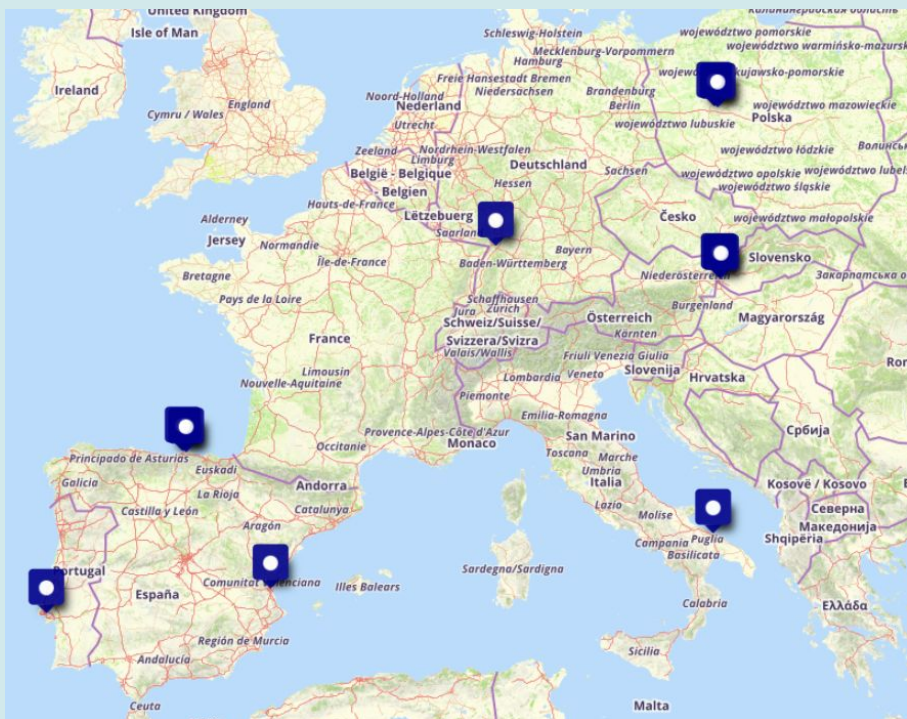


AI4EOSC templates

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AI4

eosc



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AI4EOSC

Artificial Intelligence for the #EOSC

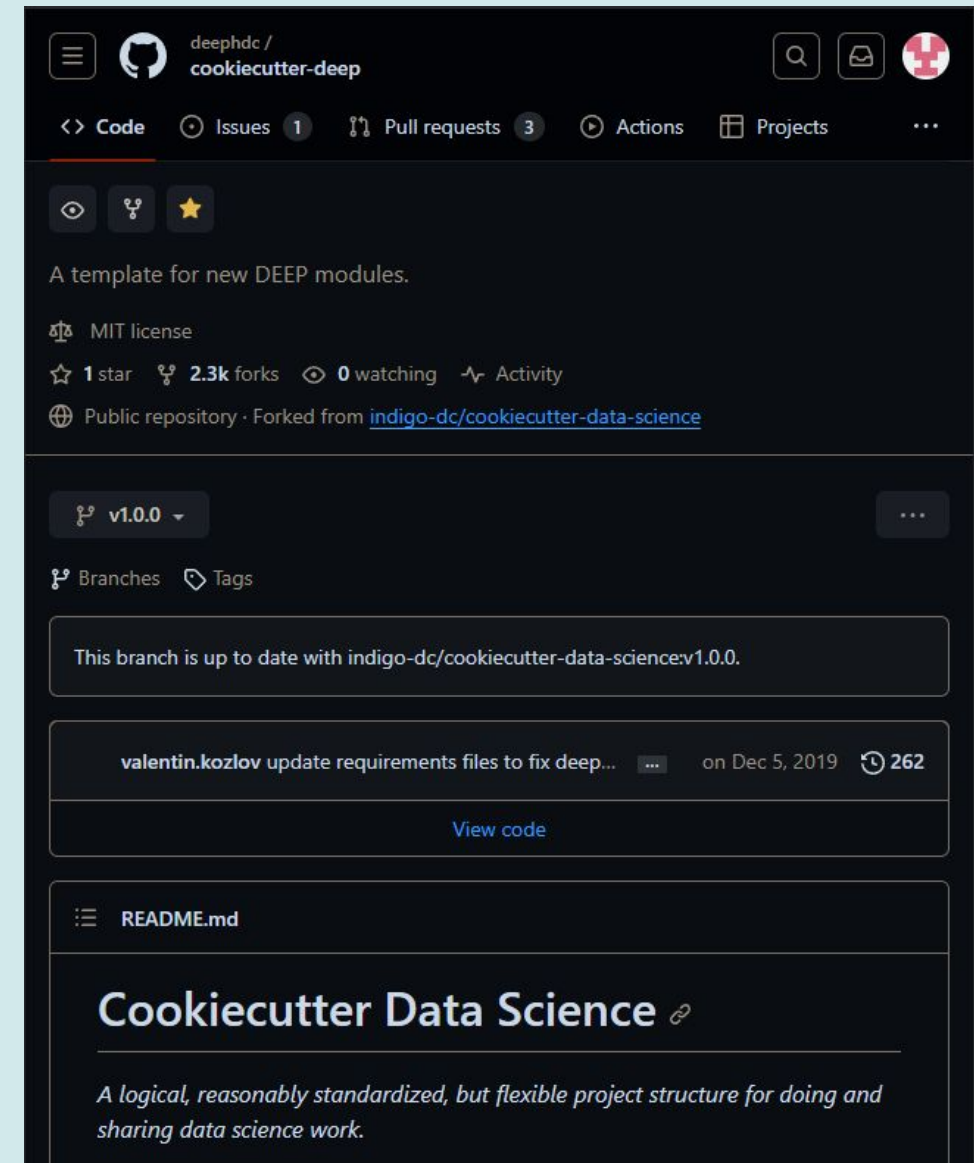
- Evolution of the DEEP Hybrid DataCloud platform
- HORIZON-INFRA-2021-EOSC-01-04 call
- Runs September 1st 2022 – August 2025 (36 months)
- 7 academic partners
- + 2 SME
- + 1 non-profit organization



