“Auterrain” Manual

1) About

”Auterrain” is sketch-based 3D terrain authoring system with deep learning
It was trained with actual height of earth’s terrain, we can create ”realistic” terrain in just a few minutes from simple sketch

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2) How to use

2-1) Set up

Auterrain is based on deep learning, which requires downloading and relocating some files that could not be uploaded to the Asset Store.

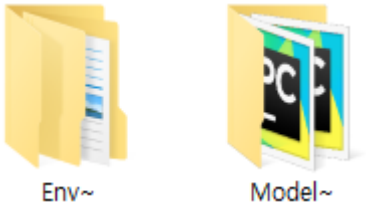
I’m really sorry. but it doesn’t take long, so please follow these steps

I. Download the zip file at the following link and unzip it

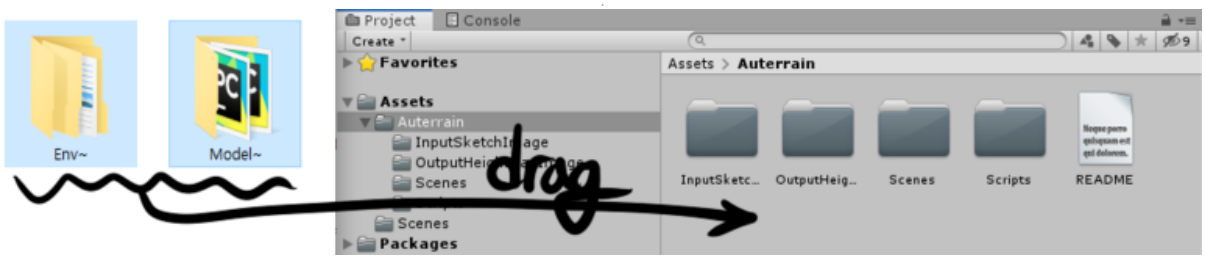
https://www.dropbox.com/s/nd24k5kcjkslvft/Auterrain.zip?dl=0

Auterrain.zip

- it consists of two files:



2. Place two files in the imported "Auterrain" folder



- It's a hidden file, so it doesn't show up in Unity, but when you look at it in File Explorer it looks like this:

Env~	2020-02-04 오후...	파일 폴더	
InputSketchImage	2020-02-04 오후...	파일 폴더	
Model~	2020-02-04 오후...	파일 폴더	
OutputHeightMapImage	2020-02-04 오후...	파일 폴더	
Scenes	2020-02-04 오후...	파일 폴더	
Scripts	2020-02-04 오후...	파일 폴더	
README	2020-02-04 오후...	텍스트 문서	1KB

2-2) Use "Auterrain"

We are now ready to use "Auterrain"

The "Example Scene" included in the imported "Auterrain" *(path:"Auterrain/Scenes/Example Scene")* is ready to go through everything in Unity from sketching to terrain creation

All we have to do is just open "ExampleScene" and follow some steps

However, I checked that some Unity versions (below 2019.2) cannot use "ExampleScene" due to version conflict

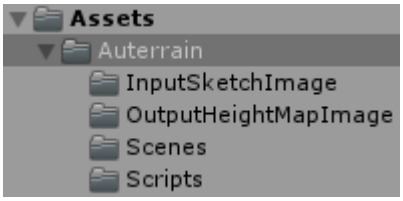
It means that someone(below 2019.2) have to prepare sketch image of their own and have to use "Auterrain" in their own project scene, not in "ExampleScene"

So I will explain both how to make terrain using "Auterrain" in own project scene and in "Example scene"

Let's talk about in own project scene first

2-2-1) in own project scene

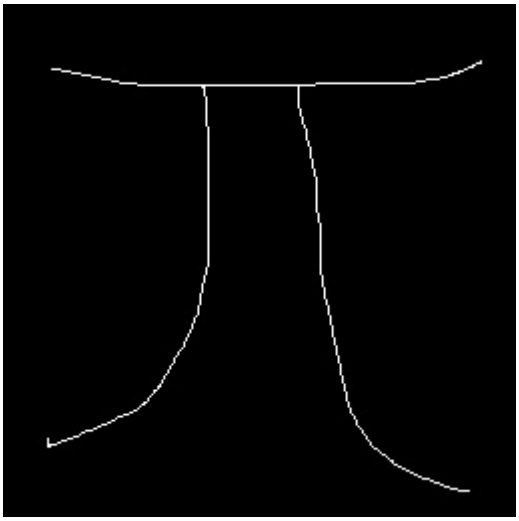
1. Check file path of "Auterrain" downloaded from Asset Store



- "Auterrain" must be located as a subfolder of the "Assets" folder. (If you locate it in different path, it will never work)

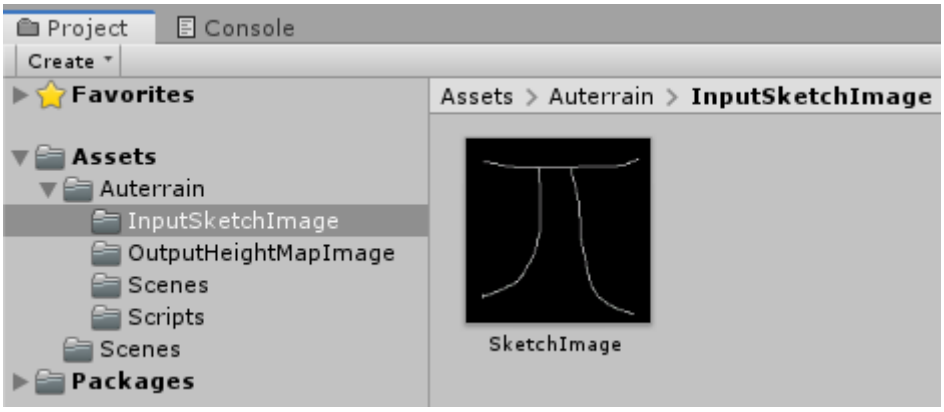
3. Draw sketch image of the terrain

- Open any paint tool and sketch the terrain to your liking.



* Thick lines become higher terrain
* Size of the sketch image should be 256*256pixels
* Background must be black, lines must be white
* Image format must be ".jpg", but the name can be anything

