MBAS 2024 Final Test Tutorial

For quickly understand how to submit your methods, we build this tutorial for each participant. Each part has somewhere is need to be placed to your own files or path, please make sure you have placed all parts before you submit. Please note that the input resolution **is not fixed** at 640x640x44 or 576x576x44; however, all spacing is consistently set at 0.625, 0.625, 2.5 mm.

Step1: Build predict.py to generate output segmentation results based on given input.

Note that: In this `predict.py` file, you need to ensure the correct entry of three parameters: `input_dir`, `output_dir`, and `model_pth`. Please do not modify the names of these parameters.

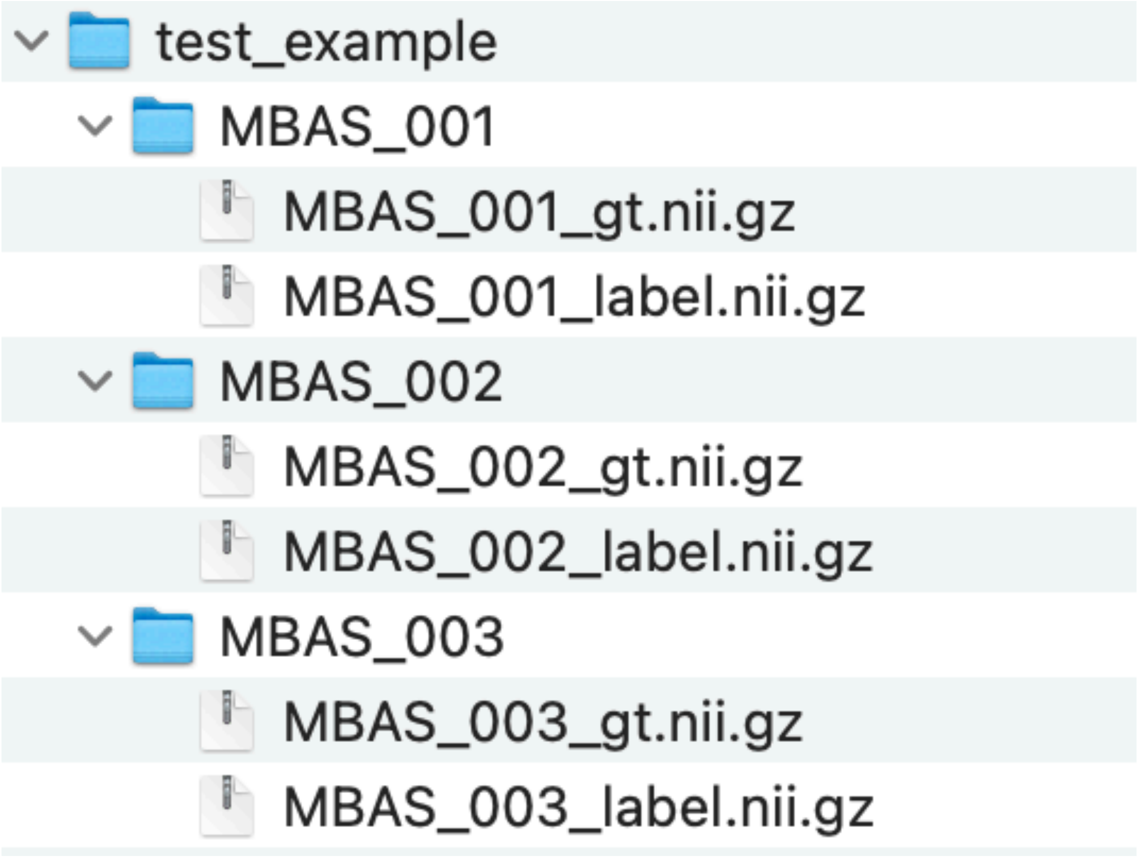
For the GPU parameter, please note that all teams are limited to using a single node's GPU. We will assign the GPU ID based on availability, so you can assume that the GPU ID is 0 by default.

For `input_dir` and `output_dir`, these should be absolute paths, for example, `input_dir=/home/mbas/test_example`, `output_dir=/home/mbas/team1_output_example`.

For `model_pth`, please name it either **`test.pth`** **or** **`val.pth`** and place them in the `./save_pths` directory. Be aware that `val.pth` is the model parameters obtained during the best results in the validation stage, while `test.pth` is the parameters submitted for the final validation stage.