Advanced features for distributed, federated, composite learning, metadata provenance, MLOps, event-driven data processing, and provision of AI/ML/DL services

Why templates?

- Provide Consistency and Uniformity
- Speed-up development time
- Apply best learning practices
- Reduction in Errors
- Let you focus on what is important
- Are a great source of inspiration



Templates



Versions:

DEEP Modules Template

<https://github.com/deephdc/cookiecutter-deep>

- **master**: this is what 99% of users are probably looking for. Simple, minimal template, with the minimum requirements to integrate your code in DEEP.
- **child-module**: this is a fork of the master branch specifically tailored to users performing a retraining of an existing module. It only creates a Docker repo whose container is based on an existing module's Docker image.
- **advanced**: this is a more advanced template. It makes more assumptions on how to structure projects and adds more files than those strictly needed for integration.

Current state of advanced template

- Basic documentation generation files.
- Basic testing with unittest
- Customization of multiple API arguments by Schemas
- Basic files to start implementing CI/CD with Jenkins
- Basic logging and use of HTTP Responses

But, there is a lot of room for improvement.

Advantages of advanced template

Multiple integration modes:

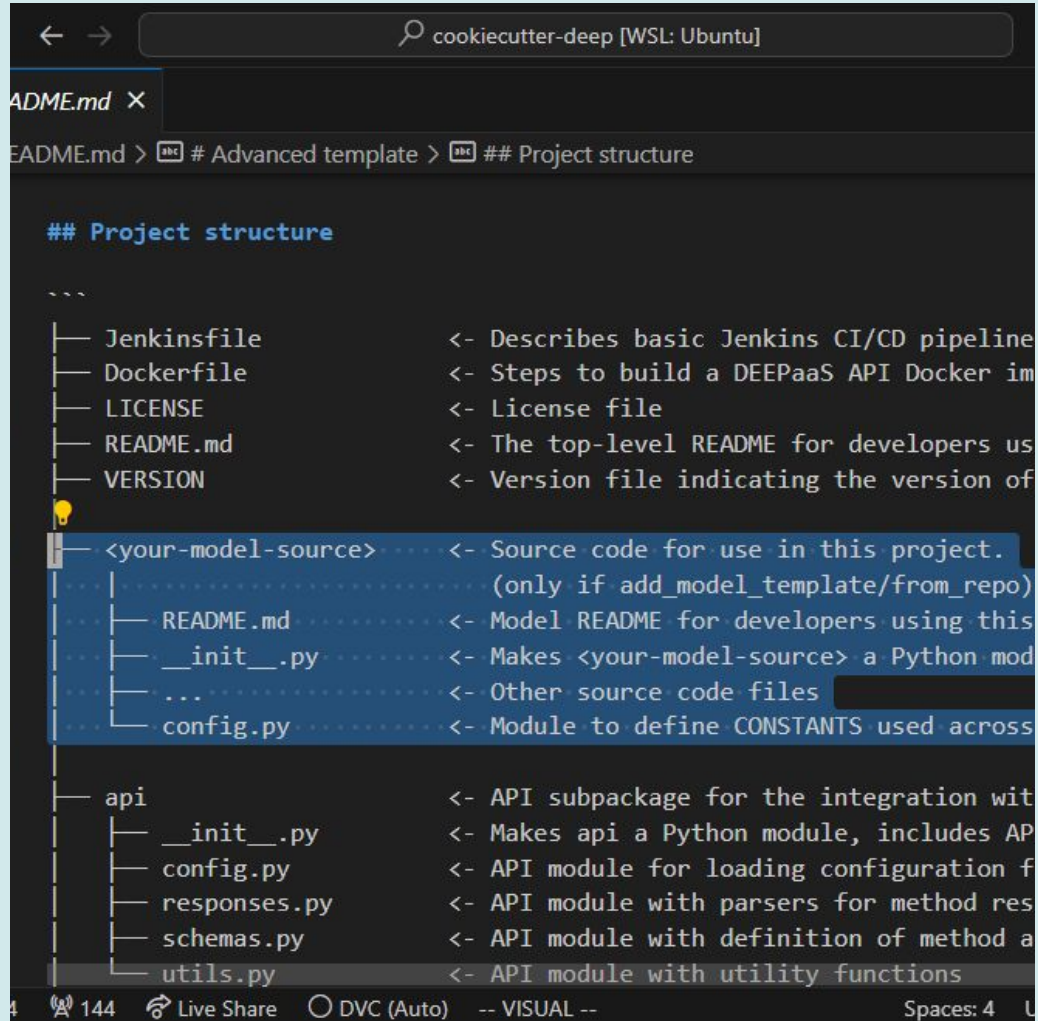
1. From model base template
 2. From repository as submodule
 3. As requirement for the API
-

Additional code features:

1. Templates for responses (pdf.)
 2. Schemas module for parameters
 3. Pre-made testing with pytest
 4. Debug configurations for vscode
-

And more to come:

1. Drift detection with **FROUROS**
 2. Jenkins SQA baseline v2
 3. Data version control (with DVC)
-



```
cookiecutter-deep [WSL: Ubuntu]

ADME.md x
README.md > # Advanced template > ## Project structure

## Project structure

...
|— Jenkinsfile          <- Describes basic Jenkins CI/CD pipeline
|— Dockerfile           <- Steps to build a DEEPaaS API Docker im
|— LICENSE              <- License file
|— README.md            <- The top-level README for developers us
|— VERSION              <- Version file indicating the version of
|— <your-model-source> <- Source code for use in this project.
|   ... (only if add_model_template/from_repo)
|   |— README.md        <- Model README for developers using this
|   |— __init__.py       <- Makes <your-model-source> a Python mod
|   |— ...               <- Other source code files
|   |— config.py         <- Module to define CONSTANTS used across
|
|— api                  <- API subpackage for the integration wit
|   |— __init__.py       <- Makes api a Python module, includes AP
|   |— config.py         <- API module for loading configuration f
|   |— responses.py      <- API module with parsers for method res
|   |— schemas.py        <- API module with definition of method a
|   |— utils.py          <- API module with utility functions

4 144 Live Share DVC (Auto) -- VISUAL -- Spaces: 4
```