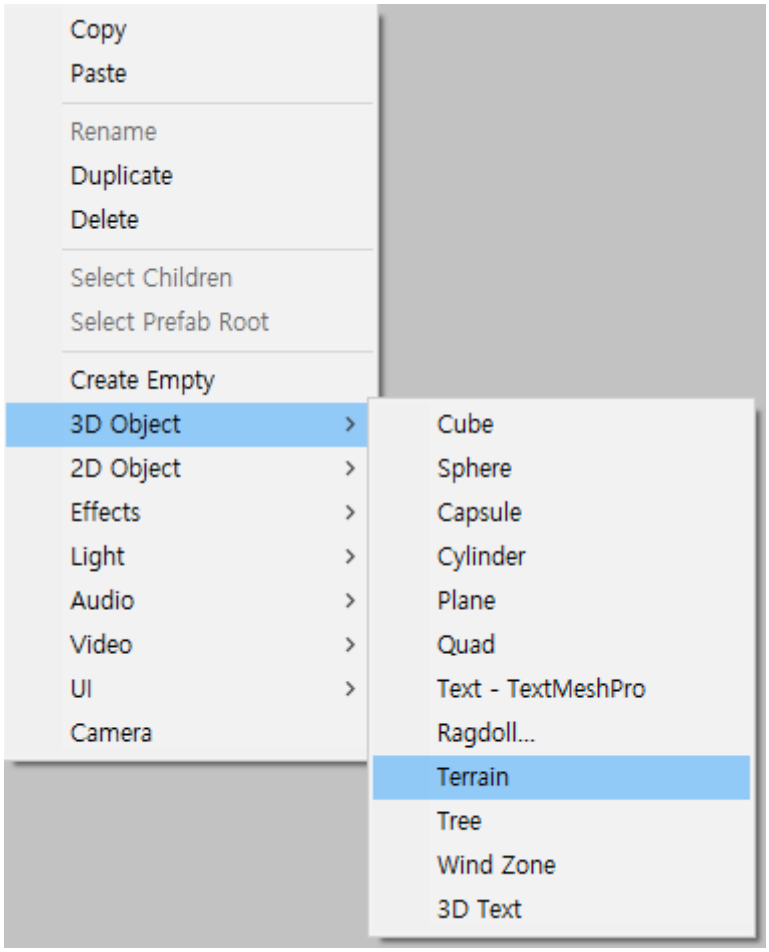
- Once you've drawn the sketch image, save it in "InputSketchImage" folder
(Path: "Assets/Auterrain/InputSketchImage/Any_Name.jpg")



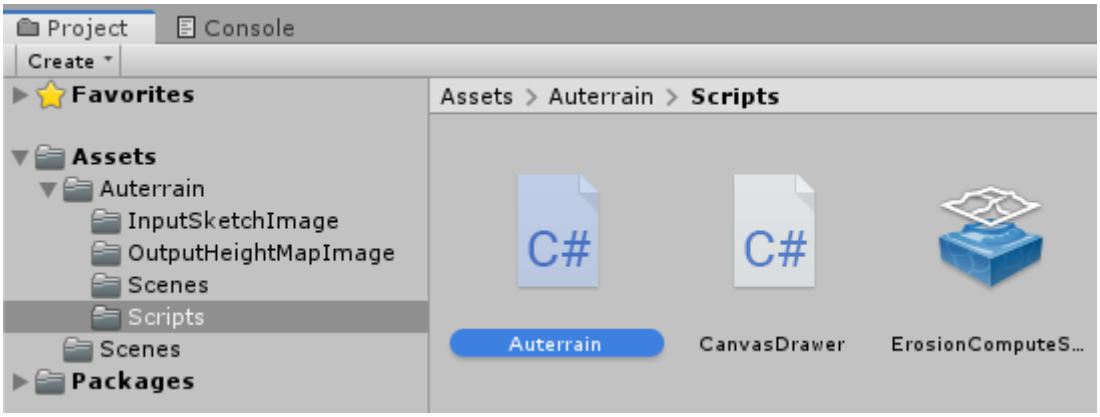
* There should be only one image in the "InputSketchImage" folder

3) Attach script "Auterrain.cs"

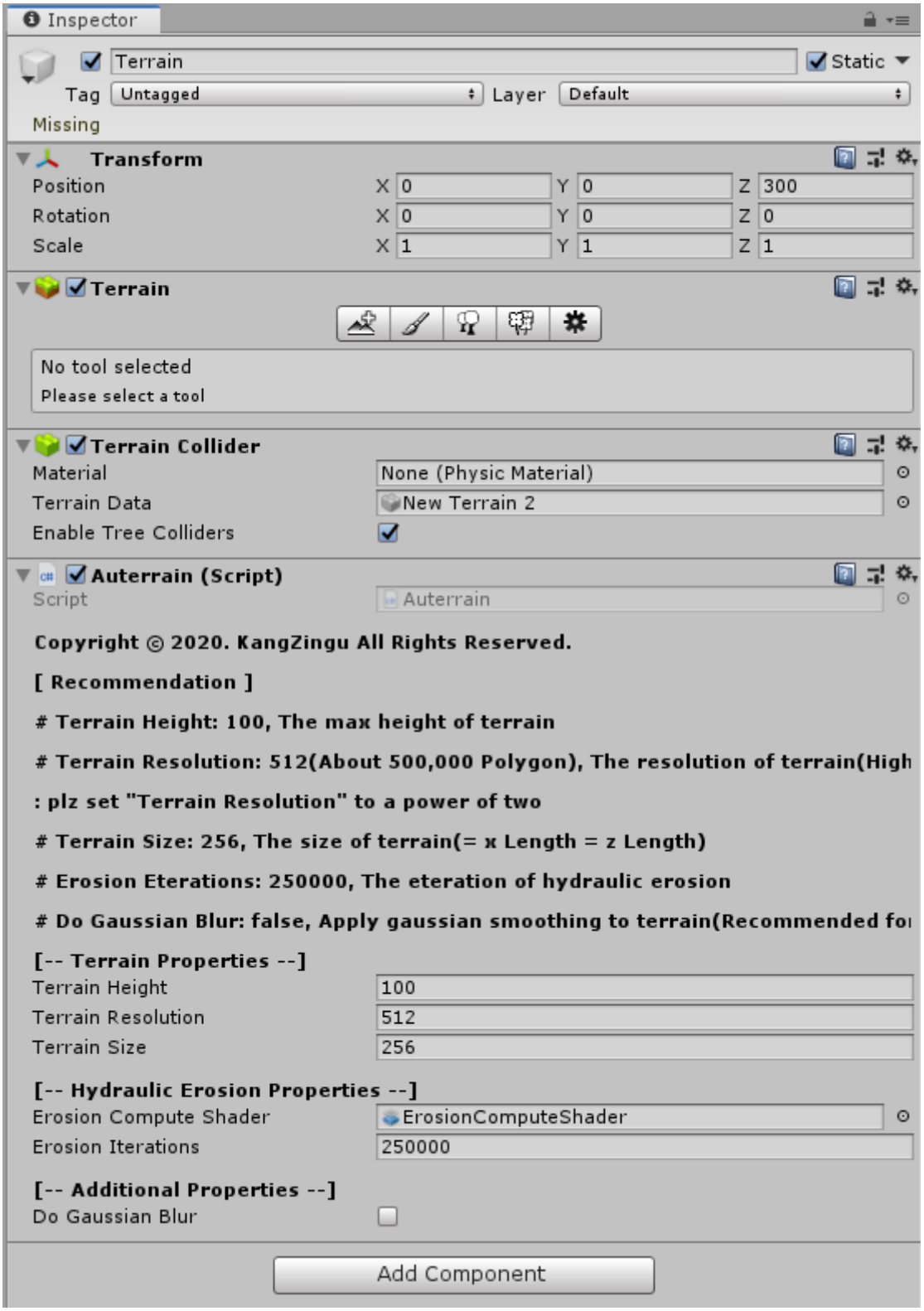
- Create terrain to attach the script



- Attach the "Auterrain.cs" script to the terrain
(Path: "Assets/Auterrain/Scripts/Auterrain.cs")



