

Dust3r on Colab

Sharing the experience of running
Dust3r on Colab



1 Interface(GUI)

When using Dust3r, as we can see it is needed to choose
some images.
Then, all selected images will be processed.
The result will be a 3D reconstruction of the images' using the
knowledge of the each of the previous images.

2 Limitation

Dust3r requires a significant amount of resources, especially RAM.
• It depends on the number of images and the size of the images.
• In Google Colab, we have 12GB of RAM available.
• If we have more than 12GB of RAM, we can use more images.
• This is because the algorithm creates a sparse matrix, which is very large. If we have more memory, the algorithm will be faster.
• However, if we have less memory, the algorithm will take longer and the program may crash due to RAM不足.

4 Future Works

- What exactly is the "glb" extension?
- How can we determine intrinsic parameters from the output?

3 Results

In the next slides, we can see two results from our dataset:
• The first is the 3D result of "PallaDiPomodoro_Giorno" with approximately 10 images as input.
• The second is the 3D result of "Prefettura" with only 1 image.



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1 Interface(GUI)

When using Dust3r, as we can see it is needed to choose
some images.
Then, all selected images will be processed.
The result will be:
a correct 3D reconstruction of the images' using the
knowledge of the each of the chosen images.

2 Limitation

Dust3r requires a significant amount of resources, especially RAM.
• It depends on the number of images and the size of the images.
• In Google Colab, we have 12GB of RAM available.
• If we have more than 12GB of RAM, we can use more images.
• This is because the algorithm creates a sparse matrix, which is a matrix where most of the elements are zero.
• If we have less than 12GB of RAM, Colab will run out of memory
and the program may crash due to RAM不足.

4 Future Works

- What exactly is the "glb" extension?
- How can we determine intrinsic parameters from the output?

3 Results

In the next slides, we can see two results from our dataset:
• The first is the 3D result of "PallaDiPomodoro_Giorno" with approximately 10 images as input.
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I

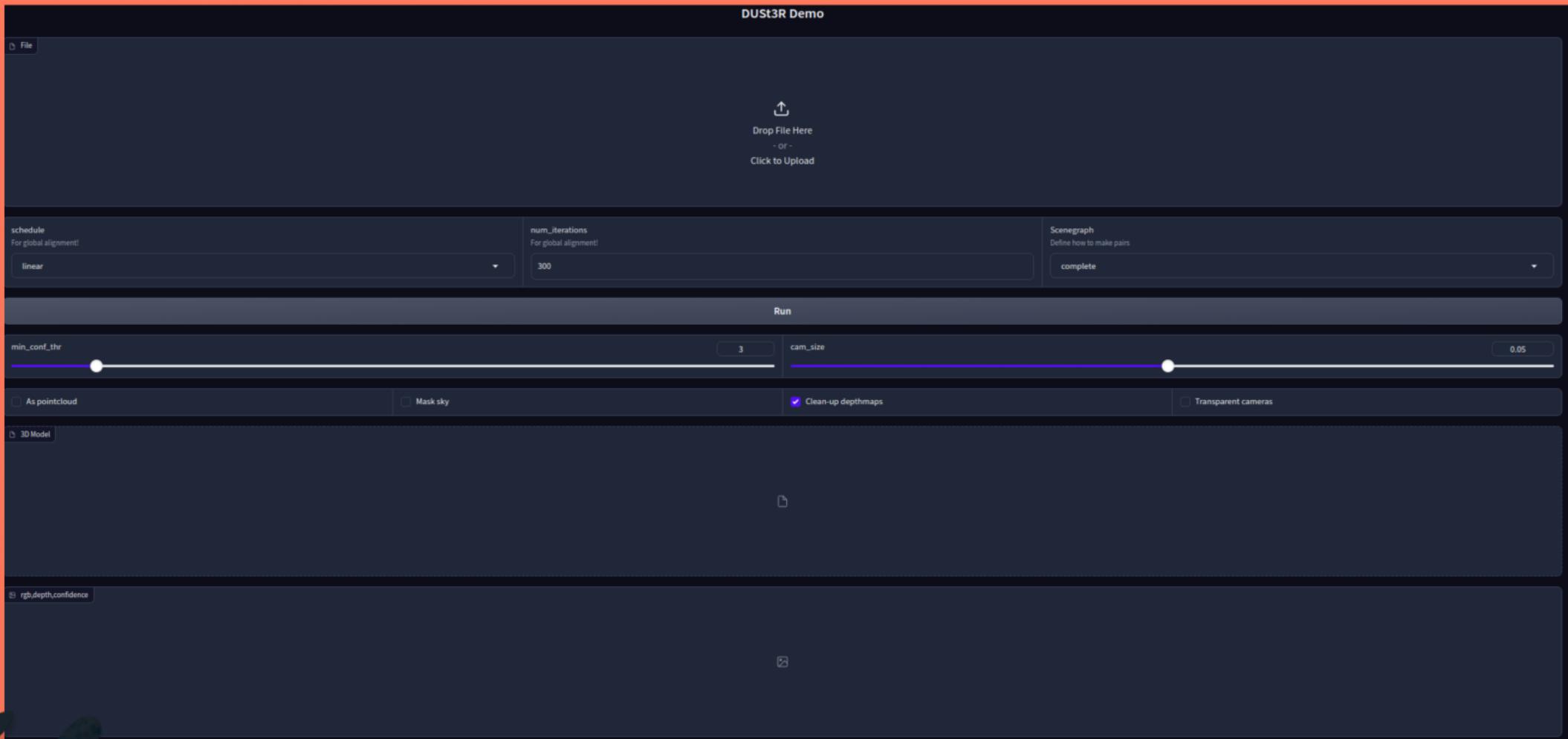
Interface(GUI)

When running Demo.py, an interface is provided for a better experience.

