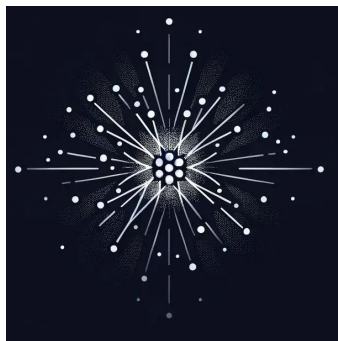




FAIR Universe



Fair Universe

Higgs Uncertainty Challenge

Codabench Tutorial



1. Login or Create Account on Codabench <https://www.codabench.org/>

The screenshot shows the Codabench website interface for the 'FAIR UNIVERSE - HIGGS UNCERTAINTY CHALLENGE'. At the top, there is a dark navigation bar with a search bar on the left and links for 'Benchmarks', 'Resources', 'Queue Management', 'Login', and 'Sign-up' on the right. The 'Login' and 'Sign-up' links are highlighted with a red box. Below the navigation bar, the challenge title is displayed in large, bold letters. To the left of the title is a circular logo featuring a starburst pattern. To the right of the title are two buttons: '11 PARTICIPANTS' (red) and '9 SUBMISSIONS' (teal). Below the title is a red box with a trophy icon and the text 'A pool of 4000 USD'. Further down, there is a section for 'ORGANIZED BY: FAIR Universe' with details on the current phase and server time. A timeline at the bottom shows the challenge duration from September to November 2024. At the bottom of the page, there is a navigation menu with options: 'Get Started', 'Phases', 'My Submissions', 'Results', 'Forum', and a help icon. The main content area is titled 'Overview' and includes a link to 'Codabench Walkthrough tutorial: Tutorial Slides' and an 'Introduction' section.

Search Competitions

Benchmarks Resources Queue Management Login Sign-up

FAIR UNIVERSE - HIGGS UNCERTAINTY CHALLENGE

11 PARTICIPANTS

9 SUBMISSIONS

A pool of 4000 USD

ORGANIZED BY: FAIR Universe
CURRENT PHASE ENDS: 15 November 2024 At 05:00 GMT+5
CURRENT SERVER TIME: 31 August 2024 At 14:39 GMT+5
Docker image: docker.io/nersc/fair_universe:1298f0a8

Sep 2024 Oct 2024 Nov 2024

Get Started Phases My Submissions Results Forum ?

Overview

Overview

Codabench Walkthrough tutorial: [Tutorial Slides](#)

Introduction

In 2012, the Nobel-prize-winning discovery of the Higgs Boson by the ATLAS and CMS experiments at the Large Hadron Collider (LHC) at CERN in Geneva, Switzerland was a major milestone in the history of physics. However, despite the validation it provided of the Standard Model of particle physics (SM), there are still numerous questions in physics that the SM does not answer. One promising approach to uncover some of these mysteries is to study the Higgs Boson in great

2. Competition Flow

Phase 1

Phase 2



Get Public Data



Train model



Prepare zip with model.py
and pre-trained model



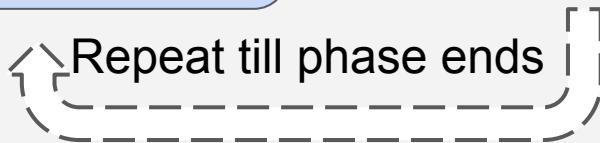
Make sure to not
re-train in *fit* function



Submit your model to the
competition website



Leaderboard is updated
once a day



Compete with other
best submissions
and win the
competition



Best submission is
taken to *Phase 2*

3. Register in the Competition



Search Competitions



Benchmarks



Resources



Queue Management



ihsanuniverse



FAIR UNIVERSE - HIGGS UNCERTAINTY CHALLENGE

11 PARTICIPANTS

9 SUBMISSIONS



A pool of 4000 USD

ORGANIZED BY: FAIR Universe

CURRENT PHASE ENDS: 15 November 2024 At 05:00 GMT+5

CURRENT SERVER TIME: 31 August 2024 At 14:52 GMT+5

Docker image: docker.io/nersc/fair_universe:12



Get Started

Phases

My Submissions

Results

Forum



You have not yet registered for this competition.