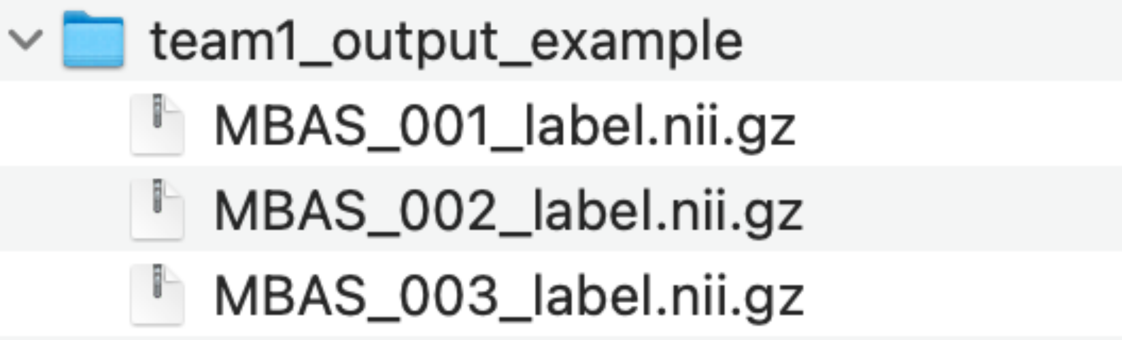
We will re-test the validation stage results for each team to ensure that no cheating occurs. Code is in the GitHub and illustrations are provided below:

input_dir example:



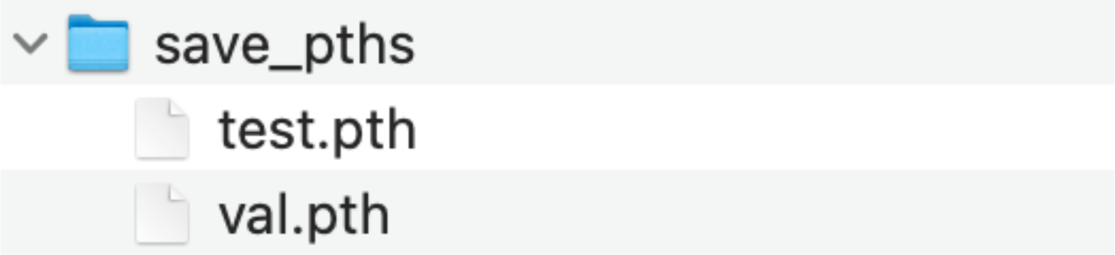
```
test_example
    MBAS_001
        MBAS_001_gt.nii.gz
        MBAS_001_label.nii.gz
    MBAS_002
        MBAS_002_gt.nii.gz
        MBAS_002_label.nii.gz
    MBAS_003
        MBAS_003_gt.nii.gz
        MBAS_003_label.nii.gz
```

output_dir example:



team1_output_example
- MBAS_001_label.nii.gz
- MBAS_002_label.nii.gz
- MBAS_003_label.nii.gz

model_pth example:



save_pths
- test.pth
- val.pth

Step 2: Test if the command works correctly using the Docker image example that we provide.

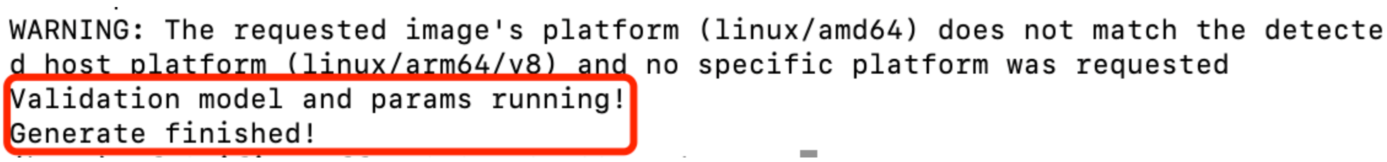
1. Download example docker image

```
docker pull mbas24miccai/example
```

2. Test valdiation model, note that you should change the '/home/mbas/test_example' and '/home/mbas/team1_output_example' to your own absolute path before running:

```
docker run --rm -v /home/mbas/test_example:/input -v
/home/mbas/team1_output_example:/output -it mbas24miccai/example predict.py --model_pth
'./save_pths/val.pth'
```

If success, you will see:

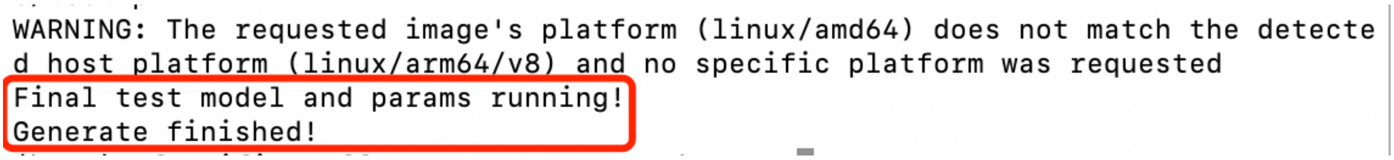


```
WARNING: The requested image's platform (linux/amd64) does not match the detecte
d host platform (linux/arm64/v8) and no specific platform was requested
Validation model and params running!
Generate finished!
```

