

Testing report

This report mainly tests food identification and classification algorithms based on deep learning. In the food identification task, 500 images of food and pictures without food can get the accuracy of the algorithm, running time and model size.

Through testing, it can be concluded that it has higher accuracy, faster detection speed and smaller model.

The food identification algorithm of this report is implemented on the deep learning framework TensorFlow, and the test pictures are all self-collected data sets collected by ourselves.

The obtained part of the detected correct picture is as follows, some of the pictures of the food not detected are as follows, and some of the non-food pictures are detected as shown in the figure. The final result is shown in the figure.



Above picture show that if the position of the food in the picture is central or in the image, the algorithm is easier to detect.



Above picture show that if the position of the food in the picture is at the edge or only a small portion of the food is photographed due to the angle of the shot, or because the camera is shaken, the picture is too blurred, and the algorithm is more difficult to detect the food.



Above picture show that the algorithm can easily detect foods in a circular object (such as a plate, table) or a color composition similar to food (such as grass and vegetables). The reason is that the composition of the activity scene without food comes from our daily life, and there are not many photos for a particular scene, so the training is not enough. If there are more pictures, the trained model will perform better.

	Right food	wrong food	Not food
food	412	65	23
Not food	\	32	468

As can be seen from the above table, the probability of identifying the correct food type from the food image is 82.4%, the probability of identifying the wrong food is 13%, and the probability of not identifying the food is 4.6%. The probability of

identifying food from non-food images is 6.4%.From the data point of view, the detection accuracy is higher.