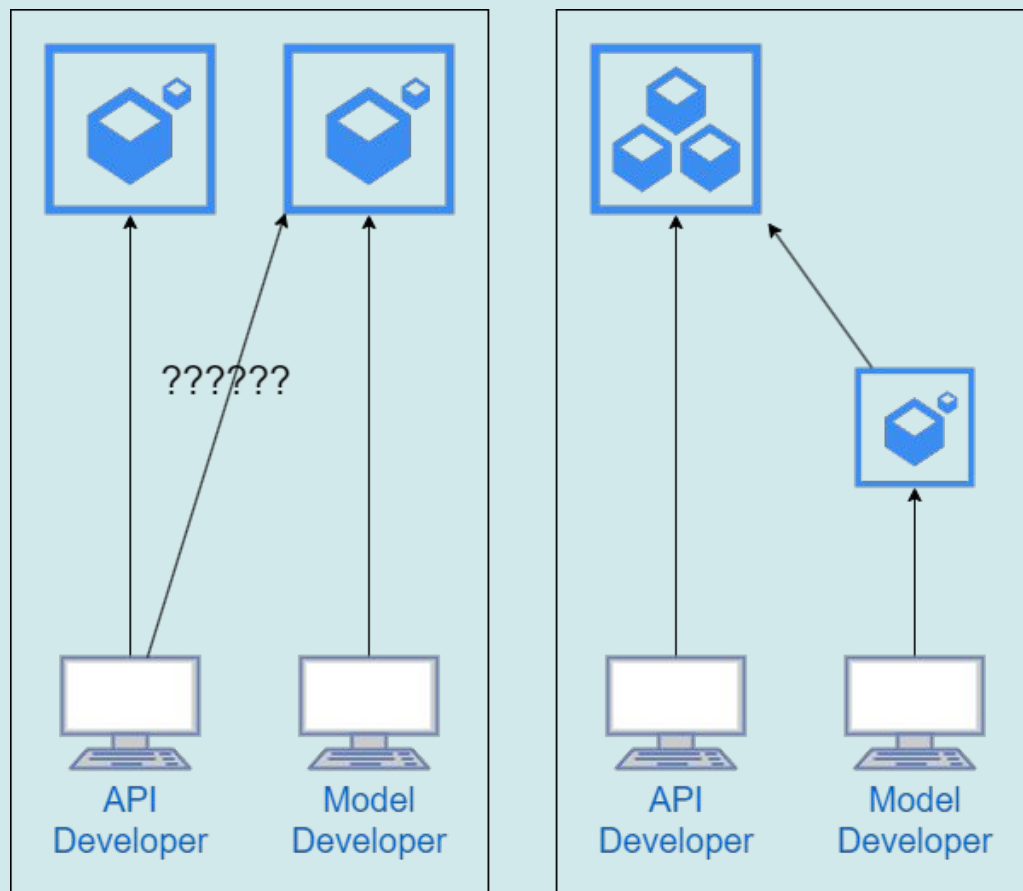
Multiple integration modes:

1. From model base template

Want to start your project from the base, following good practices?

You want are developer of the