To participate in this competition, you must accept its specific [terms and conditions](#).

This competition **requires approval** from the competition organizers. After submitting your registration request, an email will be sent to the competition organizers notifying them of your request. Your application will remain pending until they approve or deny it.

I accept the terms and conditions of the competition.

Register



4. Get Public Data



FAIR UNIVERSE - HIGGS UNCERTAINTY CHALLENGE

1 PARTICIPANTS

9 SUBMISSIONS



A pool of 4000 USD

ORGANIZED BY: FAIR Universe

CURRENT PHASE ENDS: 15 November 2024 At 05:00 GMT+5

CURRENT SERVER TIME: 31 August 2024 At 14:59 GMT+5

Docker image: docker.io/nersc/fair_universe:1298f0a8



Get Started

Phases

My Submissions

Results

Forum



Overview

Evaluation

Data

Starting Kit

Terms

Prizes

Files

Download

Phase

Task

Type

Size

Neurips_Public_data_26_08_2024

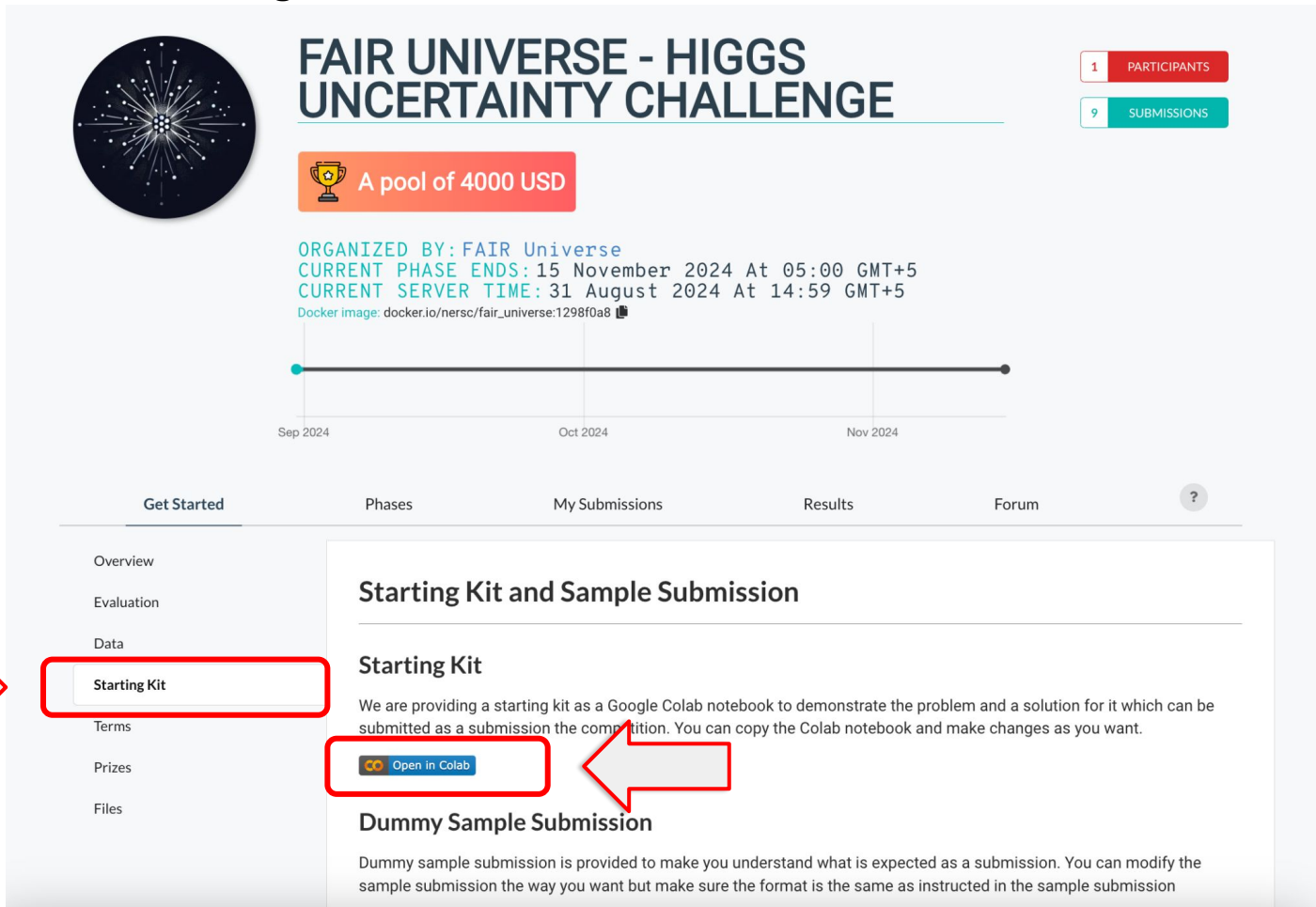
-

Public Data

6.49 GB




5. Check out the starting kit



FAIR UNIVERSE - HIGGS UNCERTAINTY CHALLENGE

1 PARTICIPANTS

9 SUBMISSIONS

 A pool of 4000 USD

ORGANIZED BY: FAIR Universe
CURRENT PHASE ENDS: 15 November 2024 At 05:00 GMT+5
CURRENT SERVER TIME: 31 August 2024 At 14:59 GMT+5
Docker image: docker.io/nersc/fair_universe:1298f0a8

Sep 2024 Oct 2024 Nov 2024


Get Started Phases My Submissions Results Forum ?

Overview
Evaluation
Data
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Starting Kit and Sample Submission

Starting Kit

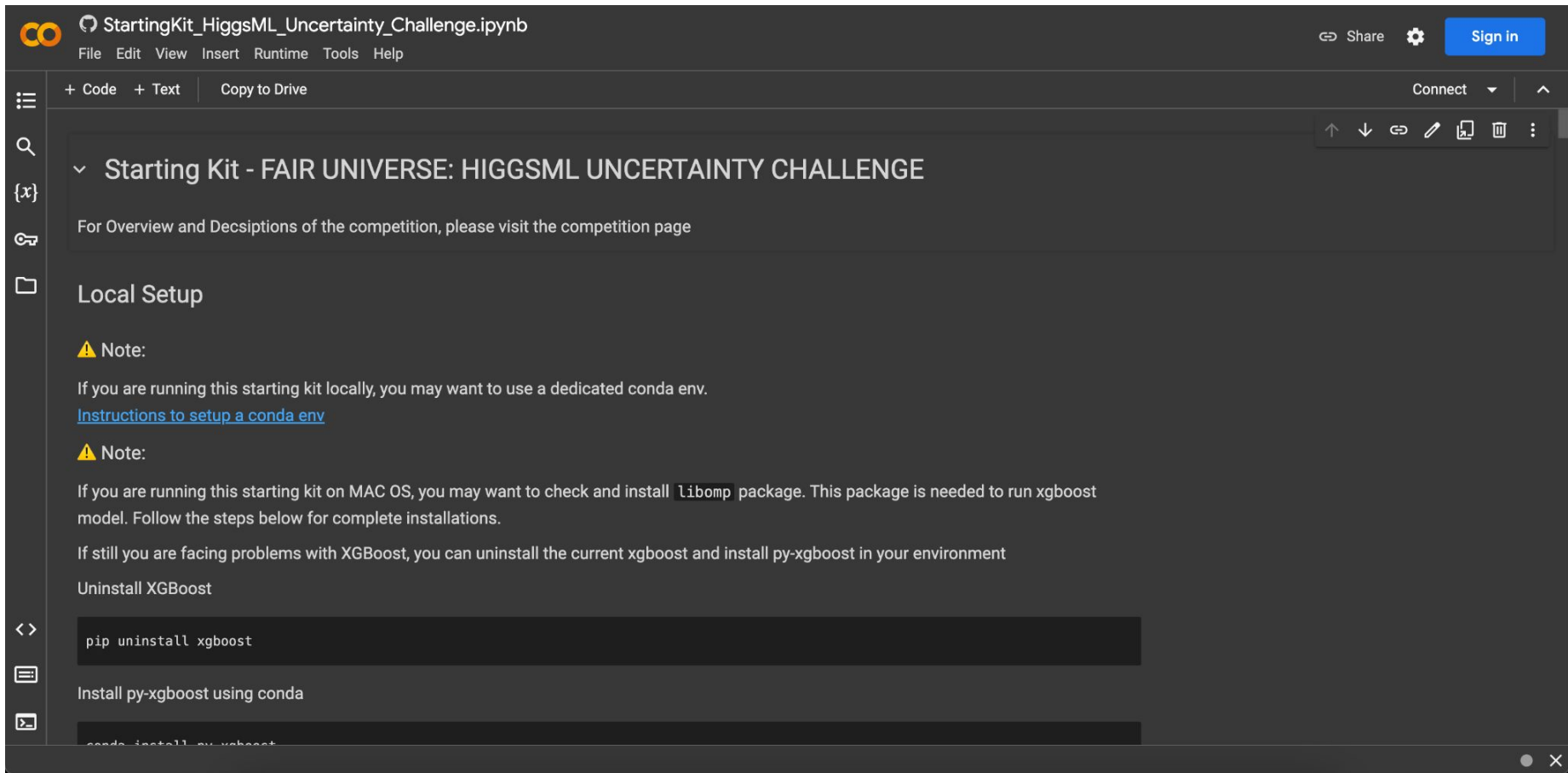
We are providing a starting kit as a Google Colab notebook to demonstrate the problem and a solution for it which can be submitted as a submission to the competition. You can copy the Colab notebook and make changes as you want.