- modify the terrain options as you want

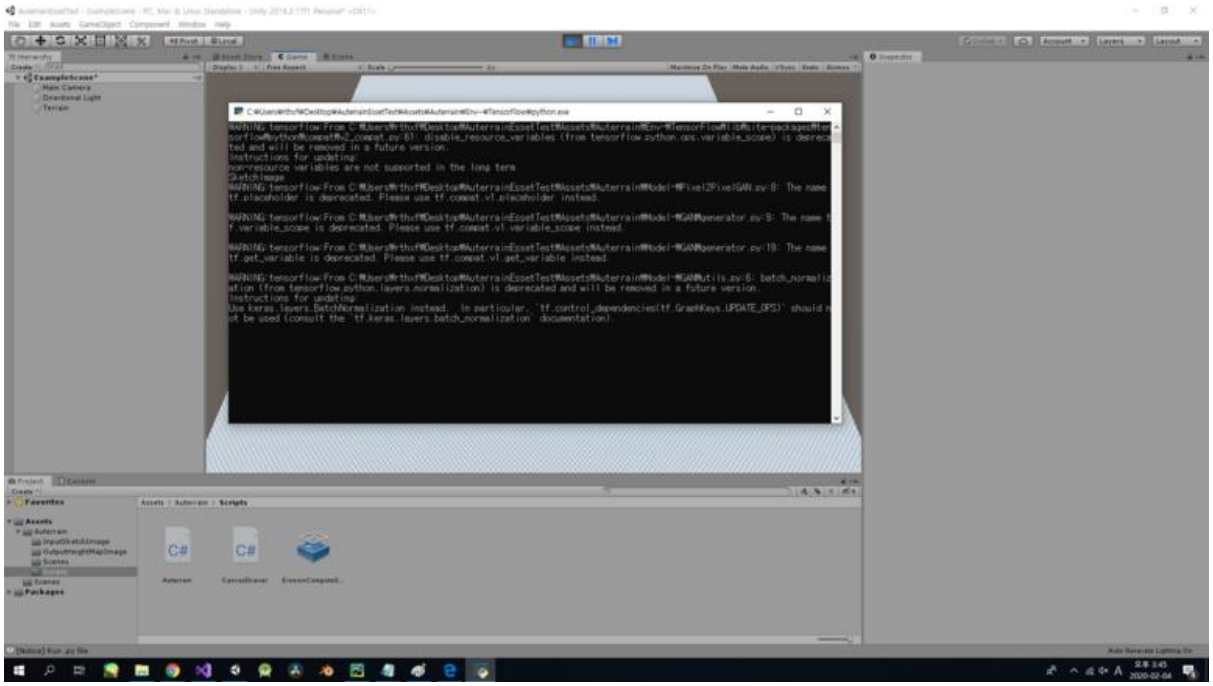


4. Convert the image

- Click "Play" Button

- Press key ”R”

- After press key ”R”, the following console window will appear



- Just wait for the console window to turn off automatically(It will take few minutes)

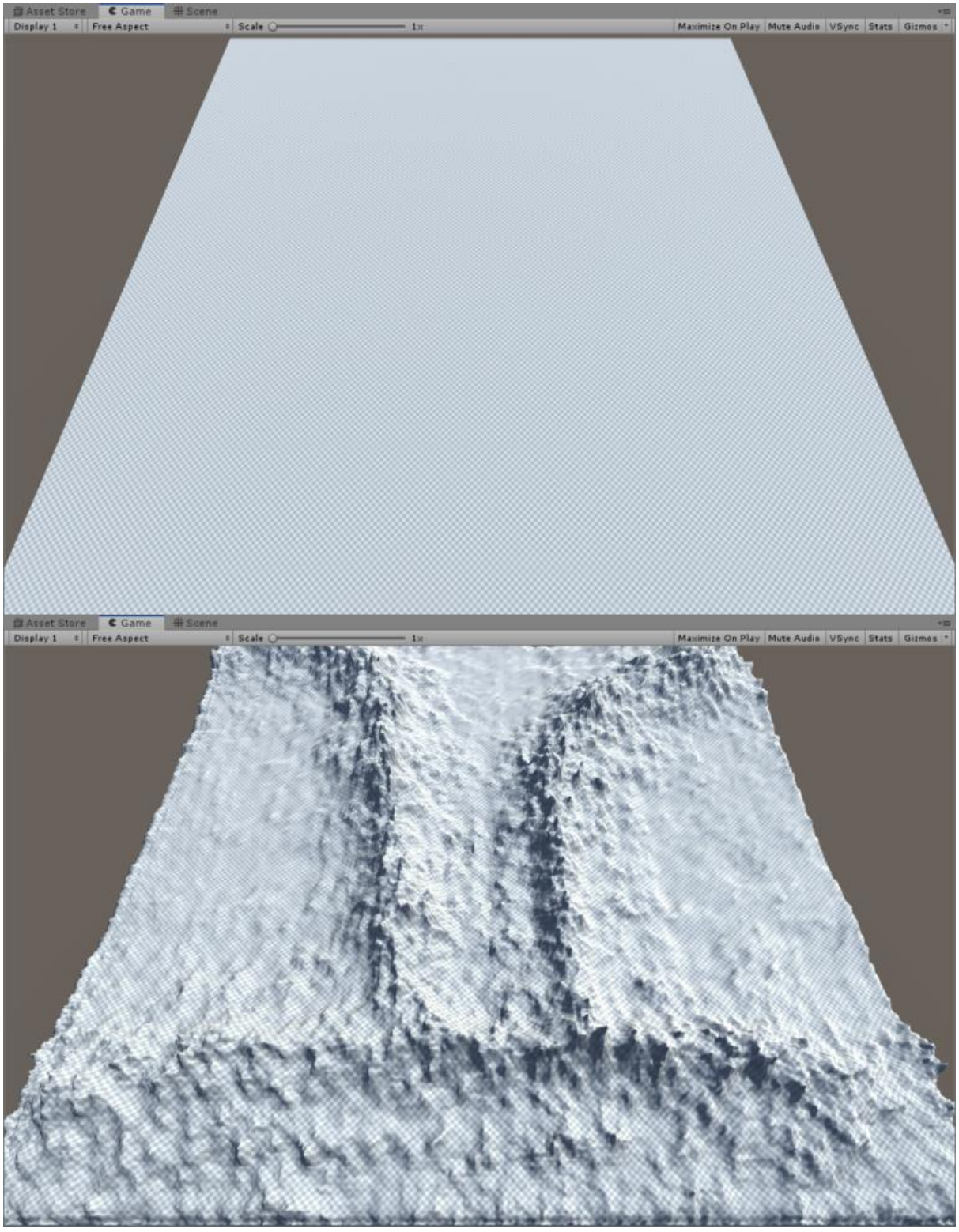
- This process is for trained model to convert the sketch image into an appropriate height map image

- If the console window turns off, we can check the height map image saved in folder
(Path:
”Assets/Auterrain/OutputHeightMapImage/HeightMapImage.jpg”)

