HELMHOLTZ

MODEL ZOO

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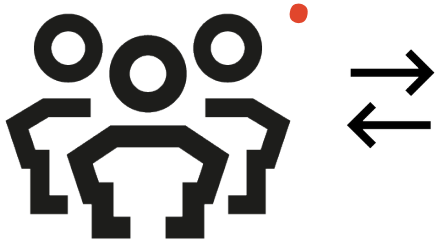
HELMHOLTZ IMAGING

HAICORE
Helmholtz AI computing resources

HELMHOLTZ MODEL ZOO

Domain Scientists

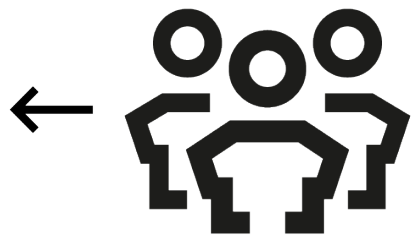
?



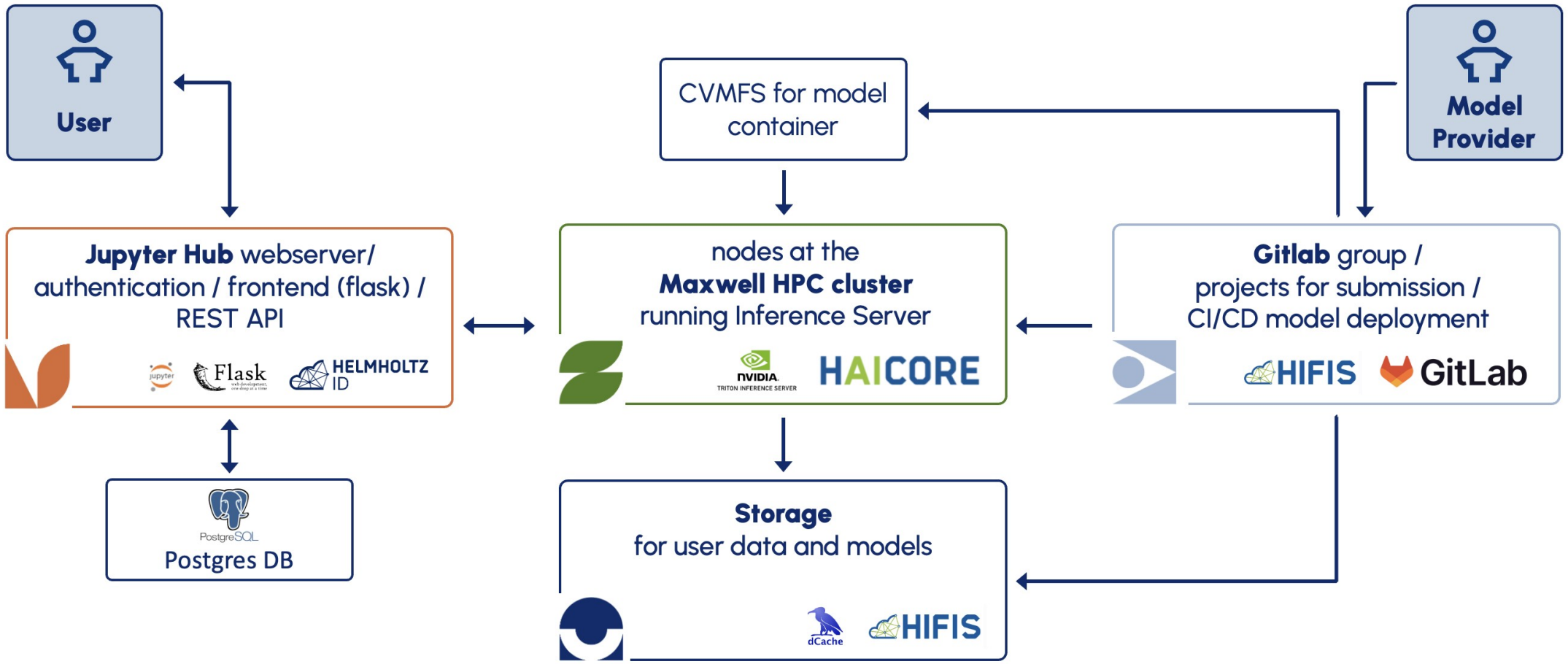
mamba slurm clone dependencies docker permission denied pip **cluster** pull versions install **GPU** deploy

provide models in git

AI Experts



Helmholtz Model Zoo



FAQ user

Who can use the models?