 [Open in Colab](#)

Dummy Sample Submission

Dummy sample submission is provided to make you understand what is expected as a submission. You can modify the sample submission the way you want but make sure the format is the same as instructed in the sample submission

6. Starting kit as a Google Colab Notebook



The screenshot shows a Google Colab notebook interface. At the top, the notebook title is "StartingKit_HiggsML_Uncertainty_Challenge.ipynb". The menu bar includes "File", "Edit", "View", "Insert", "Runtime", "Tools", and "Help". In the top right corner, there are "Share" and "Sign in" buttons. Below the menu bar, there are tabs for "+ Code", "+ Text", and "Copy to Drive". The main content area is titled "Starting Kit - FAIR UNIVERSE: HIGGSML UNCERTAINTY CHALLENGE". It contains a paragraph: "For Overview and Decsptions of the competition, please visit the competition page". Below this is a section titled "Local Setup". Under "Local Setup", there are two "Note:" sections, each with a yellow warning icon. The first note says: "If you are running this starting kit locally, you may want to use a dedicated conda env. [Instructions to setup a conda env](#)". The second note says: "If you are running this starting kit on MAC OS, you may want to check and install Libomp package. This package is needed to run xgboost model. Follow the steps below for complete installations." Below the second note, it says: "If still you are facing problems with XGBoost, you can uninstall the current xgboost and install py-xgboost in your environment". Underneath, it says "Uninstall XGBoost" followed by a code block containing the command:

```
pip uninstall xgboost
```

. Below that, it says "Install py-xgboost using conda" followed by a code block containing the command:

```
conda install py-xgboost
```

. The interface also shows a search icon, a sidebar with icons for file management, and a "Connect" button in the top right.

7. Download Dummy Submission

FAIR UNIVERSE - HIGGS UNCERTAINTY CHALLENGE

1 PARTICIPANTS

9 SUBMISSIONS

A pool of 4000 USD

ORGANIZED BY: FAIR Universe
CURRENT PHASE ENDS: 15 November 2024 At 05:00 GMT+5
CURRENT SERVER TIME: 31 August 2024 At 14:59 GMT+5
Docker image: docker.io/nersc/fair_universe:1298f0a8

Sep 2024 Oct 2024 Nov 2024

Get Started Phases My Submissions Results Forum

Overview
Evaluation
Data
Starting Kit
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Prizes
Files

Starting Kit and Sample Submission

Starting Kit

We are providing a starting kit as a Google Colab notebook to demonstrate the problem and a solution for it which can be submitted as a submission the competition. You can copy the Colab notebook and make changes as you want.