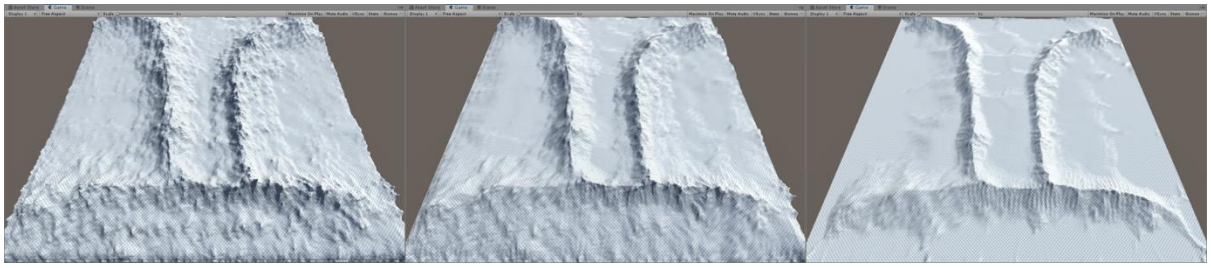
5. Make terrain

- Press key ”G”

- After press key ”G”, the terrain will generate from height map image

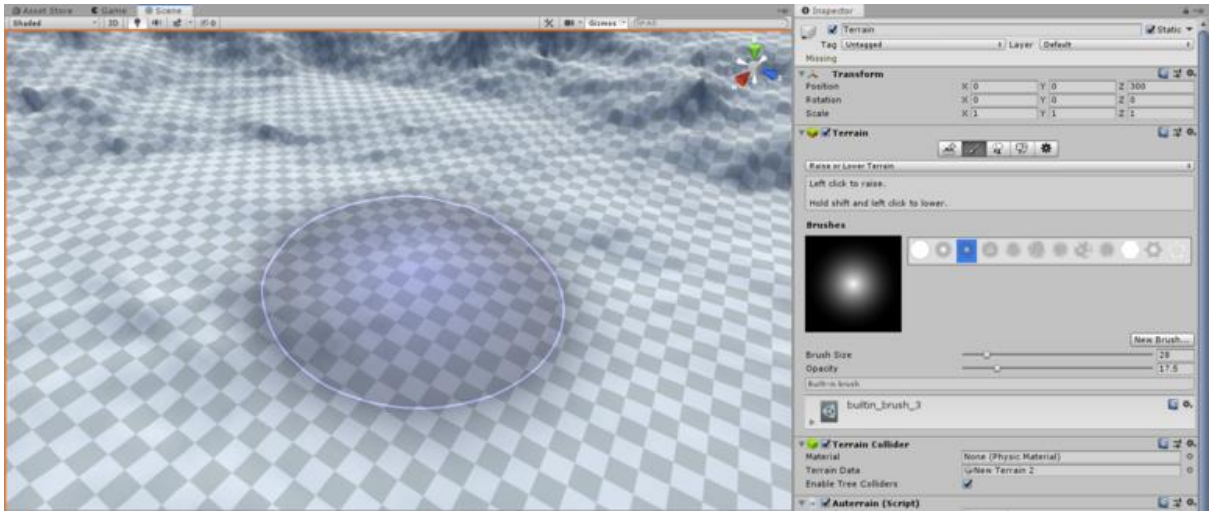


- Then press key ”E” to apply hydraulic erosion to terrain



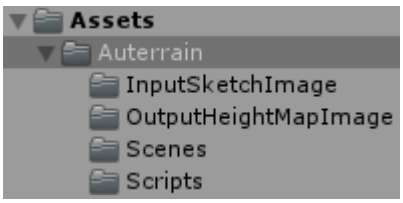
- hydraulic erosion can be applied by pressing as desired
(Can return to the original terrain by press second button again)

- Additionally, it's compatible with Unity's terrain module, so you can make additional modifications, such as painting textures and adjusting the height of the terrain



2-2-2) in "Example Scene"

I. Check file path of "Auterrain" imported from Asset Store

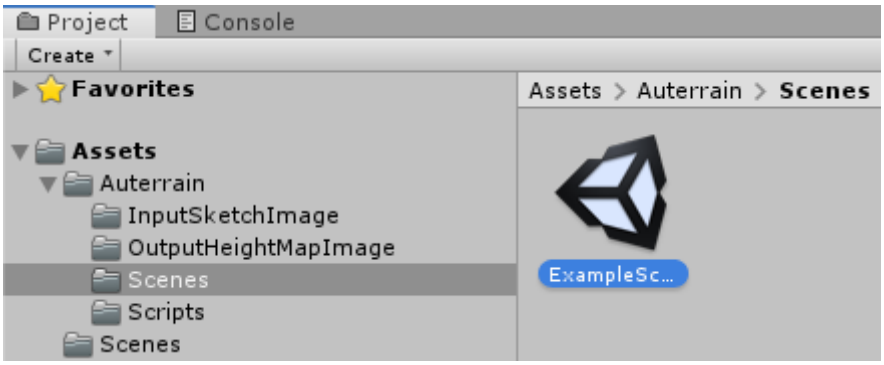


- "Auterrain" must be located as a subfolder of the "Assets" folder.

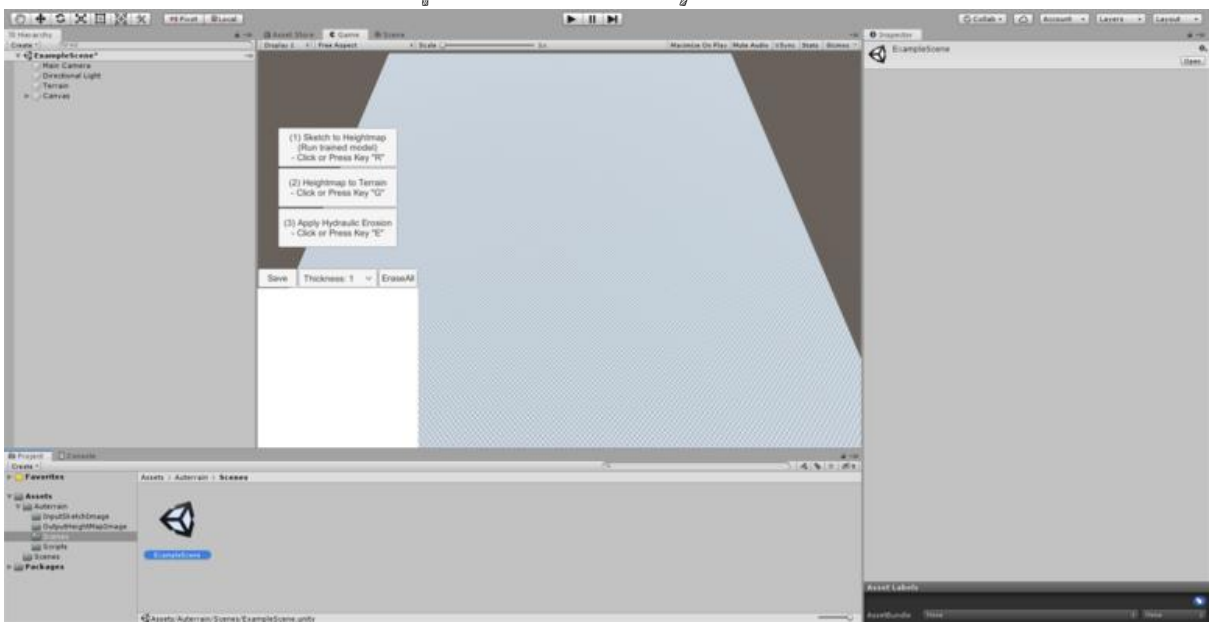
(If you locate it in different path, it will never work)

