
ollecting nibabel==3.2.1
 Downloading nibabel-3.2.1-py3-none-any.whl (3.3 MB)
    |████████████████████████████████| 3.3 MB 787 kB/s
ollecting joblib==1.0.1
 Downloading joblib-1.0.1-py3-none-any.whl (303 kB)
    |████████████████████████████████| 303 kB 8.7 MB/s
ollecting pytorch-lightning==1.7.7
 Downloading pytorch_lightning-1.7.7-py3-none-any.whl (708 kB)
    |████████████████████████████████| 708 kB 7.2 MB/s
ollecting scikit-learn==1.0
 Downloading scikit_learn-1.0-cp38-cp38-manylinux_2_17_aarch64.manylinux2014_aarch64.whl (26.6 MB)
    |████████████████████████████████| 26.6 MB 11.3 MB/s
ollecting scikit-image==0.18.3
 Downloading scikit_image-0.18.3-cp38-cp38-manylinux_2_17_aarch64.manylinux2014_aarch64.whl (37.4 MB)
    |████████████████████████████████| 37.4 MB 222 kB/s
ollecting scipy==1.8.1
```

```
vironment instead: https://pip.pypa.io/warnings/venv
:oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# python preprocess.py --task 01 --dim 3
Traceback (most recent call last):
  File "preprocess.py", line 19, in <module>
    from data_preprocessing.preprocessor import Preprocessor
  File "/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/data_preprocessing/preprocessor.py", line 21, in <module>
    import monai.transforms as transforms
foduleNotFoundError: No module named 'monai'
:oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# ^C
:oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# vi requirements.txt
:oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# pip install monai
Looking in indexes: https://pypi.org/simple, https://pypi.ngc.nvidia.com
Collecting monai
  Downloading monai-1.3.2-py3-none-any.whl (1.4 MB)
     |████████████████████████████████| 1.4 MB 2.0 MB/s
Requirement already satisfied: numpy>=1.20 in /opt/conda/lib/python3.8/site-packages (from monai) (1.22.4)
Requirement already satisfied: torch>=1.9 in /opt/conda/lib/python3.8/site-packages (from monai) (1.13.0a0+d321be6)
Requirement already satisfied: typing_extensions in /opt/conda/lib/python3.8/site-packages (from torch>=1.9->monai) (4.3.0)
Installing collected packages: monai
Successfully installed monai-1.3.2
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtu
vironment instead: https://pip.pypa.io/warnings/venv
:oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# RUN pip install monai==1.0.0 --no-dependencies
bash: RUN: command not found
:oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# python -c "import monai; print(monai.__version__)"

1.3.2
:oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet#
:oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# python preprocess.py --task 01 --dim 3

Traceback (most recent call last):
  File "preprocess.py", line 19, in <module>
    from data_preprocessing.preprocessor import Preprocessor
  File "/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/data_preprocessing/preprocessor.py", line 26, in <module>
    from utils.utils import get_task_code, make_empty_dir
  File "/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/utils/utils.py", line 22, in <module>
    from pytorch_lightning.utilities import rank_zero_only
```

```
.3.2
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet#
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# python preprocess.py --task 01 --dim 3