[Open in Colab](#)

Dummy Sample Submission

Dummy sample submission is provided to make you understand what is expected as a submission. You can modify the sample submission the way you want but make sure the format is the same as instructed in the sample submission

[Dummy Sample Submission](#)

8. Submit Dummy Submission

Get Started Phases **My Submissions** Results Forum ?

Public Phase

Number of submissions used for the day ?
0 out of 5

Number of total submissions used
0 out of 100

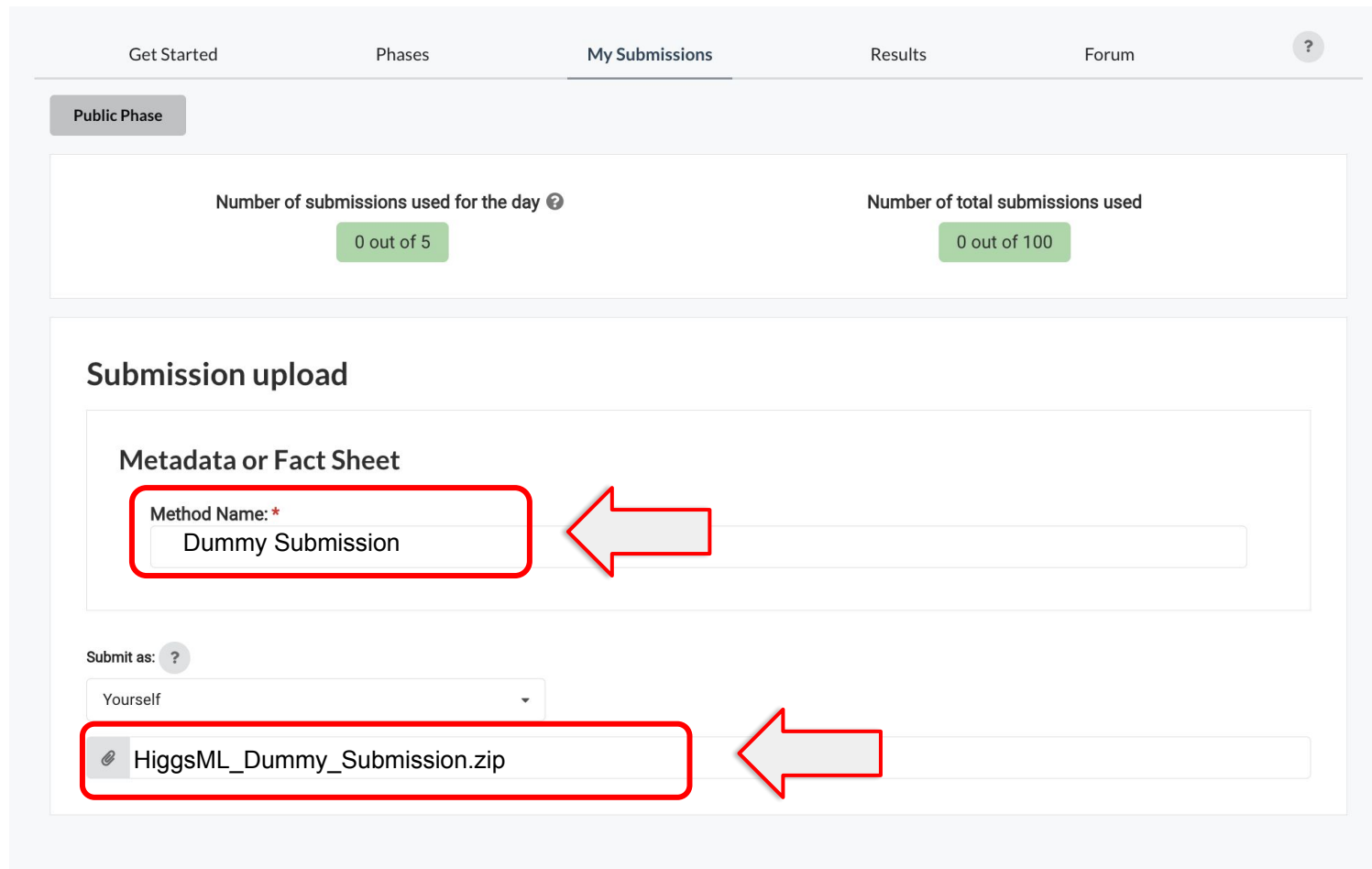
Submission upload

Metadata or Fact Sheet

Method Name: *
Dummy Submission

Submit as: ?
Yourself

HiggsML_Dummy_Submission.zip

The image shows a web interface for submitting a dummy submission. At the top, there are navigation tabs: 'Get Started', 'Phases', 'My Submissions' (which is active), 'Results', and 'Forum'. A help icon (?) is also present. Below the tabs, there's a 'Public Phase' button. Two statistics are shown: 'Number of submissions used for the day' (0 out of 5) and 'Number of total submissions used' (0 out of 100). The main section is titled 'Submission upload' and contains a 'Metadata or Fact Sheet' section. In this section, the 'Method Name' field is highlighted with a red box and a red arrow pointing left. Below this, there's a 'Submit as:' dropdown menu set to 'Yourself', which is also highlighted with a red box and a red arrow pointing left. At the bottom, a file upload field shows 'HiggsML_Dummy_Submission.zip' with a file icon, also highlighted with a red box and a red arrow pointing left.

9. Check results in the leaderboard





Updated approx once per day for full competition

Get Started Phases My Submissions **Results** Forum ?

Public Phase

Filter Leaderboard by Columns ?

Results