model source and the api. You want all to be highly coupled and in a unique same place.

> You can also paste your code here.



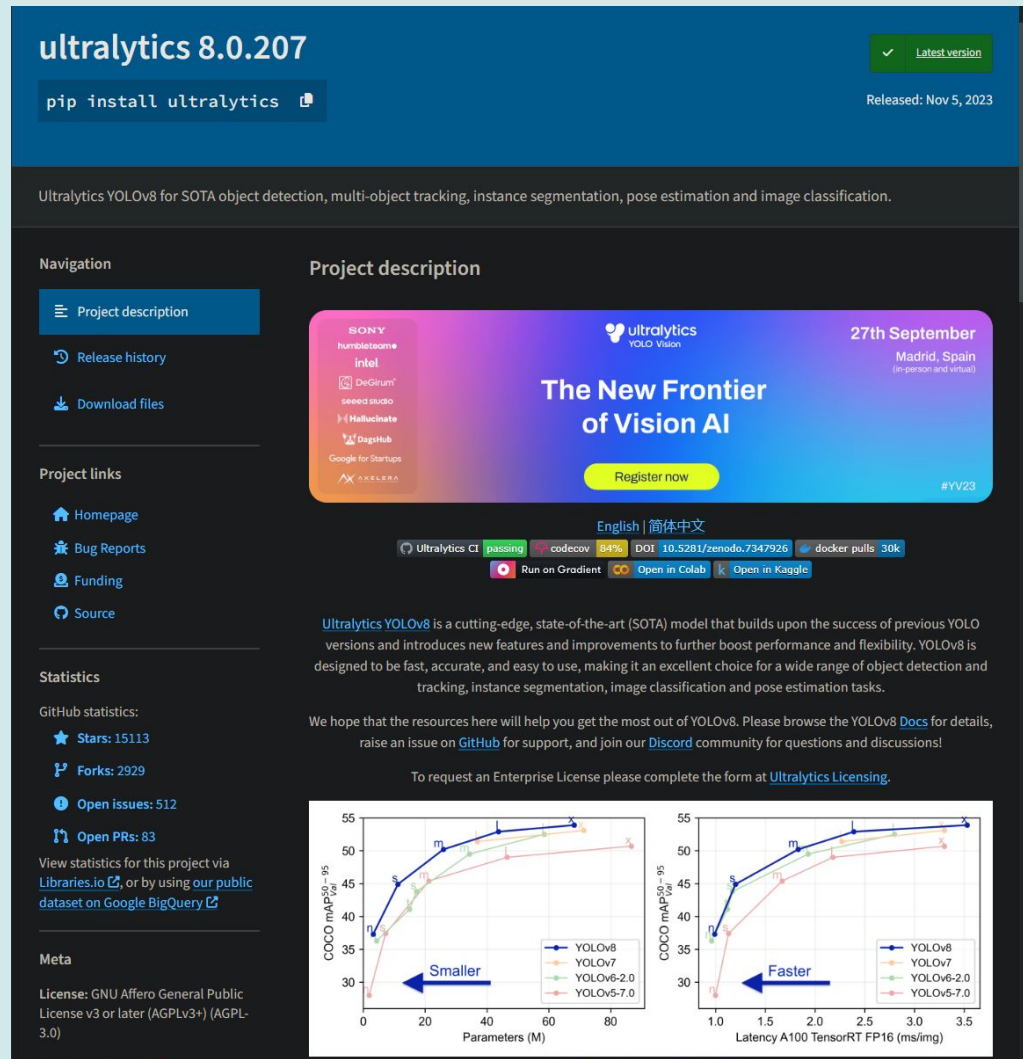
Multiple integration modes:

2. From repository as submodule

Your team have a source model and want to add the API?

You have are not the developer of the model, and it is not in PyPI.

- > Splits maintenance of source.
- > Model source in root folder.



ultralytics 8.0.207 Latest version

`pip install ultralytics` Released: Nov 5, 2023

Ultralytics YOLOv8 for SOTA object detection, multi-object tracking, instance segmentation, pose estimation and image classification.

Navigation

- Project description
- Release history
- Download files

Project links

- Homepage
- Bug Reports
- Funding
- Source

Statistics

GitHub statistics:

- Stars: 15113
- Forks: 2929
- Open issues: 512
- Open PRs: 83

View statistics for this project via [Libraries.io](#), or by using [our public dataset on Google BigQuery](#)

Meta

License: GNU Affero General Public License v3 or later (AGPLv3+) (AGPL-3.0)

Project description

The New Frontier of Vision AI

27th September
Madrid, Spain
(in-person and virtual)

[Register now](#) #YV23

English | 简体中文

Ultralytics CI passing coverage 84% DOI [10.5281/zenodo.7347926](#) docker pulls 30k

[Run on Gradient](#) [Open in Colab](#) [Open in Kaggle](#)

Ultralytics YOLOv8 is a cutting-edge, state-of-the-art (SOTA) model that builds upon the success of previous YOLO versions and introduces new features and improvements to further boost performance and flexibility. YOLOv8 is designed to be fast, accurate, and easy to use, making it an excellent choice for a wide range of object detection and tracking, instance segmentation, image classification and pose estimation tasks.

We hope that the resources here will help you get the most out of YOLOv8. Please browse the YOLOv8 [Docs](#) for details, raise an issue on [GitHub](#) for support, and join our [Discord](#) community for questions and discussions!

To request an Enterprise License please complete the form at [Ultralytics Licensing](#).

COCO mAP₅₀₋₉₅ vs Parameters (M)

Smaller

COCO mAP₅₀₋₉₅ vs Latency A100 TensorRT FP16 (ms/img)

Faster

Multiple integration modes:

3. As requirement for the API

You just want to create an API for a known or public model?

You are developing a service for a public model. You do not need/want the model source in your repository.

> Use the template without model src.

> Add the model to pip requirements.txt.

Additional code features:

1. Templates for responses (pdf.)
2. Schemas module for parameters

Inspire users on how to generate the response they need.

Object schemas simplify maintenance and visibility in APIs with large amount of arguments and hyperparameters.

Provide single points where user needs to modify the code.

```
37 # EXAMPLE of Prediction Args description
38 # = HAVE TO MODIFY FOR YOUR NEEDS =
    You, 3 months ago | 1 author (You)
39 class PredArgsSchema(marshmallow.Schema):
40     """Prediction arguments schema for api.predict function."""
41
    You, 4 months ago | 1 author (You)
42 class Meta: # Keep order of the parameters as they are defined.
43     # pylint: disable=missing-class-docstring
44     # pylint: disable=too-few-public-methods
45     ordered = True
46
47 model_name = ModelName(
48     metadata={
49         "description": "String/Path identification for models.",
50     },
51     required=True,
52 )
53
54 input_file = fields.Field(
55     metadata={
56         "description": "File with np.arrays for predictions.",
57         "type": "file",
58         "location": "form",
59     },
60     required=True,
61 )
62
63 accept = fields.String(
64     metadata={
65         "description": "Return format for method response.",
66         "location": "headers",
67     },
68     required=True,
69     validate=validate.OneOf(list(responses.content_types)),
70 )
71
```