raceback (most recent call last):
 File "preprocess.py", line 19, in <module>
   from data_preprocessing.preprocessor import Preprocessor
 File "/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/data_preprocessing/preprocessor.py", line 26, in <module>
   from utils.utils import get_task_code, make_empty_dir
 File "/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/utils/utils.py", line 22, in <module>
   from pytorch_lightning.utilities import rank_zero_only
 File "/opt/conda/lib/python3.8/site-packages/pytorch_lightning/__init__.py", line 34, in <module>
   from pytorch_lightning.callbacks import Callback  # noqa: E402
 File "/opt/conda/lib/python3.8/site-packages/pytorch_lightning/callbacks/__init__.py", line 25, in <module>
   from pytorch_lightning.callbacks.progress import ProgressBarBase, RichProgressBar, TQDMProgressBar
 File "/opt/conda/lib/python3.8/site-packages/pytorch_lightning/callbacks/progress/__init__.py", line 22, in <module>
   from pytorch_lightning.callbacks.progress.rich_progress import RichProgressBar  # noqa: F401
 File "/opt/conda/lib/python3.8/site-packages/pytorch_lightning/callbacks/progress/rich_progress.py", line 20, in <module>
   from torchmetrics.utilities.imports import _compare_version
mportError: cannot import name '_compare_version' from 'torchmetrics.utilities.imports' (/opt/conda/lib/python3.8/site-packages/torchmetrics/utilities/imports.py)
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet#
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# ^C
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# pip install --upgrade torchmetrics
ooking in indexes: https://pypi.org/simple, https://pypi.ngc.nvidia.com
equirement already satisfied: torchmetrics in /opt/conda/lib/python3.8/site-packages (1.4.1)
equirement already satisfied: packaging>17.1 in /opt/conda/lib/python3.8/site-packages (from torchmetrics) (21.3)
equirement already satisfied: lightning-utilities>=0.8.0 in /opt/conda/lib/python3.8/site-packages (from torchmetrics) (0.11.6)
equirement already satisfied: typing-extensions in /opt/conda/lib/python3.8/site-packages (from torchmetrics) (4.3.0)
equirement already satisfied: torch>=1.10.0 in /opt/conda/lib/python3.8/site-packages (from torchmetrics) (1.13.0a0+d321be6)
equirement already satisfied: numpy>1.20.0 in /opt/conda/lib/python3.8/site-packages (from torchmetrics) (1.22.4)
equirement already satisfied: setuptools in /opt/conda/lib/python3.8/site-packages (from lightning-utilities>=0.8.0->torchmetrics) (59.5.0)
equirement already satisfied: pyparsing!=3.0.5,>=2.0.2 in /opt/conda/lib/python3.8/site-packages (from packaging>17.1->torchmetrics) (3.0.9)
ARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual
vironment instead: https://pip.pypa.io/warnings/venv
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# pip install torchmetrics==0.7.0
ooking in indexes: https://pypi.org/simple, https://pypi.ngc.nvidia.com
ollecting torchmetrics==0.7.0
 Downloading torchmetrics-0.7.0-py3-none-any.whl (396 kB)
    |████████████████████████████████| 396 kB 2.0 MB/s
equirement already satisfied: pyDeprecate==0.3.* in /opt/conda/lib/python3.8/site-packages (from torchmetrics==0.7.0) (0.3.2)
equirement already satisfied: torch>=1.3.1 in /opt/conda/lib/python3.8/site-packages (from torchmetrics==0.7.0) (1.13.0a0+d321be6)
equirement already satisfied: packaging in /opt/conda/lib/python3.8/site-packages (from torchmetrics==0.7.0) (21.3)
```

```
ARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual e
vironment instead: https://pip.pypa.io/warnings/venv
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# python preprocess.py --task 01 --dim 3
opt/conda/lib/python3.8/site-packages/monai/utils/deprecate_utils.py:321: FutureWarning: monai.transforms.croppad.dictionary CropForegroundd.__init__:allow_smaller: Cu
rent default value of argument `allow_smaller=True` has been deprecated since version 1.2. It will be changed to `allow_smaller=False` in version 1.5.
  warn_deprecated(argname, msg, warning_category)
reprocessing data/Task01_BrainTumour
opt/conda/lib/python3.8/site-packages/monai/utils/deprecate_utils.py:321: FutureWarning: monai.transforms.utils generate_spatial_bounding_box:allow_smaller: Current de
ault value of argument `allow_smaller=True` has been deprecated since version 1.2. It will be changed to `allow_smaller=False` in version 1.5.
  warn_deprecated(argname, msg, warning_category)
opt/conda/lib/python3.8/site-packages/monai/utils/deprecate_utils.py:321: FutureWarning: monai.transforms.utils generate_spatial_bounding_box:allow_smaller: Current de
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  warn_deprecated(argname, msg, warning_category)
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  warn_deprecated(argname, msg, warning_category)
opt/conda/lib/python3.8/site-packages/monai/utils/deprecate_utils.py:321: FutureWarning: monai.transforms.utils generate_spatial_bounding_box:allow_smaller: Current de
```

```
  warn_deprecated(argname, msg, warning_category)
/opt/conda/lib/python3.8/site-packages/monai/utils/deprecate_utils.py:321: FutureWarning: monai.transforms.utils generate_spatial_bounding_box:allow_smaller: Current de
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/opt/conda/lib/python3.8/site-packages/monai/utils/deprecate_utils.py:321: FutureWarning: monai.transforms.utils generate_spatial_bounding_box:allow_smaller: Current de
fault value of argument `allow_smaller=True` has been deprecated since version 1.2. It will be changed to `allow_smaller=False` in version 1.5.
  warn_deprecated(argname, msg, warning_category)
Pre-processing time: 15.56
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet#
```

DeepLearningExamples / PyTorch / Segmentation / nnUNet / ↑ Top

```
python download.py --task 01
python preprocess.py --task 01 --dim 3
python preprocess.py --task 01 --dim 2
```

Then `ls /data` should print:

```
01_3d 01_2d Task01_BrainTumour
```

For the specifics on data preprocessing, see the Getting the data section.

5. Start training.

Training can be started with:

```
python scripts/train.py --gpus <gpus> --fold <fold> --dim <dim> [--amp] [--bind]
```

To see descriptions of the train script arguments run `python scripts/train.py --help`. You can customize the training process. For details, see the Training process section.