There is no obligation to use GPU only

- We can use CPU
- Additionally, remember to add the argument "--tmp_dir / content/tmp" at the end of the execution command.

Interface



2

Limitation

- Dust3r requires a significant amount of resources, especially RAM.
- In Colab (free version), we have 12GB of RAM available.
- As the number of input images increases, the computational load increases exponentially. This is because the algorithm creates a graph, and for each pair of images that have overlap, calculations are performed.
- With approximately 20 images, Colab's RAM will be fully utilized, and the program may crash due to RAM limitations.

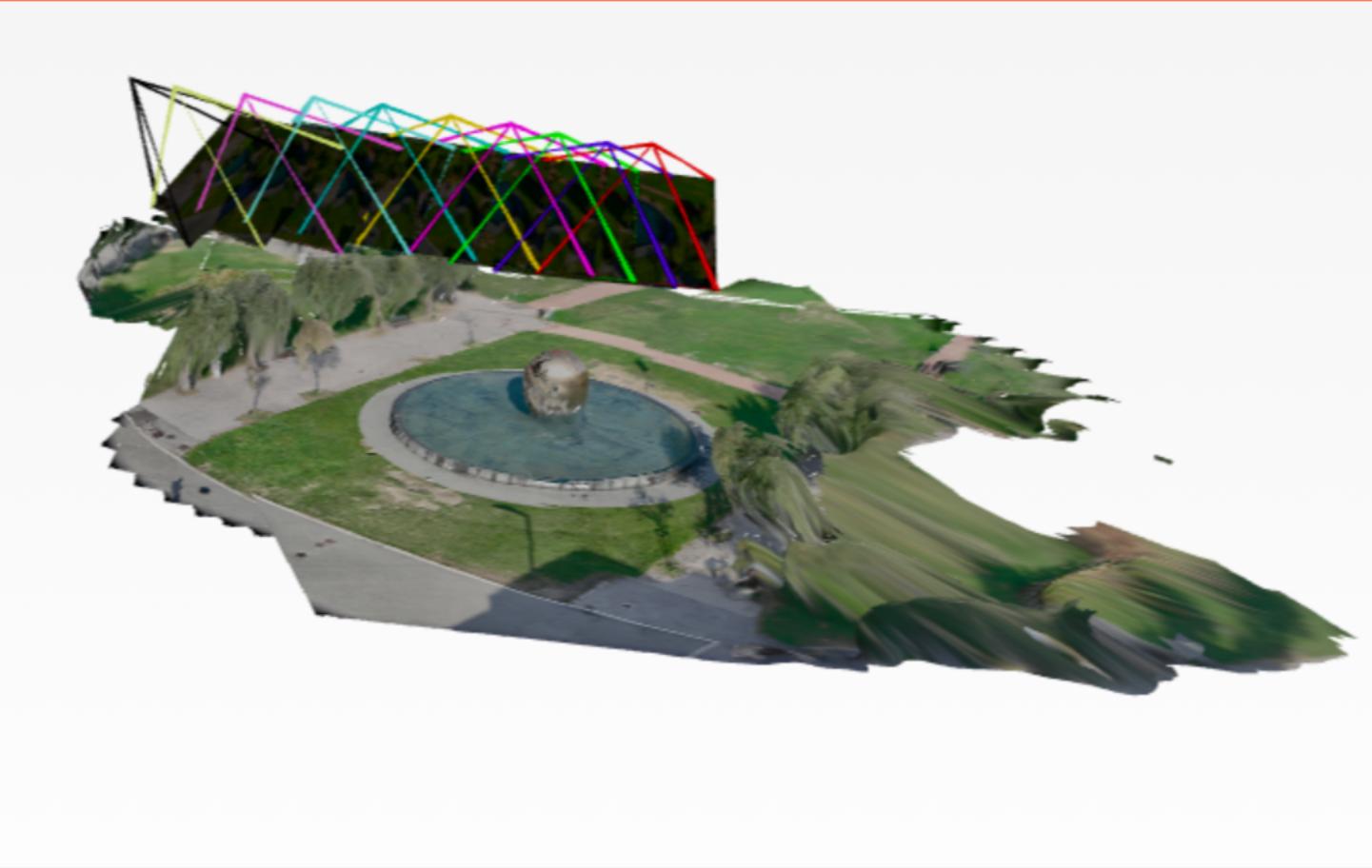
3

Results

In the next slides, we can see two results from our dataset:

- The first is the 3D result of "PallaDiPomodoro_Giorno" with approximately 10 images as input.
- The second is the 3D result of "Prefettura" with only 1 image.

PallaDiPomodoro_Giorno



Prefettura

[



]

4

Future Works

- What exactly is the ".glb" extension?
- How can we determine intrinsic parameters from the output?

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1 Interface(GUI)

- There is no additional cost to use GPU units.
- No license fee
- Additionally, it is recommended to use the `gpu` command to set the appropriate GPU unit.
`setenv GPU 0` or `setenv GPU 1`



2 Limitation

Future Works



3 Results

- The first is the 3D result of "PallaDiPomodoro_Gioma" with approximately 15 images as input.
 - The second is the 3D result of "Prefettura" with only 1 image.

