

Manual for GLOBAL AI CHALLENGE (Preliminary)

Proposal 2: Intelligent quality inspection of lane rendering data

1. Introduction

When a navigation service is opened, the map background is generated through data rendering. However, issues with retrieving data may cause errors (such as missing edges or corners, and irregular shapes) in lane-level images rendered using such data. To more efficiently detect error data and reduce labor costs, an inspection model needs to be developed based on commonalities of such data, which will have a higher accuracy. We hope, through this competition, to explore talent in the computer vision field and boost the development of this field.

2. Proposal Description

You will be provided with map rendering data, some of which is annotated. The training set contains an image set of the lane rendering data, and some annotations for such data. There are two test sets, which are marked as A and B respectively and contain only the image set of the lane rendering data. You will need to use your model to detect errors in the given images.

3. Data Description

3.1. Lane Rendering Data

We will provide you with data of lane rendering images. Some of the images have errors, as illustrated in figures 1–7 below, while some are free of errors. Note that there may be multiple errors in a single image.



Figure 1 Center line error (The road center line extends out of the junction.)



Figure 2 Stop line error (The stop line is in the middle of a road.)

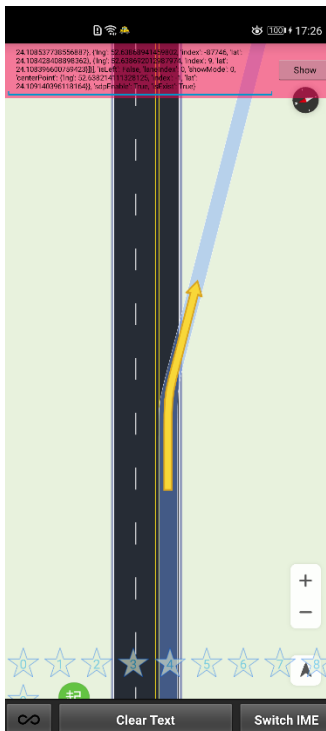


Figure 3 Guiding route error (The navigation route does not match actual roads.)

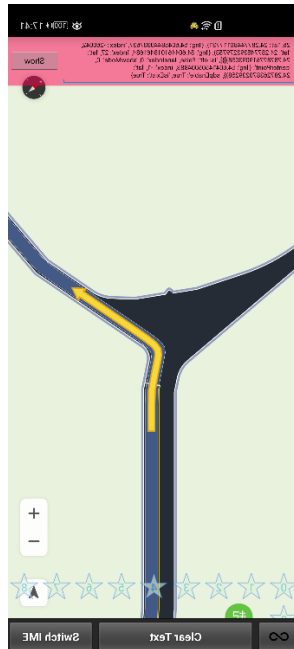


Figure 4 Road shoulder error (The road shoulder is bumpy.)



Figure 5 Road surface error (A part of the road is missing.)

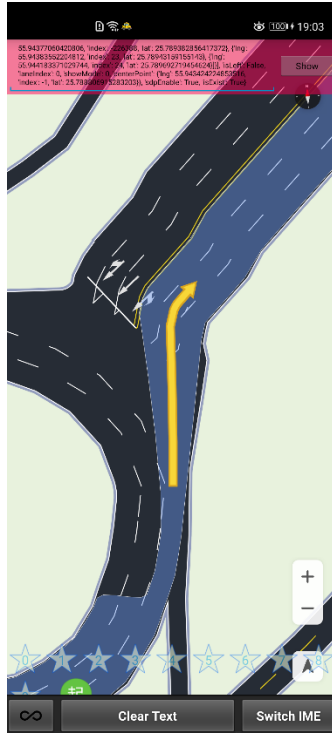


Figure 6 Arrow error (The road marking arrows overlap.)

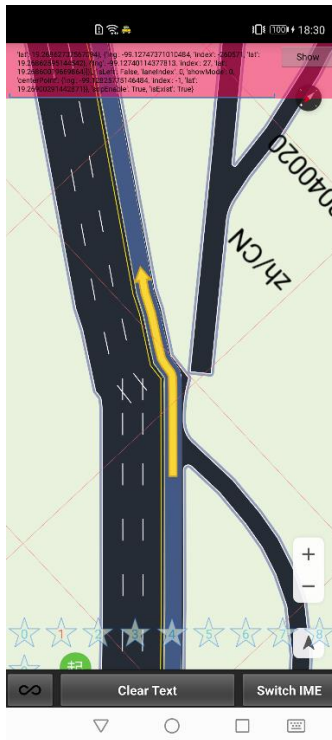


Figure 7 Lane line error (The lane lines overlap.)

3.2. Annotation Data

The annotation data is provided in a CSV file. Each row contains two fields, one indicating the image name, and the other indicating whether the map data shown in the image is erroneous (if yes, the error number will be specified). An annotation data example is as follows:

imagename, defect_type

image_0.png, 1

image_1.png, 0

3.3 Data File Description

Table 1 lists the relevant information of the data set files to be provided during the contest.

Table 1 Data set files

File Name	Type	Description
train_image.rar	Image	Images in the training set
train_label.rar	CSV file	Annotation data in the training set
testA_image.rar	Image	Images in test set A

4. How We Score

You need to build models to predict whether the images in the test set are erroneous, without needing to specify the error types. The area under the ROC curve (AUC) will serve as the scoring indicator. A higher AUC value means a better result, and thus a higher ranking.

5. How to Submit

Submit a CSV file encoded in UTF-8 without BOM. The file shall contain two fields written in the following format:

imagename, defect_prob

The **imagename** field indicates the name of an image provided in the test set, and **defect_prob** indicates the probability that the map data shown in the image is erroneous. Separate the two fields in each row with a comma (,).