```
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/data# cd ..
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# ls
Dockerfile         LICENSE    data          data_preprocessing  evaluate.py  main.py  notebooks      requirements.txt  scripts  utils
Dockerfile-Triton  README.md  data_loading  download.py         images       nnunet   preprocess.py  results           triton
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# cd scripts/
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/scripts# ls
benchmark.py  inference.py  train.py
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/scripts#
```

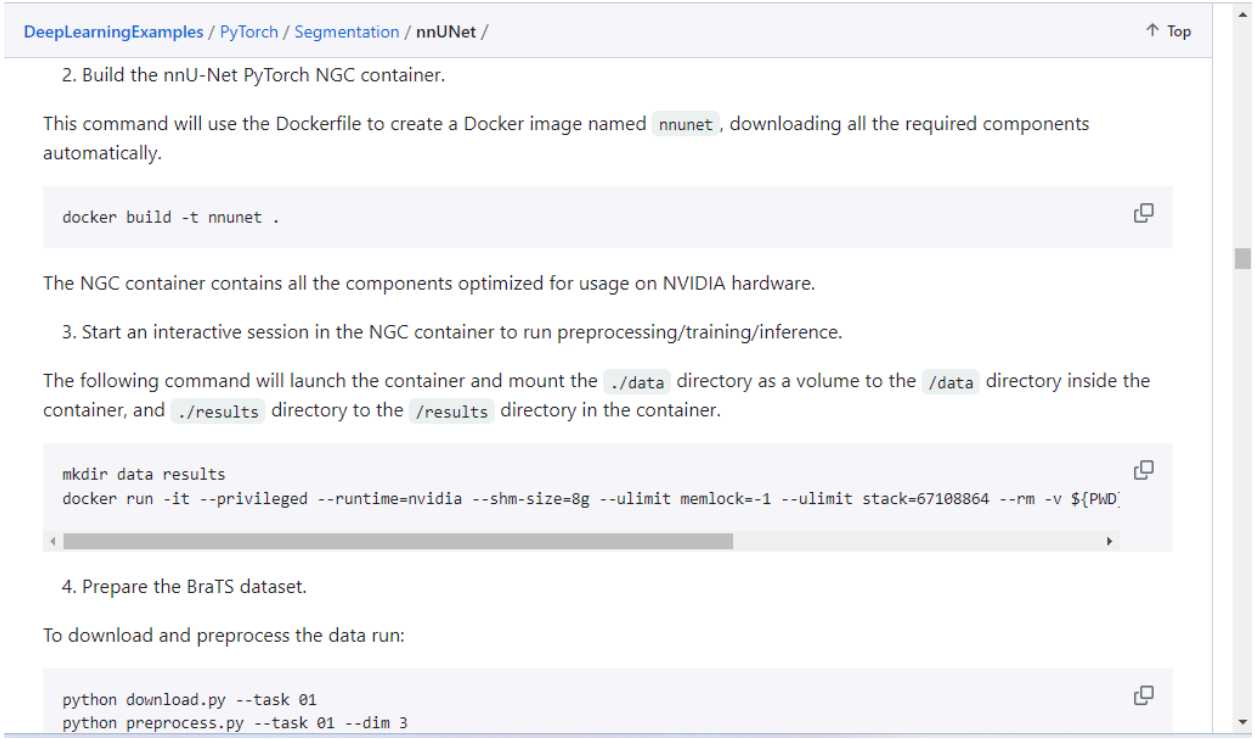
```
                                                [--resume_training] [--results RESULTS] [--logname LOGNAME] [--learning_rate LEARNING_RATE]
class 'argparse.ArgumentDefaultsHelpFormatter'>: error: the following arguments are required: --fold, --dim
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# python scripts/train.py --gpus {1}
sage: <class 'argparse.ArgumentDefaultsHelpFormatter'> [-h] [--task TASK] --gpus GPUS --fold {0,1,2,3,4} --dim {2,3} [--seed SEED] [--amp] [--tta] [--bind]
                                                [--resume_training] [--results RESULTS] [--logname LOGNAME] [--learning_rate LEARNING_RATE]
class 'argparse.ArgumentDefaultsHelpFormatter'>: error: argument --gpus: invalid int value: '{1}'
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# python scripts/train.py
sage: <class 'argparse.ArgumentDefaultsHelpFormatter'> [-h] [--task TASK] --gpus GPUS --fold {0,1,2,3,4} --dim {2,3} [--seed SEED] [--amp] [--tta] [--bind]
                                                [--resume_training] [--results RESULTS] [--logname LOGNAME] [--learning_rate LEARNING_RATE]
class 'argparse.ArgumentDefaultsHelpFormatter'>: error: the following arguments are required: --gpus, --fold, --dim
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# python scripts/train.py --gpus 1 --fold 1 --dim 2
raceback (most recent call last):
 File "/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/main.py", line 128, in <module>
   main()
 File "/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/main.py", line 60, in main
   args = get_main_args()
 File "/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/utils/args.py", line 164, in get_main_args
   with open(f"{args.results}/params.json", "w") as f:
ileNotFoundError: [Errno 2] No such file or directory: '/results/params.json'
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# ls
ockerfile         LICENSE    data          data_preprocessing  evaluate.py  main.py  notebooks      requirements.txt  scripts  utils
ockerfile-Triton  README.md  data_loading  download.py         images       nnunet   preprocess.py  results           triton
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# cd scripts/
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/scripts# ls
enchmark.py  inference.py  train.py
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/scripts# vi train.py
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/scripts# python scripts/train.py --gpus 1 --fold 1 --dim 2
ython: can't open file 'scripts/train.py': [Errno 2] No such file or directory
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/scripts# cd ..
oot@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# python scripts/train.py --gpus 1 --fold 1 --dim 2
```

When i a training a Model there is Showing a Error

