


Competition Cloud Infrastructure

Casper O. da Costa-Luis [github/casperdcl](https://github.com/casperdcl)

MIC WS-05-02 (2024-11-02) [video](#) | [html](#) | [pdf](#)

 [GitHub](#) [SyneRBI/PETRIC](#)

 [rankings](#) [leaderboard](#)  [TensorBoard](#) [live graphs](#)

 [announcement](#) [website](#)  [details](#) [wiki](#)  [chat](#) [discord](#)

Problem

CERN employs ten times more engineers and technicians than research physicists.

Do you know why?

– <https://home.cern/science/engineering>

Participating

1. register
2. template code & training data
3. submitting code
4. standardised & secure GPU-enabled continuous integration (CI)
5. live leaderboards
6. test data

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Registration



Issue: Participate

Register to compete as a team or individual. If this doesn't look right, [choose a different type](#).



Add a title

Team Name

Under what name would you like to compete? Spaces not allowed.

GitHub users

Any teammates who want read/write access to your team's repository.

Terms

- (Optional) I want to be eligible for prizes, and will make my code public after the challenge ends.
- I agree to abide by the [rules](#). *

Template Code

Repository



GitHub

SyneRBI/PETRIC

Requires [SIRF](#), [CIL](#), CUDA

e.g. via Docker [synerbi/sirf:latest-gpu](#)

Template Code

Layout

- ▶ (required) main.py

```
from cil.optimisation.algorithms import Algorithm
class Submission(Algorithm):
    ... # e.g. BSREM, ISTA, OSEM
    submission_callbacks = [] # per-iteration
```

- ▶ apt.txt/environment.yml/requirements.txt: passed to apt/conda/pip install

Submitting Code

Private mirror

- ▶ `https://github.com/SyneRBI/PETRIC-
{TEAM_NAME}`

Continuous Integration

GitHub (native) runners

- ▶ can run basic (CPU-only) checks

Continuous Integration

GitHub self-hosted runners

Acquire or rent a machine (AWS, GCP, Azure, etc. . .)

- ▶ GPU (NVIDIA A100 PCIe 40GB GPU)
- ▶ CPU 32-Core
 - ▶ 100GB RAM
- ▶ sequential queue

Continuous Integration

Security

GitHub docs^{1,2} TL;DR:

don't do this because we can't be bothered to document how to make it secure

¹<https://docs.github.com/en/actions/hosting-your-own-runners/managing-self-hosted-runners/about-self-hosted-runners#self-hosted-runner-security>

²<https://docs.github.com/en/actions/security-for-github-actions/security-guides/security-hardening-for-github-actions#hardening-for-self-hosted-runners>

Cloud Services

Public domain

- ▶ public IP (130.246.81.43)
- ▶ (sub)domain name (*.tomography.stfc.ac.uk)
- ▶ docker services & reverse proxy with TLS (https://)

Data

<https://petric.tomography.stfc.ac.uk/data>

Cloud Services

Leaderboards

During competition

 TensorBoard live graphs

Results

 rankings | **leaderboard**

Fin

Want help running your own competition?

Want to compete next year?

 GitHub SyneRBI/PETRIC-Backend

[github/casperdcl](https://github.com/casperdcl)