Sam2

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1 Presentation

Segment Anything Model 2 (SAM2)[RGH+24] is a model developed by Meta that allows users to segment images and videos without a learning phase.

2 Installation

1. create specific environment
2. Install drive for graphics card
3. sam2 installation
4. run !

2.1 Creation environment

When we use Python for several tasks (image analysis, experiment runs), we need to use different environments to avoid conflicts between libraries. To do this:

```
conda create --name <my-env>
```

```
conda create -n sam
```

To open the environment:

```
conda activate sam
```

It is possible to export environment and install it from a .yaml file: Export when you are inside environment:

```
conda export > environment.yaml
```

Or outside the environment, with myenv=sam:

```
conda export --name myenv --format=environment-yaml
```

```
conda env create -f environment.yaml
```

2.2 Installation with graphic card

To use the graphic card (and improve the speed of calculation), the code needs to communicate with it; sam2 uses Pytorch. So, to use it, we need to know:

1. The compute capability of the graphic card (obtained on internet with compute capability and the model of the graphic card).

   Based on it we can choose cuDNN, CUDA version:

2. cuDNN: https://docs.nvidia.com/deeplearning/cudnn/backend/latest/reference/support-matrix.html

3. CUDA: https://pytorch.org/get-started/locally/

SAM2 code requires python>= 3.10, as well as torch>= 2.5.1 and torchvision>= 0.20.1

1. install CUDA: download the version on the web site https://developer.nvidia.com/cudnn

2. install PyTorch https://pytorch.org/get-started/locally/

```
pip3 install torch torchvision —index-url https://download.pytorch.org/whl/
```

2.3 Installation SAM2

https://github.com/facebookresearch/sam2

After installing the graphic card, the installation now!

```
conda activate sam
git clone https://github.com/facebookresearch/sam2.git && cd sam2
pip install -e .
```

Go in the folder (sam2)

```
cd checkpoints

download_ckpts.sh


cd ..

pip install spyder
```

2.4 Running SAM2

We use the code written by Emmanuel DENIMAL. The code needs to be executed in a folder without any link with sam2 folder.

References

[RGH+24] Nikhila Ravi, Valentin Gabeur, Yuan-Ting Hu, Ronghang Hu, Chaitanya Ryali, Tengyu Ma, Haitham Khedr, Roman Rädle, Chloe Rolland, Laura Gustafson, et al. Sam 2: Segment anything in images and videos. *arXiv preprint arXiv:2408.00714*, 2024.