Hello everyone,

My name is Jackson. Today I’d like to give you a presentation about natural images classification.

In our real life, there are many natural images, such as books, bicycles, apples, computers, mobile phones and so on. It is very important to use a neural network model to classify all kinds of objects accurately. Now we have similar functions in our mobile app. For example, if you want to buy a product, you can upload its photo to Taobao to identify it, and then you can get the product information. Today the model I want to build is the image classification model.

My presentation will include the following contents:

exploring data, classification model, result and contrast, deploying to IOS

You can see here. My data set labels are: cat, person, fruit, airplane, motorbike, car, dog, flower. Here you can see images in the data set.

From the histogram, we can get the number of images in each class.

Here is my classification model. I build a CNN model. It has 2 convolutional layers, 2 Maxpooling layers, 2 dropout layers, a flatten layer, 2 dense layer.

The loss I choosed is categorical crossentropy, the optimize is adam, metrics is accuracy.

We can see the model here clearly. In this picture, we can get parameter numbers.

The process of fitting model is here. In the last epoch, the training accuracy is 97.6%. The val\_accuracy is 89.63%.

And I plot the loss and accuracy variation curve. The blue one is training accuracy ,the orange one is val\_accuracy, the green one is training loss, the red one is val\_loss

In the last, I got the the accuracy on the test set is 88%. The classification report is here.

In this page, I used the the same data set to train the AutoML model. AutoML has a very good result. The precision and recall are nearly 100%. There is still a big gap between my model and it. So my future planes are …… I will also try Harry's model, use the fine tune model transfer to improve the model.

In the last, I deploy my model to the IOS. Here is my app and here is the app interface. Let’s see this demo video.

That’s all my presentation. Thank you for listening.