Only colleagues from Helmholtz can use it (and members of a Helmholtz ID VO)

How can I run an inference?

- Use the webinterface.
- Use a REST API

What is about my data (user)?

- You upload the data to a folder owned by you in dcache via the webinterface.
- You own your data, and it does not leave Helmholtz.
- You can also use the documented ways to upload data to dcache via rclone, webdav, etc. (recommended for large datasets)
- You can upload a reasonable amount of data (probably not PB, but a few TB could be fine).
- We will delete all your data after 3 month, or so? (Not entirely defined yet)

Model Zoo for the User

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Home Models My Jobs For Model Providers About

HELMHOLTZ MODEL ZOO

Pilot Phase (Beta Test)

The Helmholtz Model Zoo is currently only in the **Pilot Phase/Beta Test**!

What does this mean?
You are here as an early tester. The Model Zoo is generally speaking working. There are some features we are still working on.
The Model Zoo may undergo updates, changes and short interruptions at any time. (Sorry)

Nevertheless, we welcome you here and ask for your input to make the Helmholtz Model Zoo a great tool for scientific endeavours. Please do not hesitate to provide your models and to test the website! We are looking forward to any bug report, comment or suggestion at hmz-admin@desy.de

Welcome to the Helmholtz Model Zoo. HMZ is offering scientific deep learning models for inference in the browser. Here you find the tools Helmholtz members trained to conduct the *research for grand challenges*.

The content of the Helmholtz Model Zoo is provided by experts from the association, and when you are affiliated to one of the Helmholtz Centers, you are invited to login with your institutional credentials and use them!

Start

For Model Providers

If you are a Machine Learning expert yourself, and are looking for a way to share your model in the Helmholtz Model Zoo, find a guide here.

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Home Models My Jobs For Model Providers About

Model overview

Selecting a model redirects you to the model-specific input-page.

inpainting-lama-onnx25

by Roman Suvorov, Elizaveta Logacheva, Anton Mashikhin, Anastasia Remizova, Arsenii Ashukha, Aleksei Silvestrov, Naejin Kong, Harshith Goka, Kiwoong Park, Victor Lempitsky

Adaptation from HF --> https://huggingface.co/Carve/LaMa-ONNX

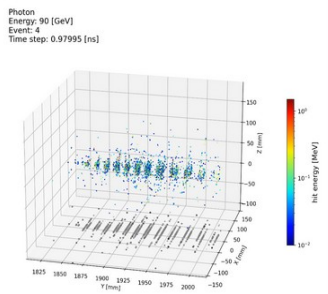
More →

Mnist Demo

by Helmholtz Model Zoo Team

This is a demo model for the model zoo. It is a simple MNIST model. Don't judge about its...

More →

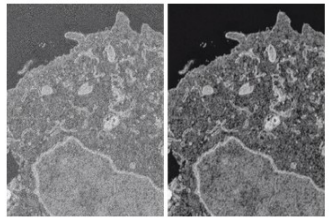


CaloClouds

by Anatolii Korol , Henry Day-Hall, Thorsten Buss , Frank Gaede, Erik Buhmann, Gregor Kasieczka, William Korcari, Katja Krüger, Peter McKeown

Accurate simulation of particle physics experiments is fundamental for comparing theoretical...

More →



Noise2void

by

Noise2Void is a self-supervised denoising method that works by randomly masking pixels in an...