3. Test final test model, note that you should change the '/home/mbas/test_example' and '/home/mbas/team1_output_example' to your own absolute path before running:

```
docker run --rm -v /home/mbas/test_example:/input -v
/home/mbas/team1_output_example:/output -it mbas24miccai/example predict.py --model_pth
'./save_pths/test.pth'
```

If success, you will see:



```
WARNING: The requested image's platform (linux/amd64) does not match the detecte
d host platform (linux/arm64/v8) and no specific platform was requested
Final test model and params running!
Generate finished!
```

Step 3: Based on your own model, add or modify Dockerfile by referring to GitHub. Then, build your own Docker image:

We require the competitors to use [Docker] to containerize their applications. Docker images can be created using Dockerfiles, which contain all commands that help to run applications. An example of a Dockerfile can be found here. Four basic components are required to be included in the Docker file:

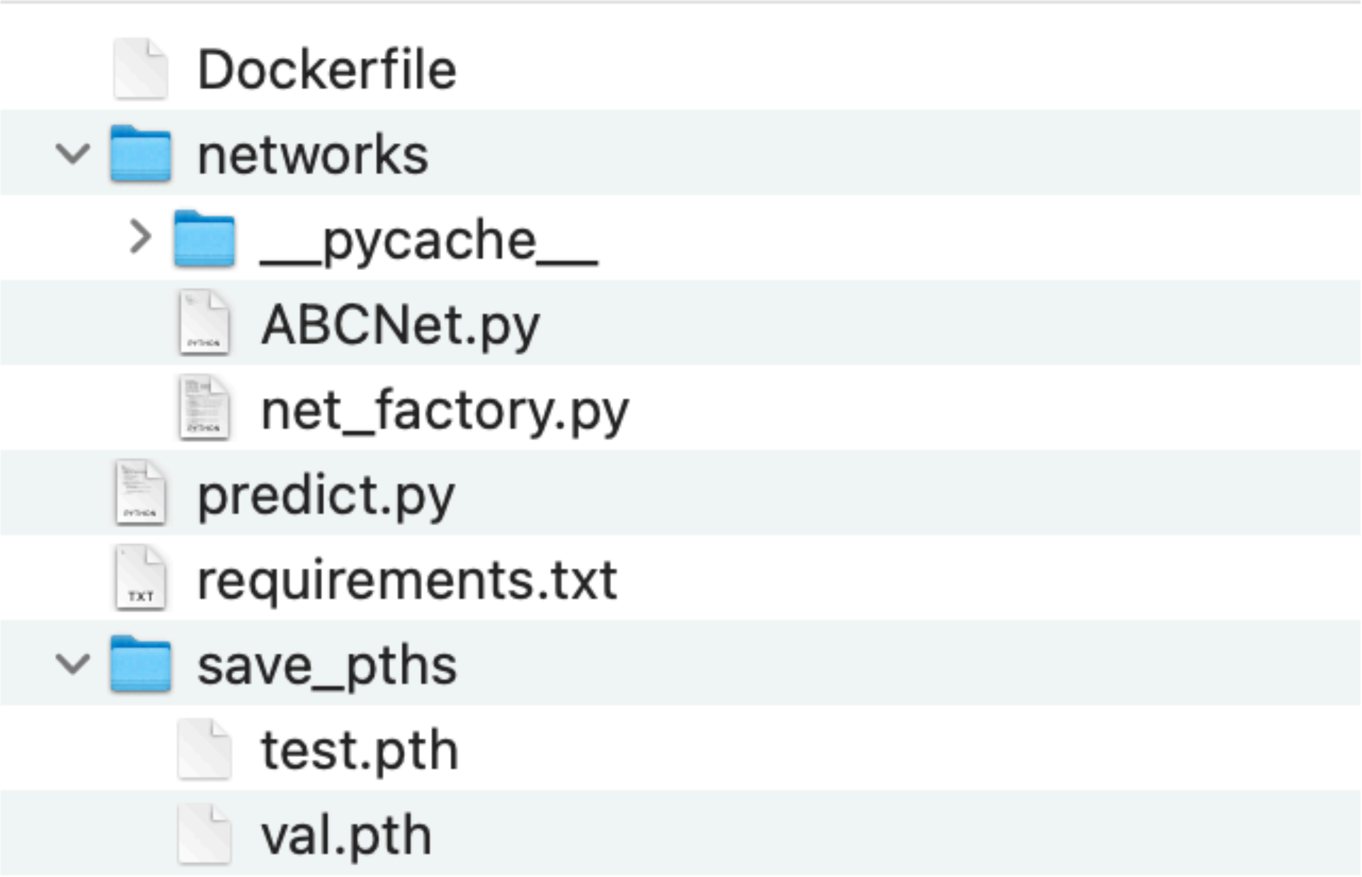
1. Pulling a pre-existing image with an operating system and, if needed, CUDA (FROM instruction).
2. Installing additional dependencies (RUN instructions).
3. Transferring local files into your Docker image (COPY instructions).
4. Executing your algorithm (CMD and ENTRYPOINT instructions).

