

Edge AI Competition – AOI Defect Classification Guide

Following are five notes about the competition.

- Workflow
- Package your program
- Runtime environment
- Write code
- Evaluation

Workflow

1. Register this topic at Aldea.
2. Download **training data** and train model in your own environment.
3. Package your program as a zip file, upload it to Aldea to perform inference and evaluation.

Package your program

- Prepare a zip file (e.g. program.zip) to include the following files:
 - **start.py** (No modification is allowed)
 - **toolkit.py** (Implement your code here)
 - Other files (including your model file and libraries)
- Please put files start.py and toolkit.py at the root of zip file; do not put these 2 files in any folder.

Runtime environment

- Hardware: We use NVIDIA Jetson Nano. We also have **3 GB RAM limit** and **20 minutes execution** time limit.

- Software: The program is run with Docker. Please refer to [Dockerfile](#) in the downloads.
- Notes
 - If program is out-of-memory or time-out (more than 20 minutes), it will fail.
 - While you write your program, please refer to the Dockerfile. **If you use any other framework or library not in the environment, it will fail.**

Write code

- Test dataset is in the folder [/data](#) of runtime environment, and there are 500 images. (We do not provide them in the downloads.)
 - [/data/test_0000.png](#)
 - [/data/test_0001.png](#)
 - ...
 - [/data/test_0499.png](#)
- Please refer to [program_template.zip](#) while you write your codes.
 - The entry point is [start.py](#). You do not need and can not modify this file.
 - Implement you code in [toolkit.py](#).

```
# Import your library

class Toolkit(object):
    def __init__(self):
        # No code is allowed in this function
        pass

    def load_model(self):
        # Implement here

    def perform_inference(self):
        # Implement here
```

- ◆
 - ◆ `__init__(self)`: no code is allowed here.
 - ◆ You need to implement `load_model(self)` and `perform_inference(self)` at least.
 - ◆ Your program must do the followings: loading model, loading images, and performing inference. No cheating allowed.
- The output filename `result.csv`, and the path is `/output/result.csv`.
 - Please refer to the following format.

ID	Label
test_0000.png	0
test_0001.png	1
test_0002.png	2
test_0003.png	3
test_0004.png	4
test_0005.png	5
...	...
test_0499.png	0

Evaluation

- We evaluate three things of your program: **inference accuracy, loading mode time and inference time.**
- The full marks are 100, containing the following 3 parts.
 - **Part 1: Accuracy: 60**
 - **Part 2: Time (loading model): 10**
 - **Part 3: Time (inference): 30**
- The rule is the same for public leaderboard and private leaderboard.

Following are some notes.

- Accuracy in public leaderboard is based on 40% of test dataset (200 images); accuracy in private leaderboard is based on 60% of test dataset (300 images).
- For the same submission, you will get the same score in public leaderboard and private leaderboard for Time (loading model). This is the same case for Time (inference).
- The final ranking is according to private leaderboard.
- Part 1: Accuracy (correct samples / all samples.)
 - If accuracy is 100%, Part 1 score is 60;
 - if accuracy is 90%, Part 1 score is 54.

- Part 2: Time (loading model)

From (seconds) (included)	To (seconds) (excluded)	Score
0	8	10
8	16	9
16	24	8
24	32	7
32	40	6
40	48	5
48	56	4
56	64	3
64	72	2
72	80	1

For example, if Time (loading model) is 10 seconds, Part 2 score is 9.

P.S. Time (loading model) \geq 80 seconds, Part 2 score is 0.

- Part 3: Time (inference)

From (seconds) (included)	To (seconds) (excluded)	Score
0	15	30
15	30	27
30	45	24
45	60	21
60	75	18
75	90	15
90	105	12
105	120	9
120	135	6
135	150	3

For example, if Time (inference) is 100 seconds, Part 3 score is 12.

P.S. Time (inference) \geq 150 seconds, Part 3 score is 0.