More →

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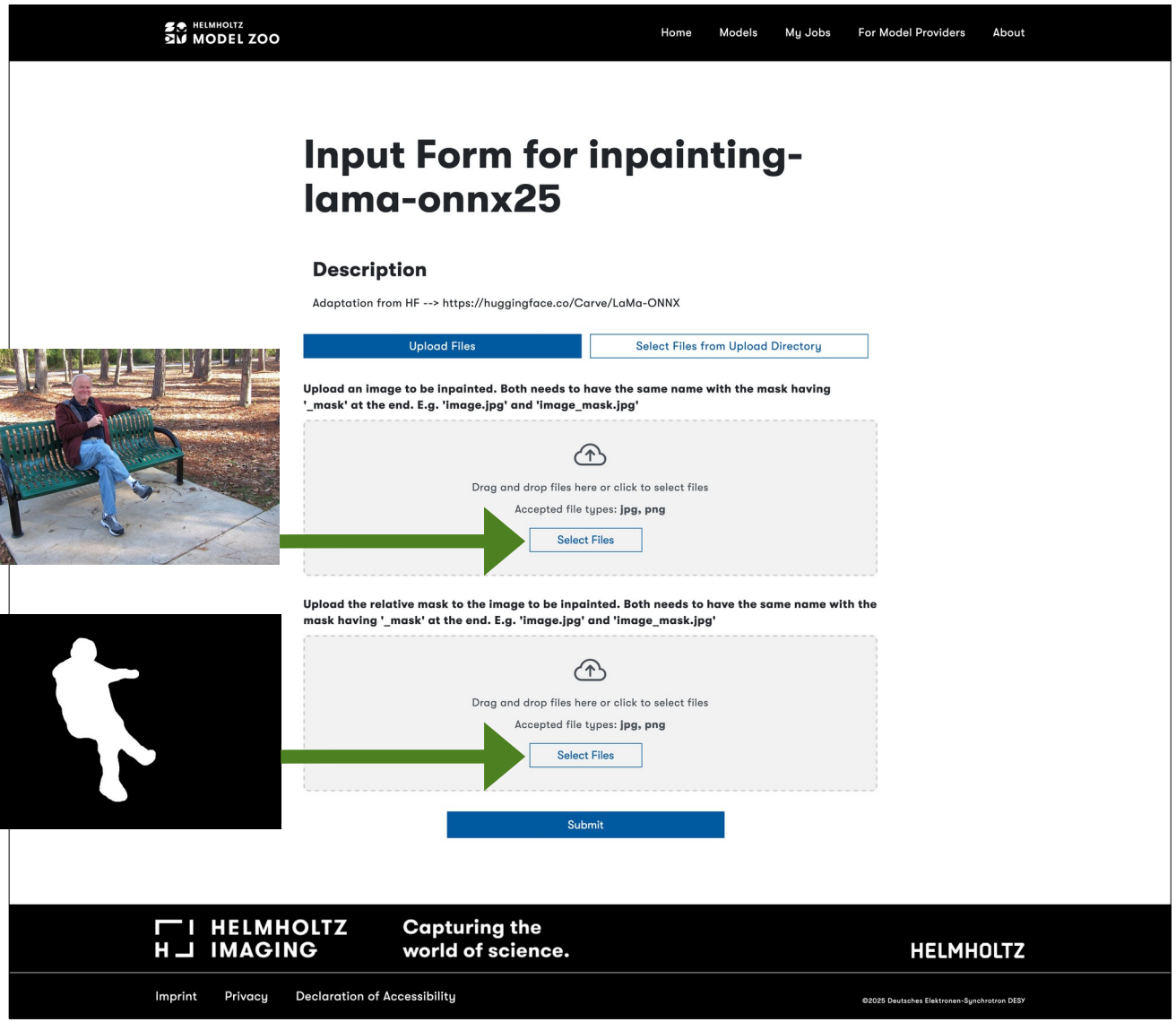