2. Open "Example Scene"

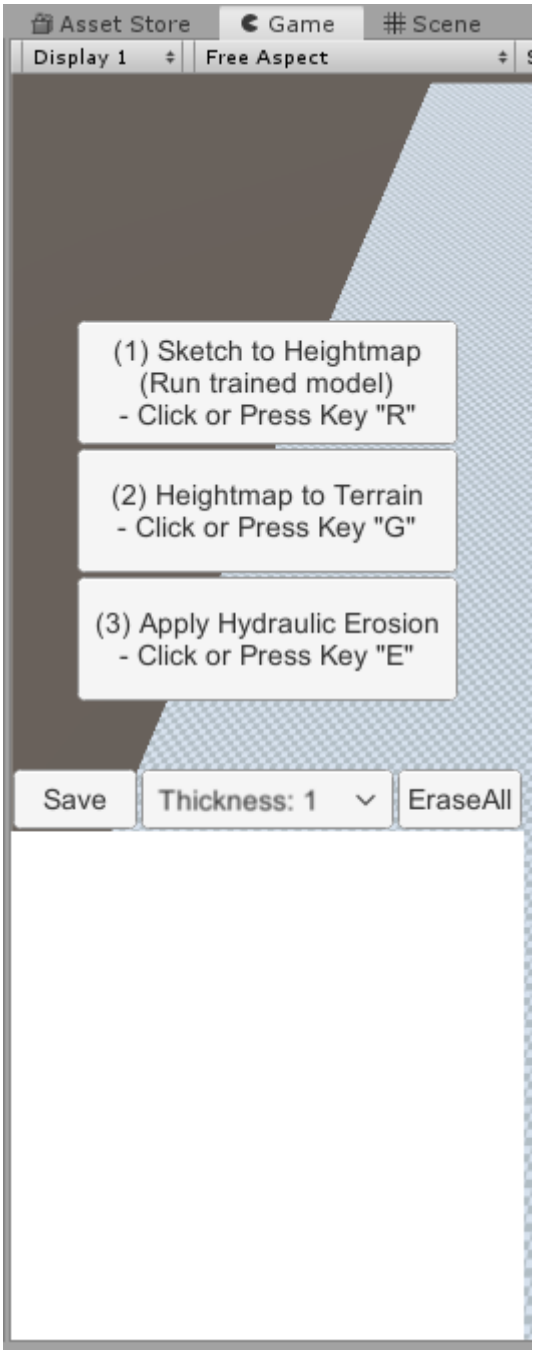
- Open the "Example Scene"
(Path: "Assets/Auterrain/Scenes/ExampleScene")



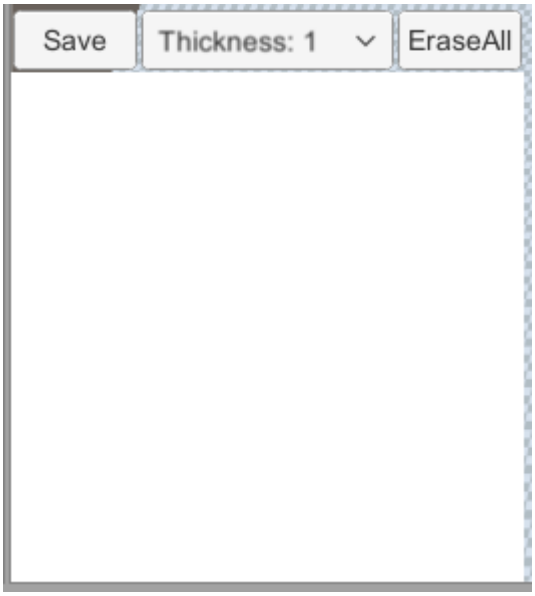
- "Example Scene" may look like this:



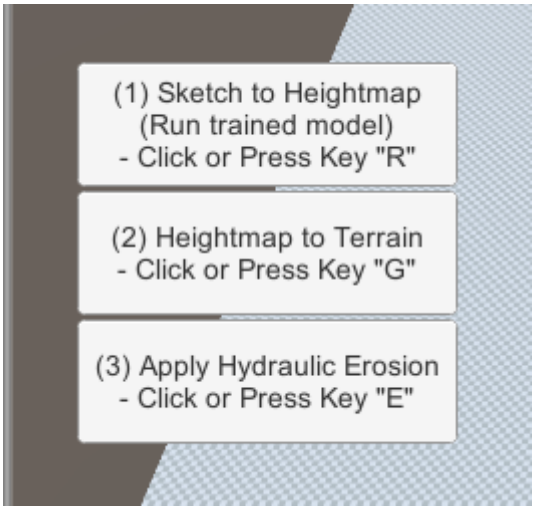
- We can see some UIs in the lower left of the Game View.



