

## DeepSketch 실행 방법 (약 1시간 소요 예상)

### 1. Docker 설정

#### - Docker란?

일종의 가상환경 구축을 돕는 툴. 만약 UGRP 하는 도중에 서버를 자칫 실수로 망가뜨리는 경우가 발생할 수 있는데, docker를 사용해서 가상환경을 구축한다면 문제없이 rebuild 가능하다. nvidia-docker의 경우, Nvidia GPU를 가지고 있는 환경에서만 사용가능하다. (GTX 600 이상)

#### - 설정 방법

```
your@computer:~$ sudo apt-get update
your@computer:~$ sudo apt-get install -y nvidia-docker2
your@computer:~$ sudo systemctl restart docker
your@computer:~$ sudo docker run -it gpus -4 -name UGRP pytorch/pytorch:1.11.0-cuda11.3-cudnn8-devel
root@c22fc929c4fa:/workspace#
```

위 상태까지 왔다면, 도커 설정이 완료되었다.

### 2. 초기 환경 설정

도커를 처음 설정한 경우, 아무 모듈이 깔려있지 않은 상태이다. 따라서 필요한 모듈을 아래처럼 install 한다.

```
root@c22fc929c4fa:/workspace# apt-get update
root@c22fc929c4fa:/workspace# apt-get install git vim wget unzip gcc g++ cmake
```

### 3. DeepSketch 실행 준비

DeepSketch가 요구하는 거대한 모듈은 NGT, Pytorch이다. DeepSketch Github에서 제공하고 있지만, CMakeLists.txt에서 발생하는 오류로 인하여 다음과 같은 설치방법을 통해 NGT를 덮어써야한다.

```
root@c22fc929c4fa:/workspace# wget
https://pytorch.orghttps://download.pytorch.org/libtorch/cu113/libtorch-cxx11-abi-shared-with-deps-1.11.0%2Bcu113.zip
root@c22fc929c4fa:/workspace# git clone https://github.com/dgist-datalab/deepsketch-fast2022.git
root@c22fc929c4fa:/workspace# cd deepsketch-fast2022
root@c22fc929c4fa:/workspace/deepsketch-fast2022# unzip ../libtorch-cxx11-abi-shared-with-deps-1.11.0%2Bcu113.zip
root@c22fc929c4fa:/workspace/deepsketch-fast2022# cd deepsketch
```

```

root@c22fc929c4fa:/workspace/deepsketch-fast2022/deepsketch# git clone
https://github.com/yahoojapan/NGT.git
root@c22fc929c4fa:/workspace/deepsketch-fast2022/deepsketch# git clone
https://github.com/pgworld/xxhash.git
root@c22fc929c4fa:/workspace/deepsketch-fast2022/deepsketch# mkdir NGT/build
root@c22fc929c4fa:/workspace/deepsketch-fast2022/deepsketch# cd NGT/build
root@c22fc929c4fa:/workspace/deepsketch-fast2022/deepsketch/NGT/build# cmake ..
root@c22fc929c4fa:/workspace/deepsketch-fast2022/deepsketch/NGT/build# make
root@c22fc929c4fa:/workspace/deepsketch-fast2022/deepsketch/NGT/build# make
install
root@c22fc929c4fa:/workspace/deepsketch-fast2022/deepsketch/NGT/build# ldconfig
/usr/local/lib
root@c22fc929c4fa:/workspace/deepsketch-fast2022/deepsketch/NGT/build# cd ../../
root@c22fc929c4fa:/workspace/deepsketch-fast2022/deepsketch# vi CMakeLists.txt

# Enter the code below
cmake_minimum_required(VERSION 3.0 FATAL_ERROR)
project(custom_ops)
find_package(Torch REQUIRED)
include_directories("NGT/lib")
link_directories("NGT/lib/NGT")
add_executable(DeepSketch ../xdelta3/xdelta3.c ../xxhash/xxhash.c ../lz4.c
deepsketch_comp.cpp)
SET( CMAKE_CXX_FLAGS "-O2 -Wno-literal-suffix")
SET( CMAKE_C_FLAGS "-O2")
target_link_libraries(DeepSketch "${TORCH_LIBRARIES}" pthread)
target_link_libraries(DeepSketch ngt pthread)
set_property(TARGET DeepSketch PROPERTY CXX_STANDARD 14)

root@c22fc929c4fa:/workspace/deepsketch-fast2022/deepsketch# mkdir build
root@c22fc929c4fa:/workspace/deepsketch-fast2022/deepsketch# cd build
root@c22fc929c4fa:/workspace/deepsketch-fast2022/deepsketch/build# cmake -
DCMAKE_PREFIX_PATH=/workspace/deepsketch-fast22/libtorch ..
root@c22fc929c4fa:/workspace/deepsketch-fast2022/deepsketch/build# make
root@c22fc929c4fa:/workspace/deepsketch-fast2022/deepsketch/build# ls
CMakeCache.txt CMakeFiles DeepSketch Makefile cmake_install.cmake
detect_cuda_compute_capabilities.cpp detect_cuda_version.cc

```

#### 4. DeepSketch 실행

만약 문제가 없었다면 모든 컴파일을 마치고, 초록색으로 표시되어있는 DeepSketch executable file이 build 폴더 내에 있을 것이다.