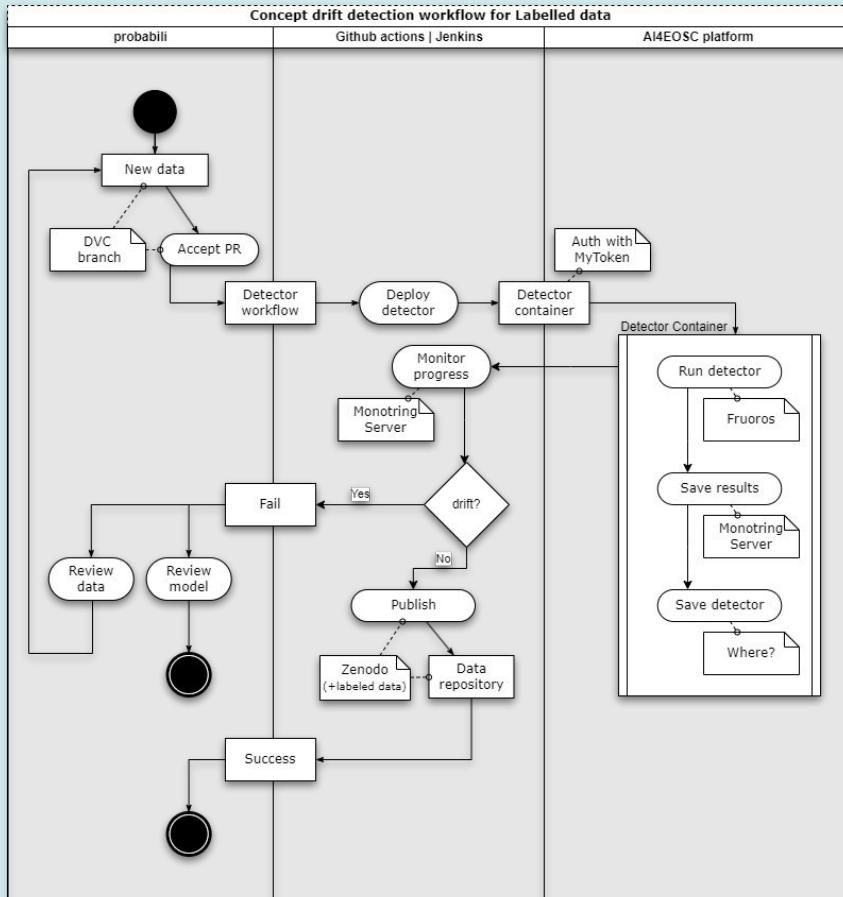
Additional code features:

3. Pre-made testing with pytest
4. Debug configurations for vscode

We know it is hard and long to generate comprehensible tests. Therefore, we can generate basic testing for you by simply testing the known points of the API in search for failures.

Additionally you can debug with breakpoints if you use vscode.





And more to come:

1. Jenkins SQA baseline v2

Simpler but powerful, add quality control to your CI/CD. Get high score SQA badges with minimum effort.

2. Data version control (with DVC)

Add data version and control to your repository meanwhile it is stored in your favorite cloud solution.

3. Drift detection with Fruoros

Monitor and validate your new data before merging into “main” or publish it automatically.

How to start with templates?

templates.services.fedcloud.eu

[HOME](#)[PROJECT PAGE](#)[HELP](#)[LOGOUT](#)