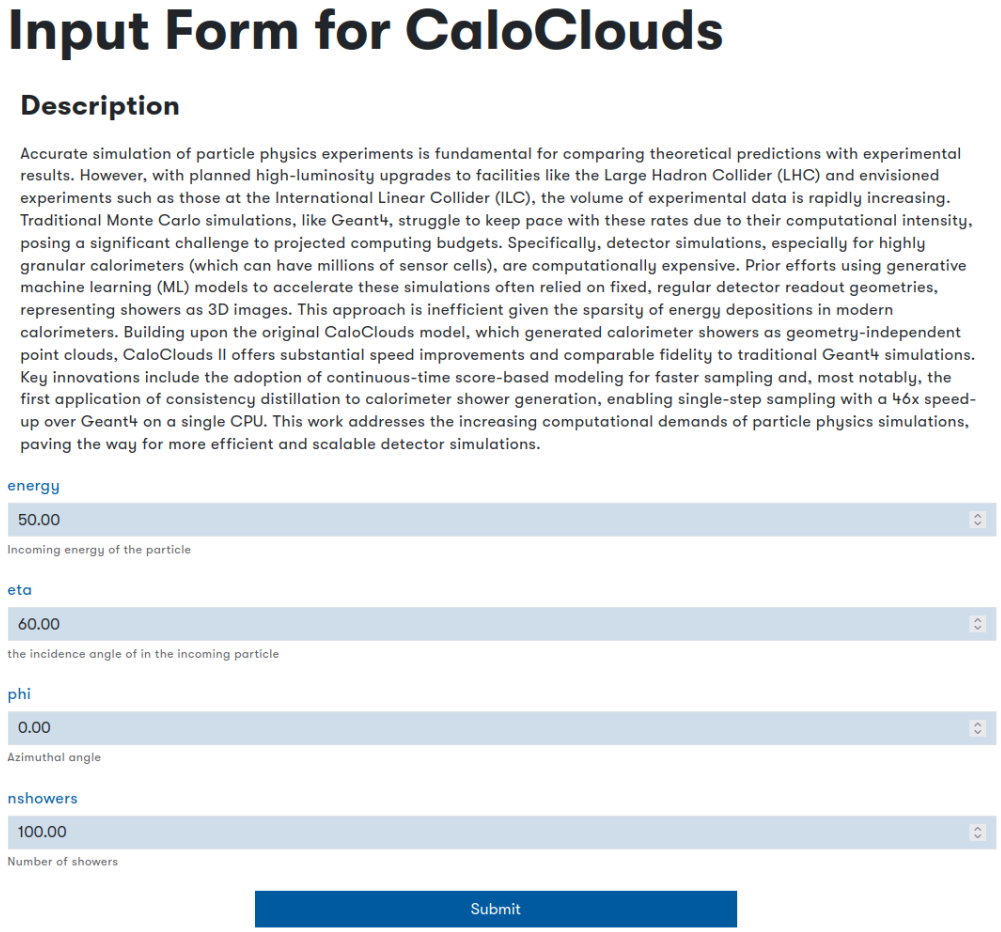
Model Zoo for the User