```
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# python scripts/train.py --gpus 1 --fold 1 --dim 2
Global seed set to 1
Traceback (most recent call last):
  File "/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/main.py", line 128, in <module>
    main()
  File "/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/main.py", line 65, in main
    data_module = DataModule(args)
  File "/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/data_loading/data_module.py", line 45, in __init__
    "patch_size": get_config_file(self.args)["patch_size"],
  File "/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet/utils/utils.py", line 40, in get_config_file
    return pickle.load(open(path, "rb"))
FileNotFoundError: [Errno 2] No such file or directory: '/data/01_2d/config.pkl'
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# ls
Dockerfile         LICENSE    data          data_preprocessing  evaluate.py  main.py  notebooks      requirements.txt  scripts  utils
Dockerfile-Triton  README.md  data_loading  download.py         images       nnunet   preprocess.py  results           triton
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# ls data
data/              data_loading/      data_preprocessing/
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# ls data
data/              data_loading/      data_preprocessing/
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# ls data/
01_2d/             01_3d/             Task01_BrainTumour/
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet# ls data/01_2d/
Display all 1937 possibilities? (y or n)
root@09707b355550:/workspace/pandey/DeepLearningExamples/PyTorch/Segmentation/nnUNet#
```

Replace the /data/01_2d/ this thing replace in train.py file

Second Method



Second OPTION

First to you have one Share Directory to create Directory

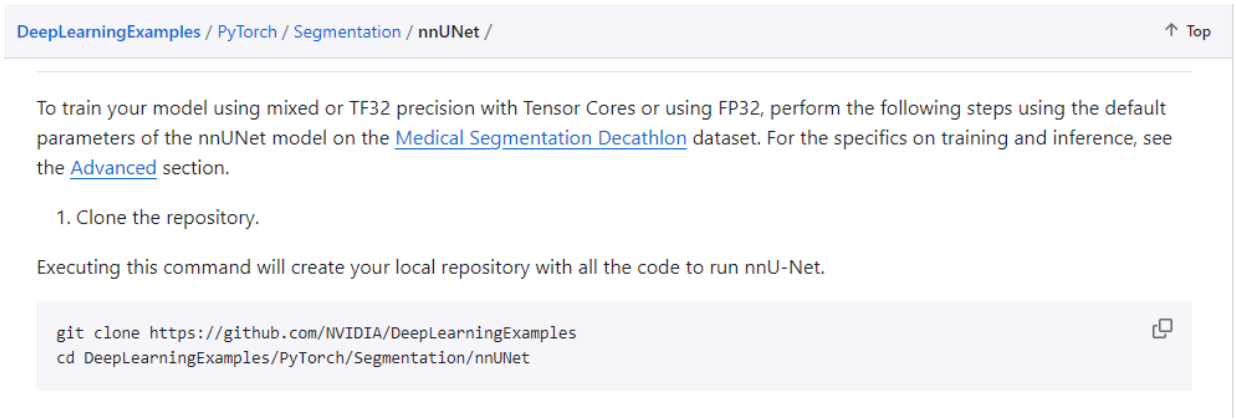
Mkdir Mahesh

Docker run –gpus all -it -v /root/Mahesh/:/workspace/Mahesh -p 1004:8989 <imagesID>

To this Commands then you have a get Container ID then FOLLOW THE Commands

Below the Things inside on Container

Clone the repository



This Method have Some Problem a Mount inside Container but below commands are not RUN
The following command will launch the container and mount the `./data` directory as a volume to the `/data` directory inside the container, and `./results` directory to the `/results` directory in the container

NOTE you have to Downloads DATASET in /data directory in tar below the LINK then to PASTE ON /DATA DIRECTORY . http://medicaldecathlon.com/

python download.py --task 01
python preprocess.py --task 01 --dim 3
python preprocess.py --task 01 --dim 2