Create AI projects from templates



AI4



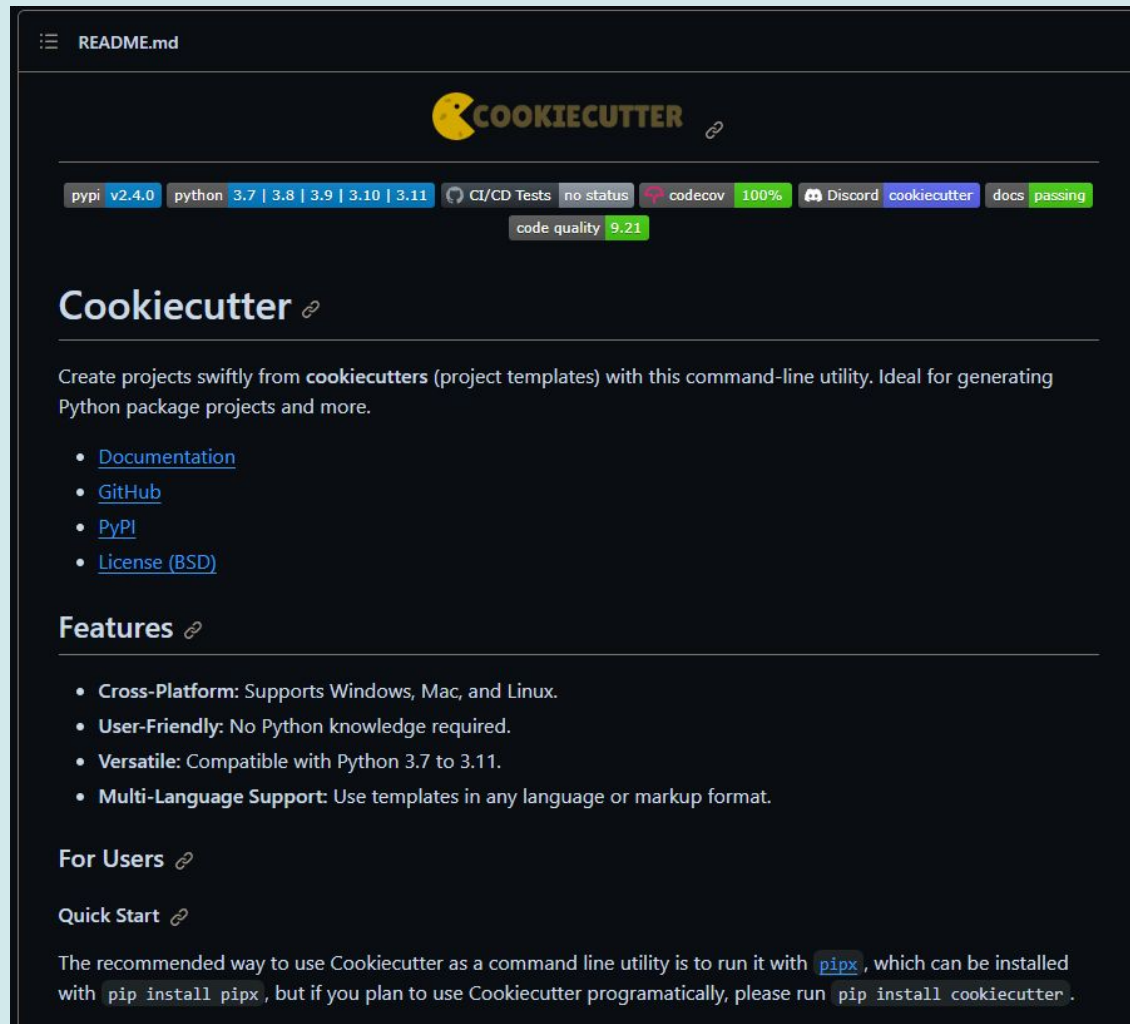
iImagine



This Service is powered by the AI4OS
software, provided by KIT, co-funded by the
AI4EOSC project.

[Legals](#) [Privacy Policy](#)[Acceptable Use Policy](#)

AI4 | eososc



Powered by Cookiecutter

Alternatively to using templates.services.fedcloud.eu, it is possible to use edge-versions directly with cookiecutter at:

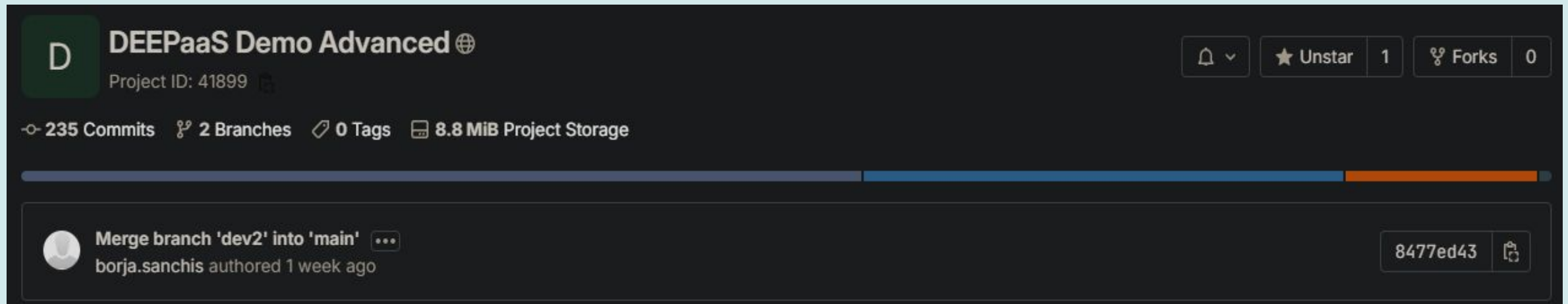
github.com/deephdc/cookiecutter-deep

For example:

```
> cookiecutter -c advanced \  
https://github.com/deephdc/cookiecutter-deep
```

```
> cookiecutter -c v1.0.0 \  
https://github.com/deephdc/cookiecutter-deep
```