Model Zoo for the User

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Home Models My Jobs For Model Providers About

Job inpainting-lama-onnx25

Status

Model: inpainting-lama-onnx25
Input: /pnfs/desy.de/hifis-storage/HMZ/user//pheuser/upload/dataset_inpainting-lama-onnx25_2025-06-24_11-58-57

Status: COMPLETED
Start: 2025-06-24 11:58:58
End: 2025-06-24 11:59:04

Results / Download

Results

Download all result files as one zip:

output 1 files

inpainting-lama-onnx25_prediction_dayi.jpg View Download

Logs

Here you can quickly scan some of the log files for information.

status_log slurm_out slurm_error

```
> This is the content of the logfile:
> /pnfs/desy.de/hifis-storage/HMZ/user/pheuser/result/result_inpainting-lama-onnx25_70790f15/logs/status_log.log
----------
Done
```

Please cite:

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Home Models My Jobs For Model Providers About

Job CaloClouds

Status

Model: caloclouds
Input: /pnfs/desy.de/hifis-storage/HMZ/user//eren/upload/dataset_caloclouds_2025-07-03_09-46-11

Status: COMPLETED
Start: 2025-07-03 09:46:13
End: 2025-07-03 09:49:08

Results / Download

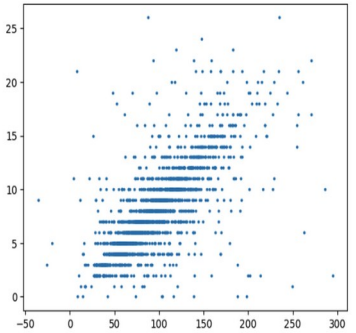
Results

Download all result files as one zip:

output_file 1 files

caloclouds_prediction_input.root View Download

```
[1]: import uproot

     file = uproot.open("caloclouds_prediction_input.root")

[2]: print(file.keys())

     ['Events;1']

[22]: import matplotlib.pyplot as plt
      plt.scatter(x,z,s=3)
[13]
[22]: <matplotlib.collections.PathCollection at 0x148de86817d0>
[13]
```



r information.

slurm_out slurm_error

```
en/result/result_caloclouds_c293fd2a/logs/status_log.log
```

For model providers

Who can provide models?

All scientists in Helmholtz can login via the Helmholtz ID and provide their models.

What kind of models? ОИИХ PyTorch TensorFlow

Which hardware?

Our nodes are provided by HAICORE, run at DESY, each equipped with 4 Nvidia L40S. HAICORE Helmholtz AI computing resources

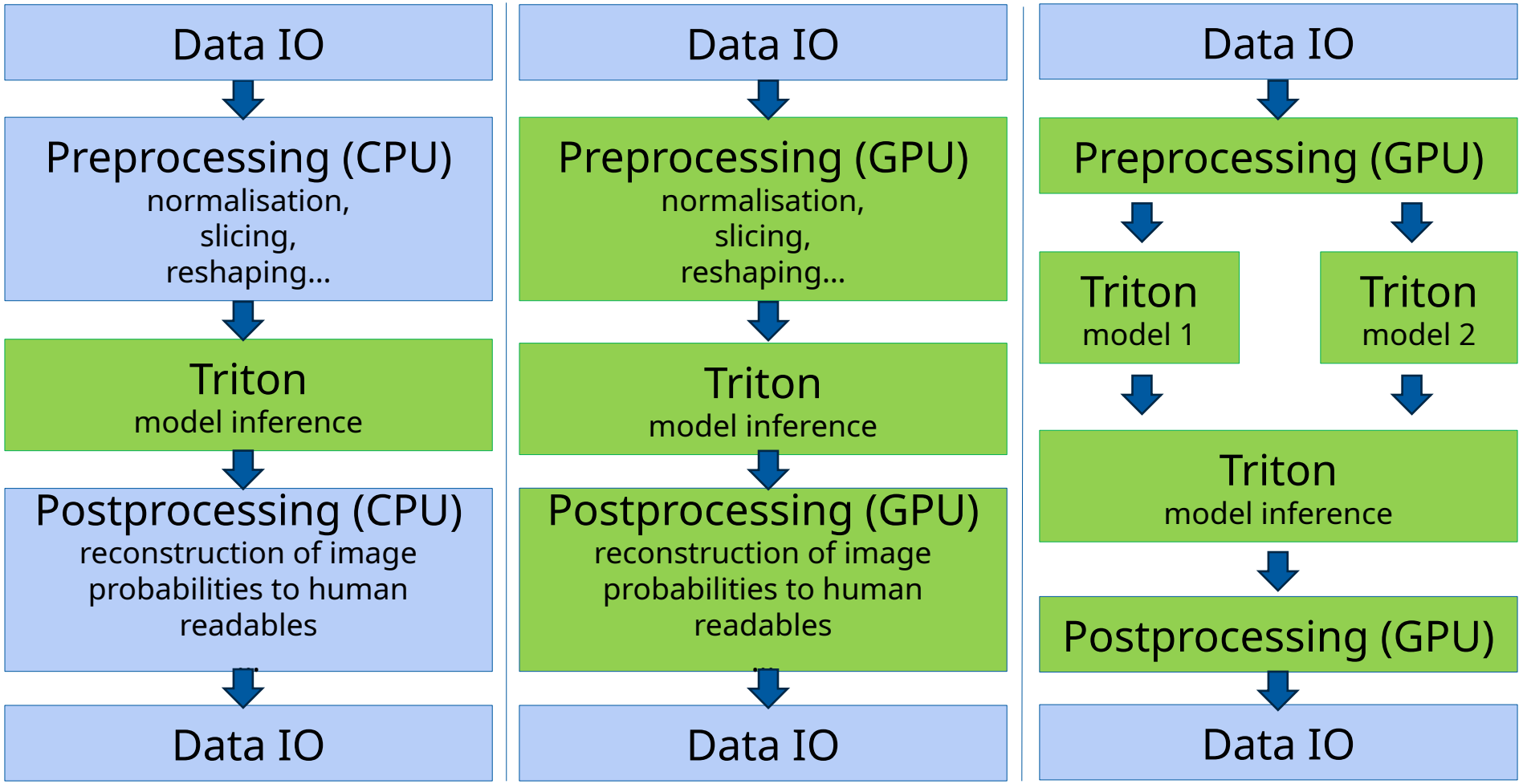
Can I make my model “private”?