- This is a mini paint tool

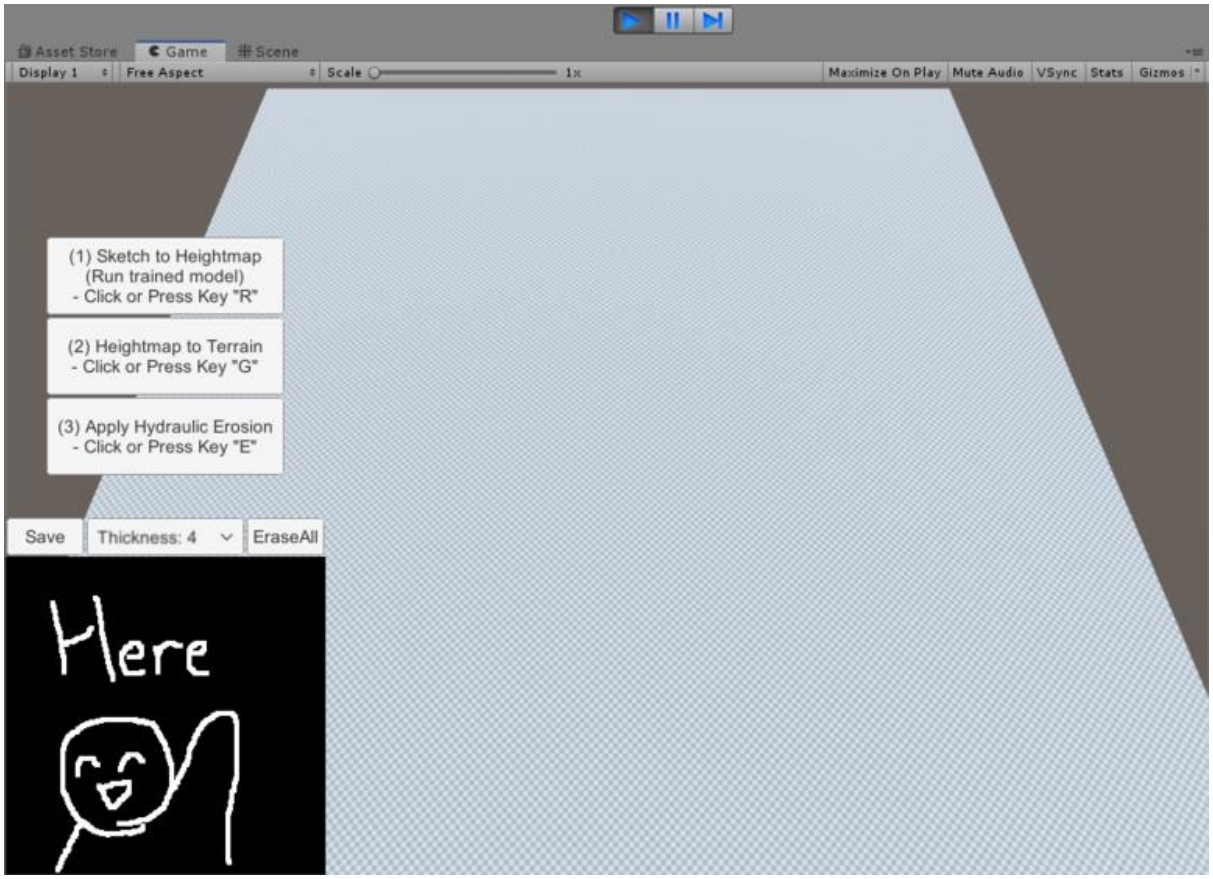


- This is function execute buttons to make terrain



3. Sketch the terrain

- Using mini paint tool, we can make sketch image



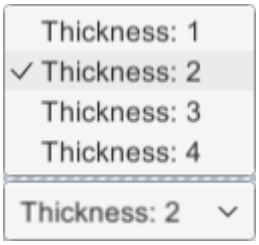
- The mini paint tool has three buttons

1. Save: save the drawn sketch as an image

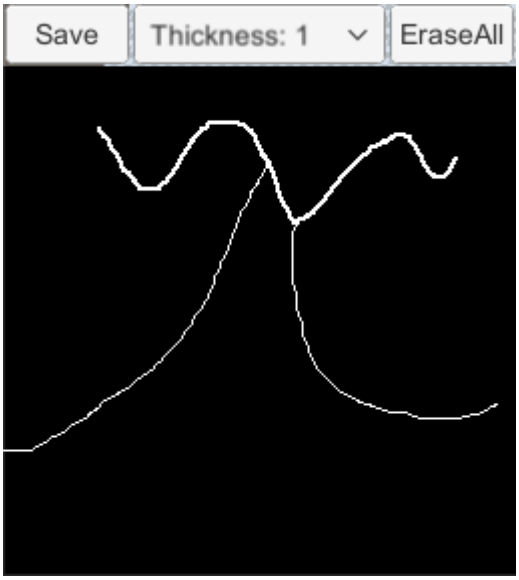
2. Thickness: change pen thickness(thick lines become higher terrain)

3. EraseAll: erase the drawn sketch

- Choose pen's thickness first

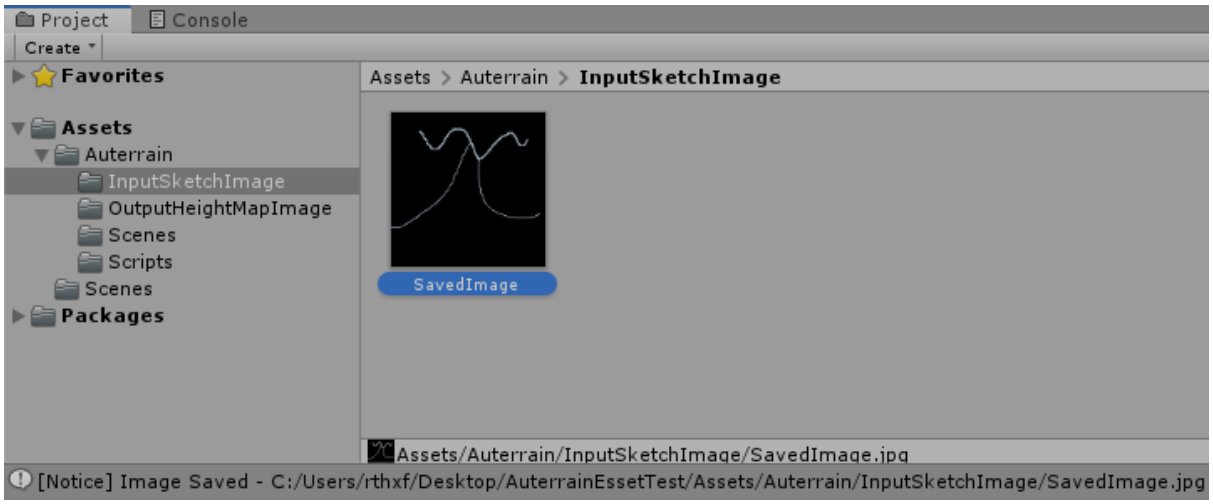


- Then, draw the sketch of terrain that you want to make(with mouse)



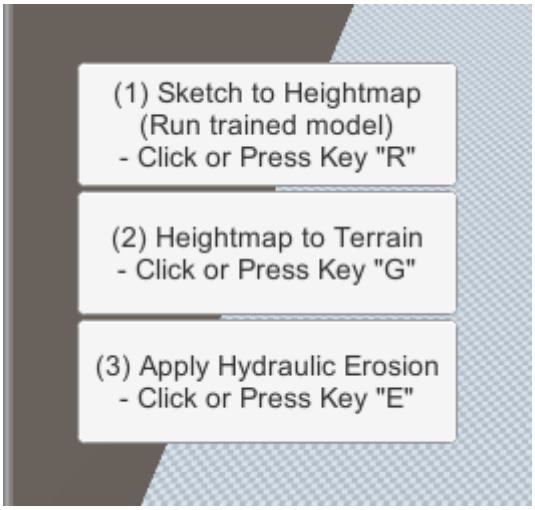
- When sketch is done, press "Save" button

- Sketch image will save inside the file "Auterrain"
(Path: "Assets/Auterrain/InputSketchImage/SavedImage.jpg")