Task:					Fact Sheet Answers	Higgs NIPS Task 1x100				
#	Participant	Entries	Date	ID	Method Name	Quantile Score	Interval	Coverage	Run Time (mins)	Detailed Results
	ragansu	1	2024-08-30 15:12	81798	test	-9.81	1.08	0.06	6.0	
	Ihsan Ullah	1	2024-08-30 14:06	81796	tf trained	-10.26	1.19	0.01	6.0	

10. Access Starting Kit Notebook on Github

<https://github.com/FAIR-Universe/HEP-Challenge>

conda	starting kit fixed, visualization error removed, systematic...	2 weeks ago
docker	Move to ubuntu22.04 base	5 months ago
docs	public data link updated	3 days ago
example_submissions	updated Pytorch_model.zip	5 months ago
ingestion_program	updated histogram	2 days ago
input_data	update sample data	4 days ago
plots	update train test split +	3 weeks ago
reference_data/settings	update sample data	4 days ago
sample_code_submission	Merge pull request #102 from FAIR-Universe/READMEs	2 weeks ago
scoring_output	update results	3 weeks ago
scoring_program	updated the links	2 weeks ago
scripts	update sample data	last month
test_model	update bdt	2 days ago
.gitignore	update bdt	2 days ago
HiggsML_Dummy_Submission.zip	dummy submission updated	2 months ago
README.md	docs link added in readme	2 weeks ago
StartingKit_HiggsML_Uncertainty_Challenge...	update d hist	2 days ago
competition.yaml	name fixed	2 months ago
detailed_results.html	updated test model model	4 days ago
logo.png	new competition bundle is ready	6 months ago

11. Submit Pre-Trained Models

- Use the code structure from Dummy Sample Submission
- Use Public data to train your models
- Submit your submissions with pre-trained model file included in the zip

12. Get in touch

Join ***#higgsml-uncertainty-challenge*** channel in the FAIR Universe slack workspace

https://join.slack.com/t/fairuniverse/shared_invite/zt-2dt9ovrp1-jvi0DnCK9jzL3VGrdwYNMA