After finishing the Dockerfile, you can build your Docker image with: docker build -f Dockerfile -t [**teamname**] [dir]

```
example:
docker build -f Dockerfile -t mbas24miccai/example .
```

Please note, first navigate to your code directory. After preparing the corresponding Dockerfile and other parts of the code, you can change 'mbas24miccai/example' to your own name. Do not modify the directory specified afterwards, which is the '.' directory.

code dir example：



```
Dockerfile
networks
    __pycache__
    ABCNet.py
    net_factory.py
predict.py
requirements.txt
save_pths
    test.pth
    val.pth
```

Step 4: Test if the newly built Docker image can run the two commands mentioned in Step 2. If so, upload it to Docker Hub.

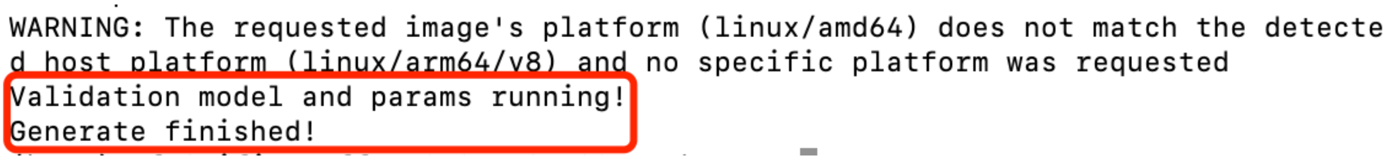
Test command 1:

```
docker run --rm -v /home/mbas/test_example:/input -v
/home/mbas/team1_output_example:/output -it mbas24miccai/example predict.py --model_pth
'./save_pths/val.pth'
```

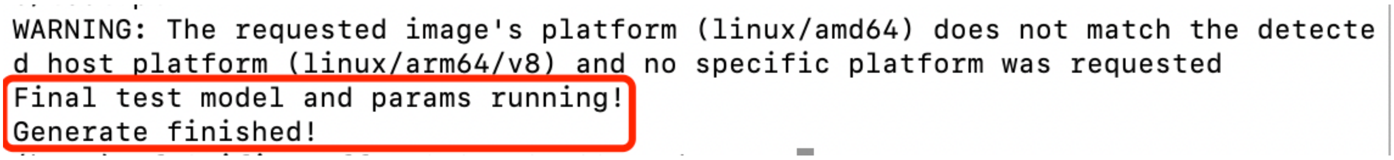
Test command 2:

```
docker run --rm -v /home/mbas/test_example:/input -v
/home/mbas/team1_output_example:/output -it mbas24miccai/example predict.py --model_pth
'./save_pths/test.pth'
```

If success, you will see same output like step2



```
WARNING: The requested image's platform (linux/amd64) does not match the detecte
d host platform (linux/arm64/v8) and no specific platform was requested
Validation model and params running!
Generate finished!
```



```
WARNING: The requested image's platform (linux/amd64) does not match the detecte
d host platform (linux/arm64/v8) and no specific platform was requested
Final test model and params running!
Generate finished!
```

Step 5. Docker container submission

Before submission, please upload the built Docker images to DockerHub.

Then, send the name of the Docker image and the complete code in a zip file (excluding the pth files, as they are already included in the Docker image) to our mbas24miccai@gmail.com.

Due to some organizing committee members being unable to open Docker images, each team must submit a well-organized `code.zip` to enable us to understand your methods more quickly.

For all teams, we will re-evaluate the results of the validation set to ensure the fairness of the final ranking.

Submission Example:

Titile: TeamX - Final Test for MBAS 2024

Contents:

Hi MBAS Committee,

Here is our docker image name: mbas24miccai/example

And the docker link is: https://hub.docker.com/repository/docker/mbas24miccai/example

See the attached file for the completed code.

teamname_code.zip

Thanks,

Team ABC