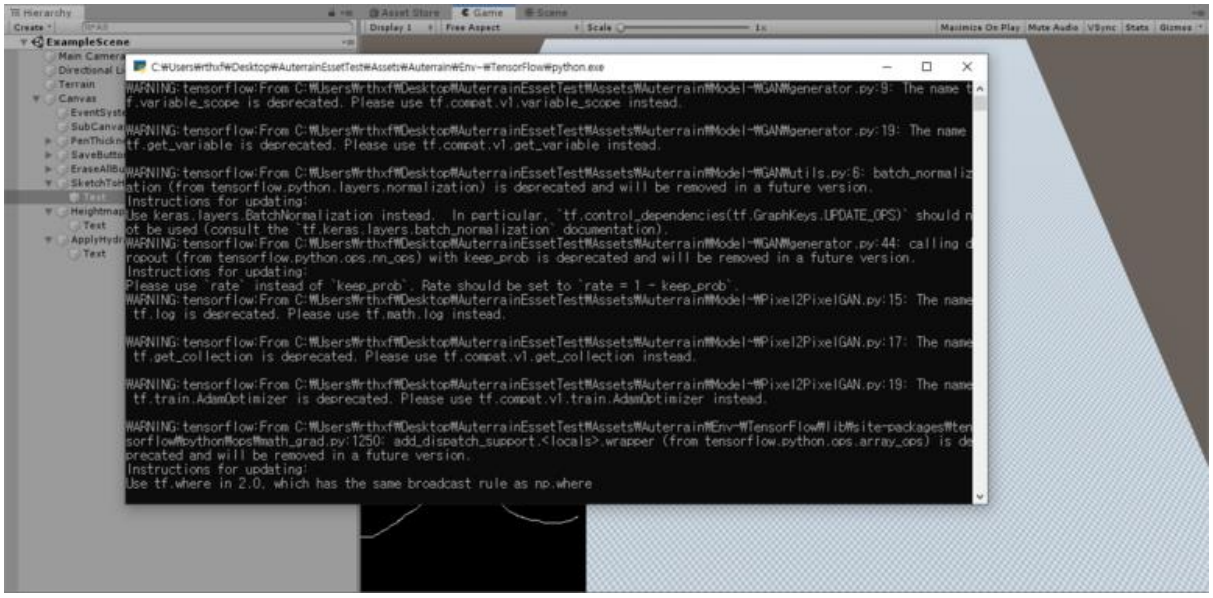


4. Convert the image

- Now, the thing we have to do is just press these buttons in order.



- After click first button(Or press key "R"), the following console window will appear



- Just wait for the console window to turn off automatically(It will take few minutes)

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- If the console window turns off, we can check the height map image saved in folder
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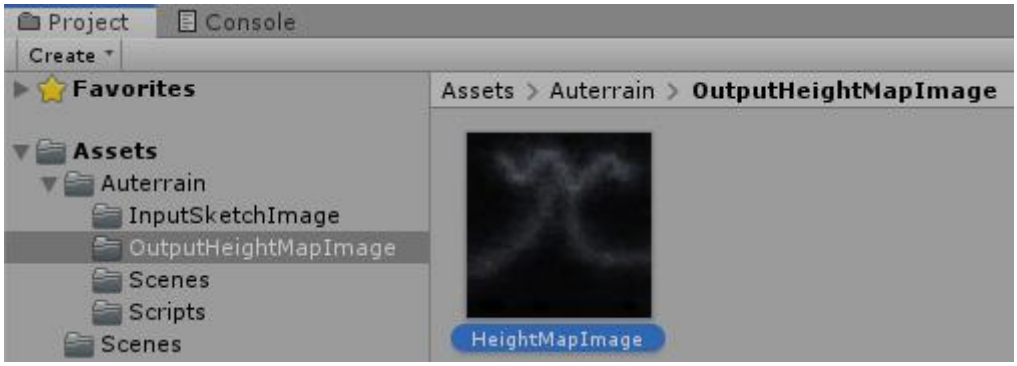
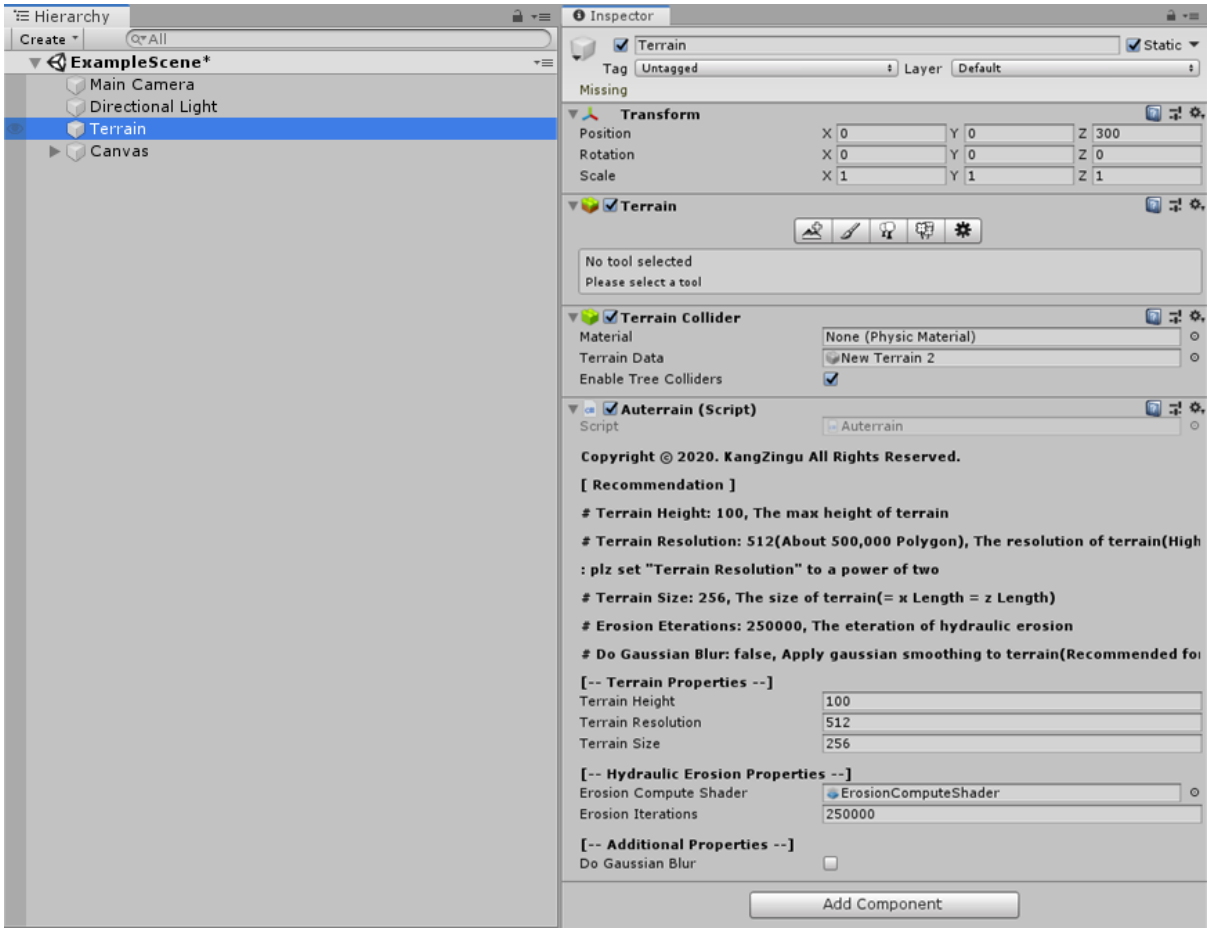