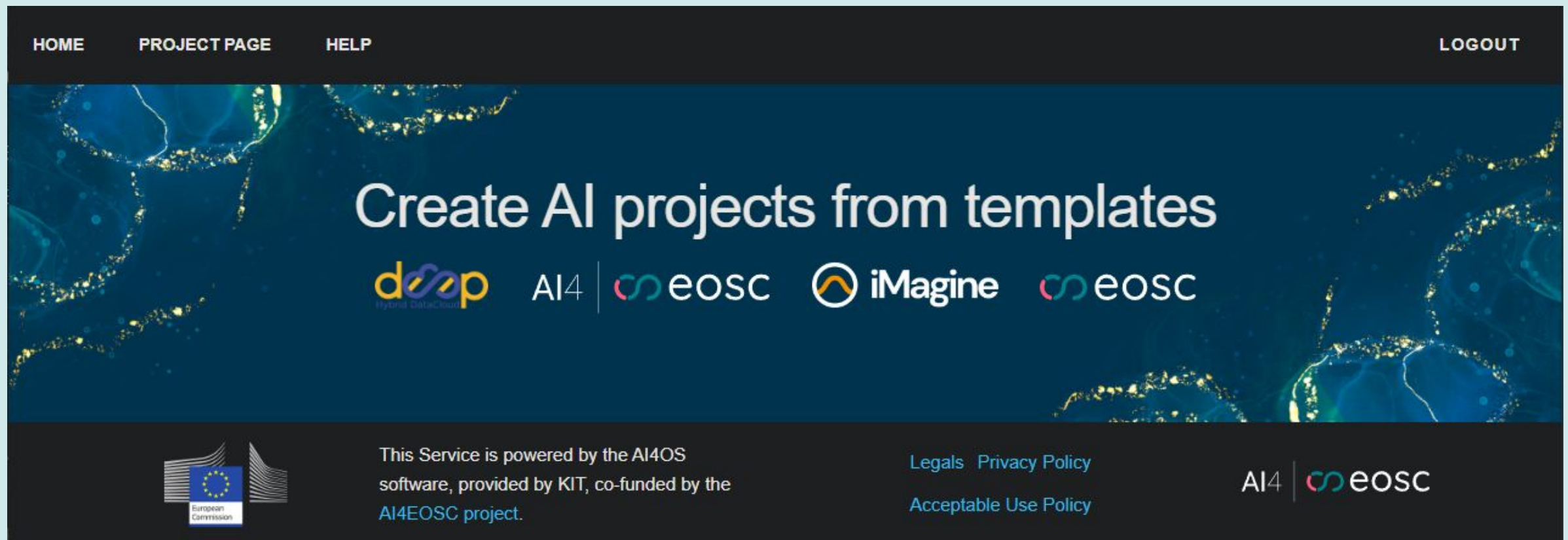
Time for a demo?



git.scc.kit.edu/m-team/ai/demo-advanced-api



Time for questions




The screenshot shows the AI4EOSC project website. The top navigation bar includes links for HOME, PROJECT PAGE, HELP, and a LOGOUT button. The main banner features the text "Create AI projects from templates" and logos for deep Hybrid DataCloud, AI4, eosc, iImagine, and eosc. The footer contains the European Commission logo, a statement about the service being powered by AI4OS software provided by KIT and co-funded by the AI4EOSC project, links for Legals, Privacy Policy, and Acceptable Use Policy, and the AI4 | eosc logo.

HOME PROJECT PAGE HELP LOGOUT

Create AI projects from templates

deep Hybrid DataCloud AI4 | eosc iImagine eosc

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[Acceptable Use Policy](#)


AI4 | eosc

Thank you for your time!

HOME PROJECT PAGE HELP LOGOUT

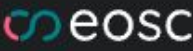
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 AI4 |  iMagine 



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[Acceptable Use Policy](#)

AI4 | 

FAQ

- Flask returns debug info in web page!
Yes, but for frontend debug purposes, DEEPaaS API is not a frontend framework (Yet).