Yes, you will be able to give the usernames of people who are entitled to use your model? (Via a Helmholtz ID VO)

What do I have to do?

- We provide you with a template in the (DESY)-Gitlab.
- We try to get as much as possible of your shoulders, keeping a maximum of flexibility
- You have to add your model and implement the necessary for pre- and postprocessing
- You have to fill in a form for the necessary meta data (some technical details, description, publication)

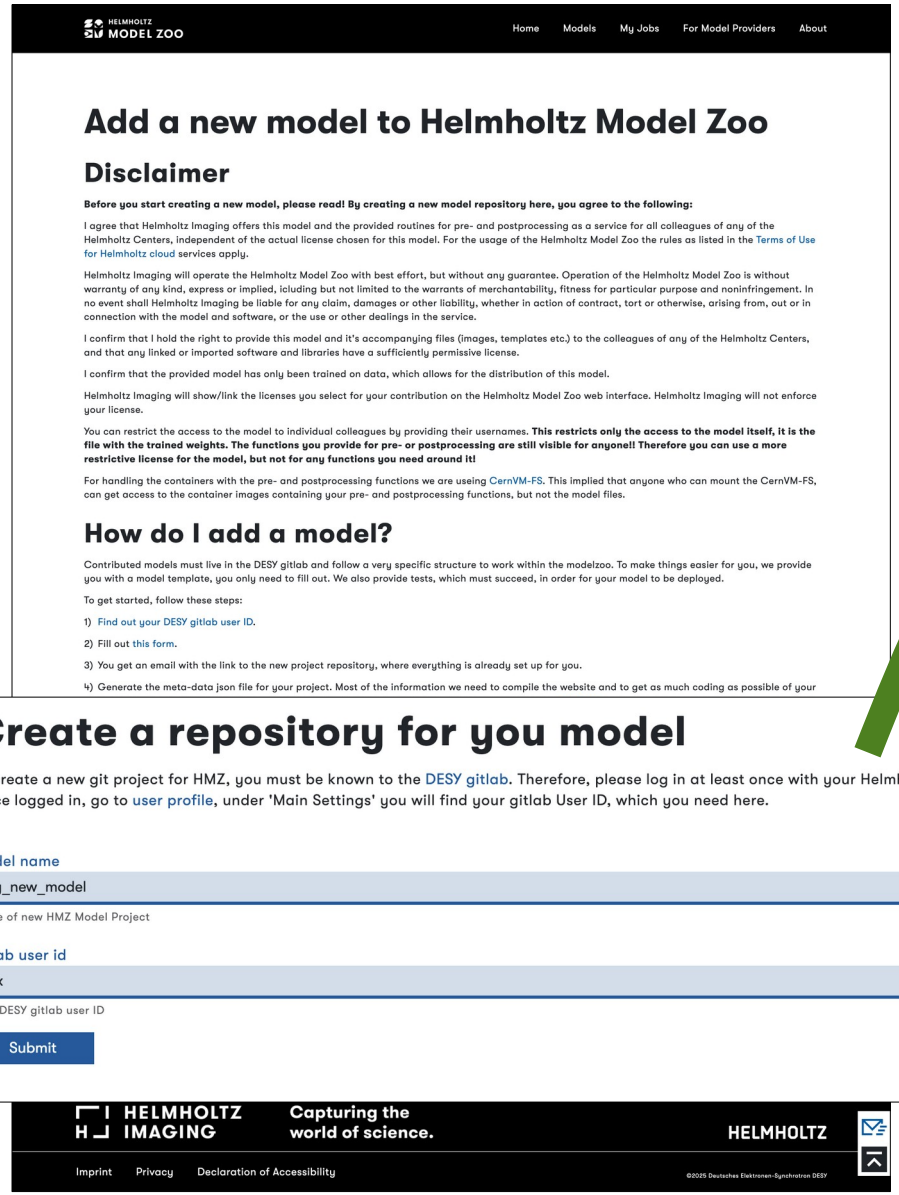
Pre/Post Processing & Triton

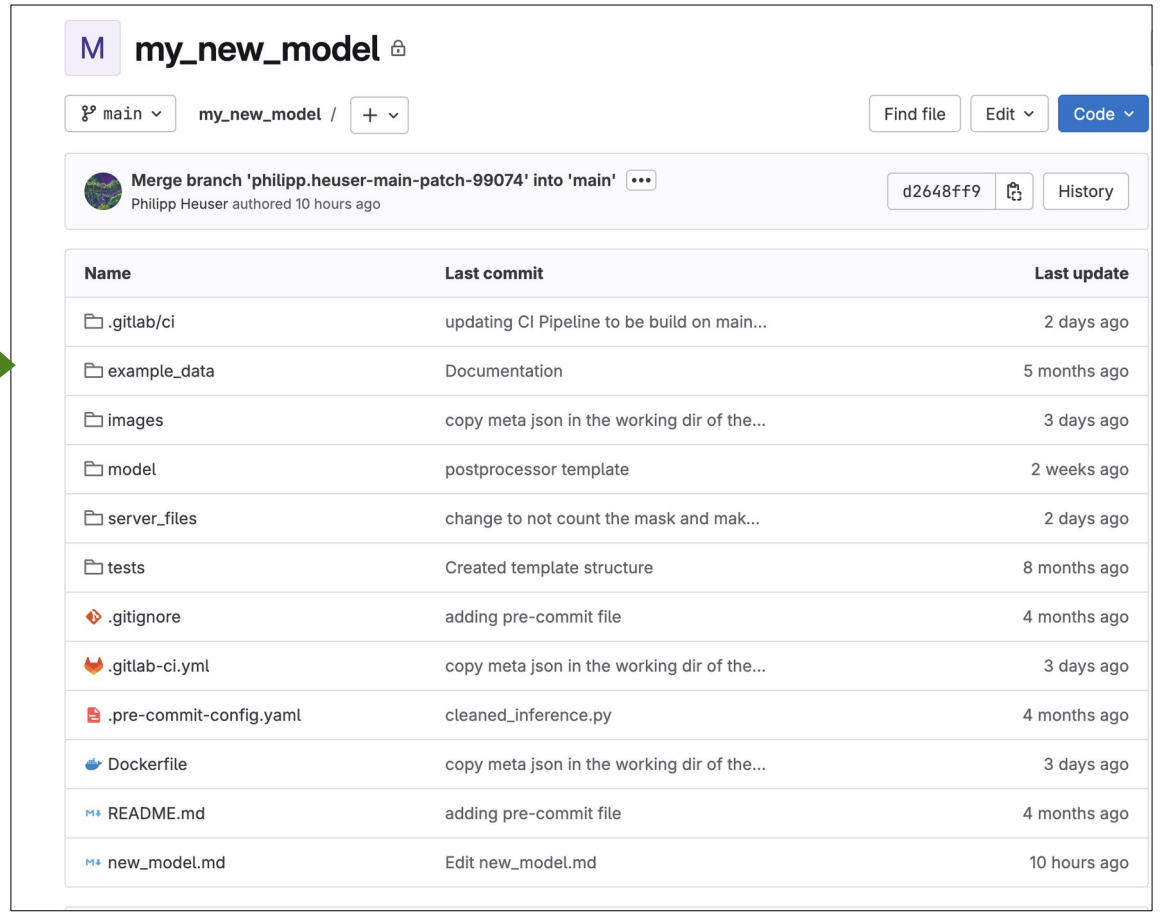