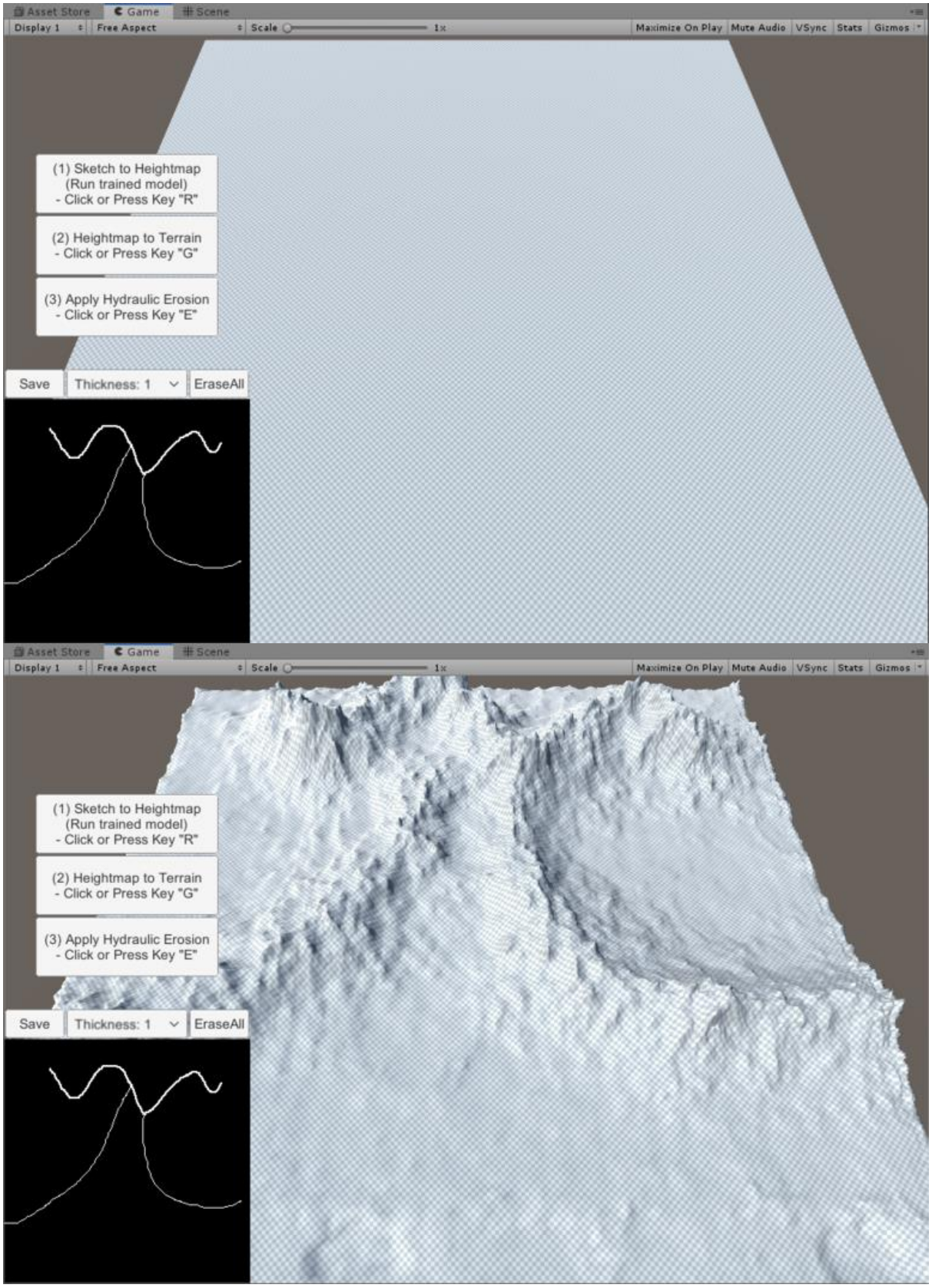
5. Make terrain

- We can see the script "Auterrain.cs" is attached to the terrain created in the "Example Scene"

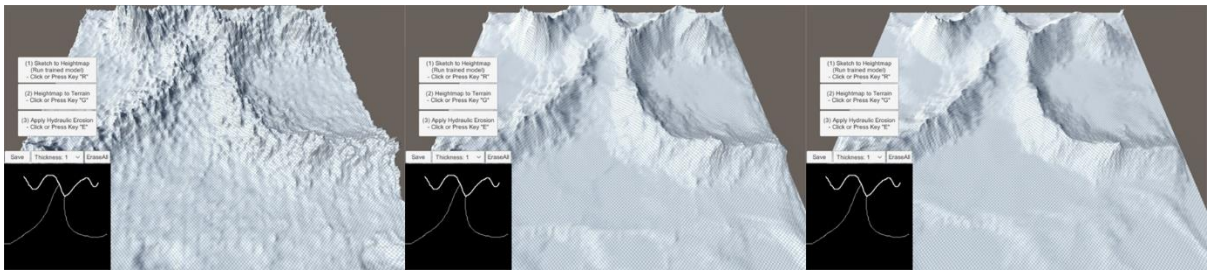


- We can change the settings associated with the terrain

- Now, press second button(Or press key "G") and it will generate the terrain from height map image

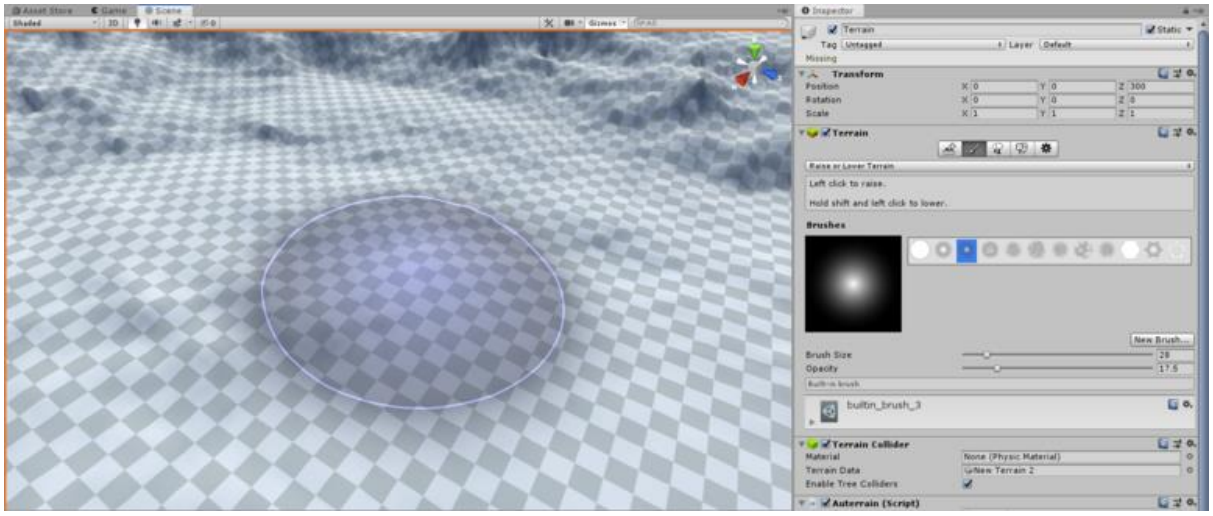


- Then press third button(Or press key ”E”) to apply hydraulic erosion to terrain



- hydraulic erosion can be applied by pressing as desired
(Can return to the original terrain by press second button again)

- Additionally, it's compatible with Unity's terrain module, so you can make additional modifications, such as painting textures and adjusting the height of the terrain



Development Environment

- Unity 2019.2.17f1
- python 3.6
- tensorflow 1.14.0

Contact

- kanrhaehfdll@naver.com

Youtube

- https://youtu.be/Lrs4pRvHcB4