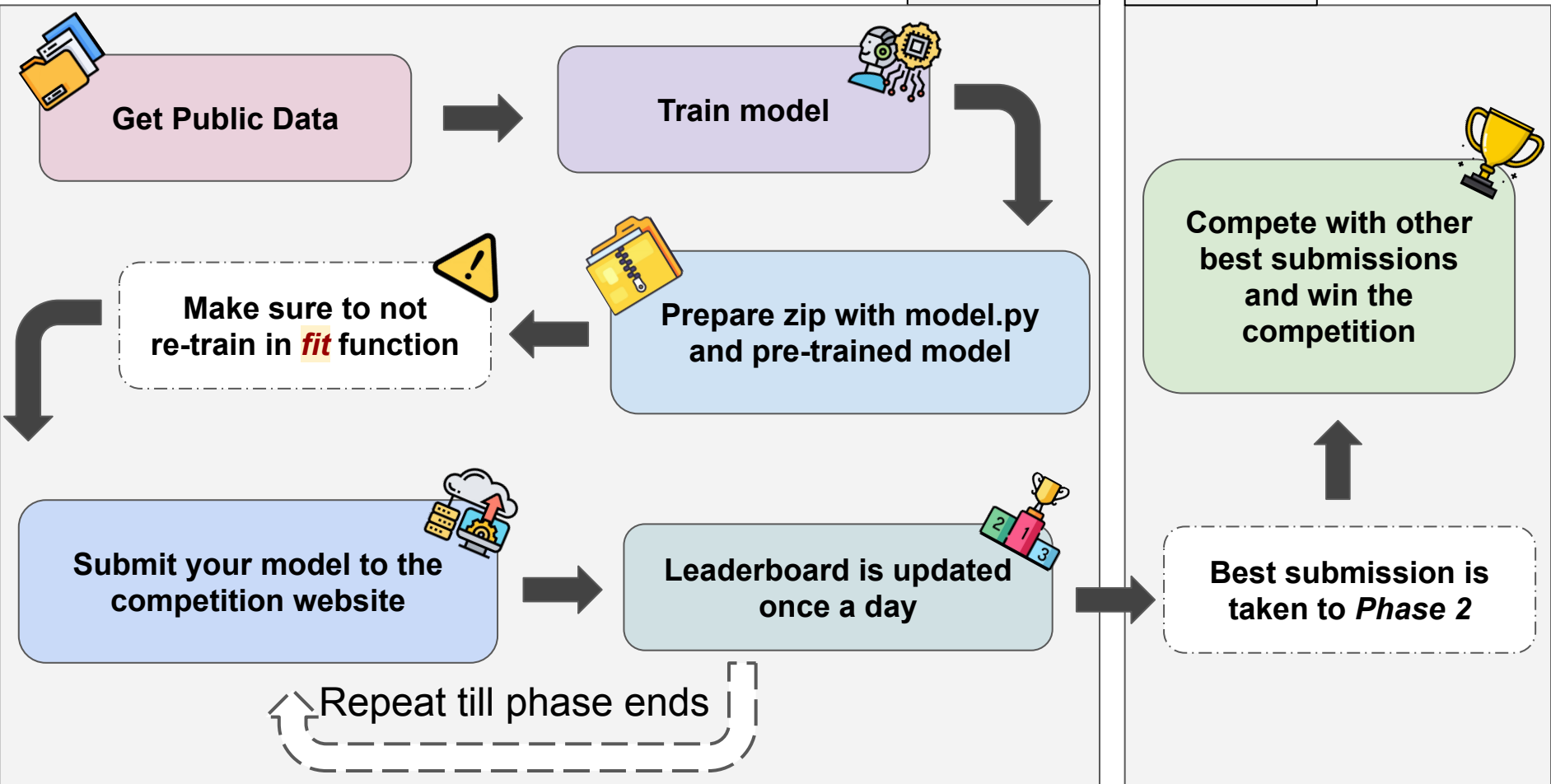


<https://fair-universe.lbl.gov/>

Competition Flow

Phase 1

Phase 2



Get Public Data

Train model

Make sure to not re-train in `fit` function

Prepare zip with model.py and pre-trained model

Submit your model to the competition website

Leaderboard is updated once a day

Compete with other best submissions and win the competition

Best submission is taken to *Phase 2*

Repeat till phase ends