model > particleseg3d > particleseg3d_ensemble > config.pbtxt

```
name: "particleseg3d_ensemble"
platform: "ensemble"
max_batch_size: 8

input [
  {
    name: "input"
    data_type: TYPE_FP32
    dims: [ 1, 80, 192, 160 ]
  }
]

output [
  {
    name: "output"
    data_type: TYPE_FP32
    dims: [ 3, 80, 192, 160 ]
  }
]

ensemble_scheduling {
  step [
    {
      model_name: "particleseg3d_fold0"
      model_version: -1
      input_map {
        key: "input"
        value: "input"
      }
      output_map {
        key: "output"
        value: "fold0_logits"
      }
    },
    {
      model_name: "particleseg3d_fold1"
      model_version: -1
      input_map {
        key: "input"
        value: "input"
      }
      output_map {
        key: "output"
        value: "fold1_logits"
      }
```

Model Zoo for the Model Provider





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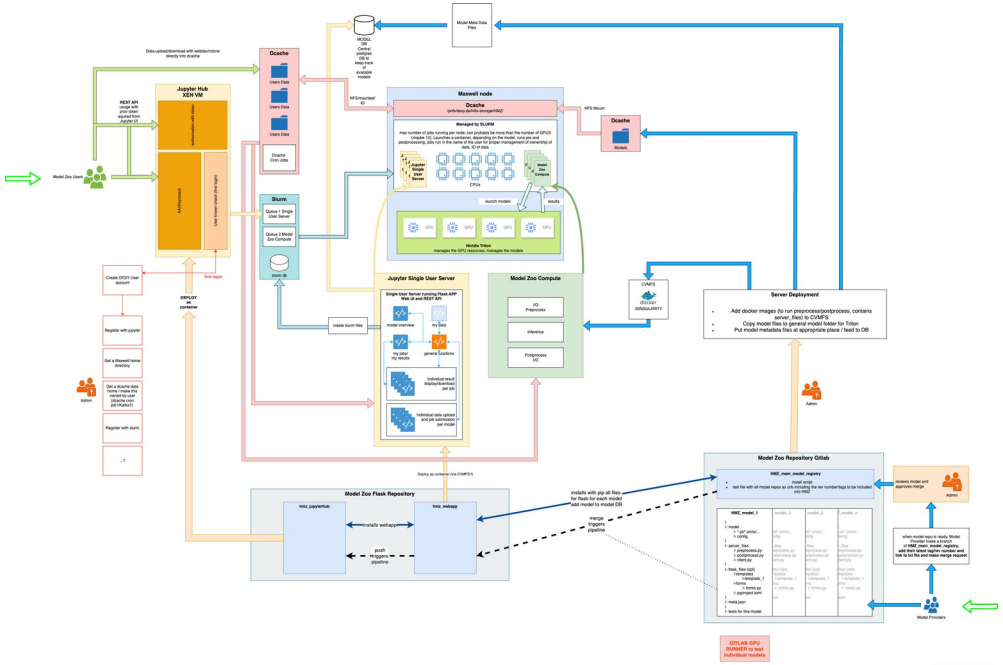

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Yves Kemp
Alexander Trautsch
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Talk to us!

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