LOGISTIC REGRESSION

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TRAINING SETS: UNRIPE BANANA. RIPE BANANA

All taken from kaggle.com

Figure 1. Dataset of ripe bananas.

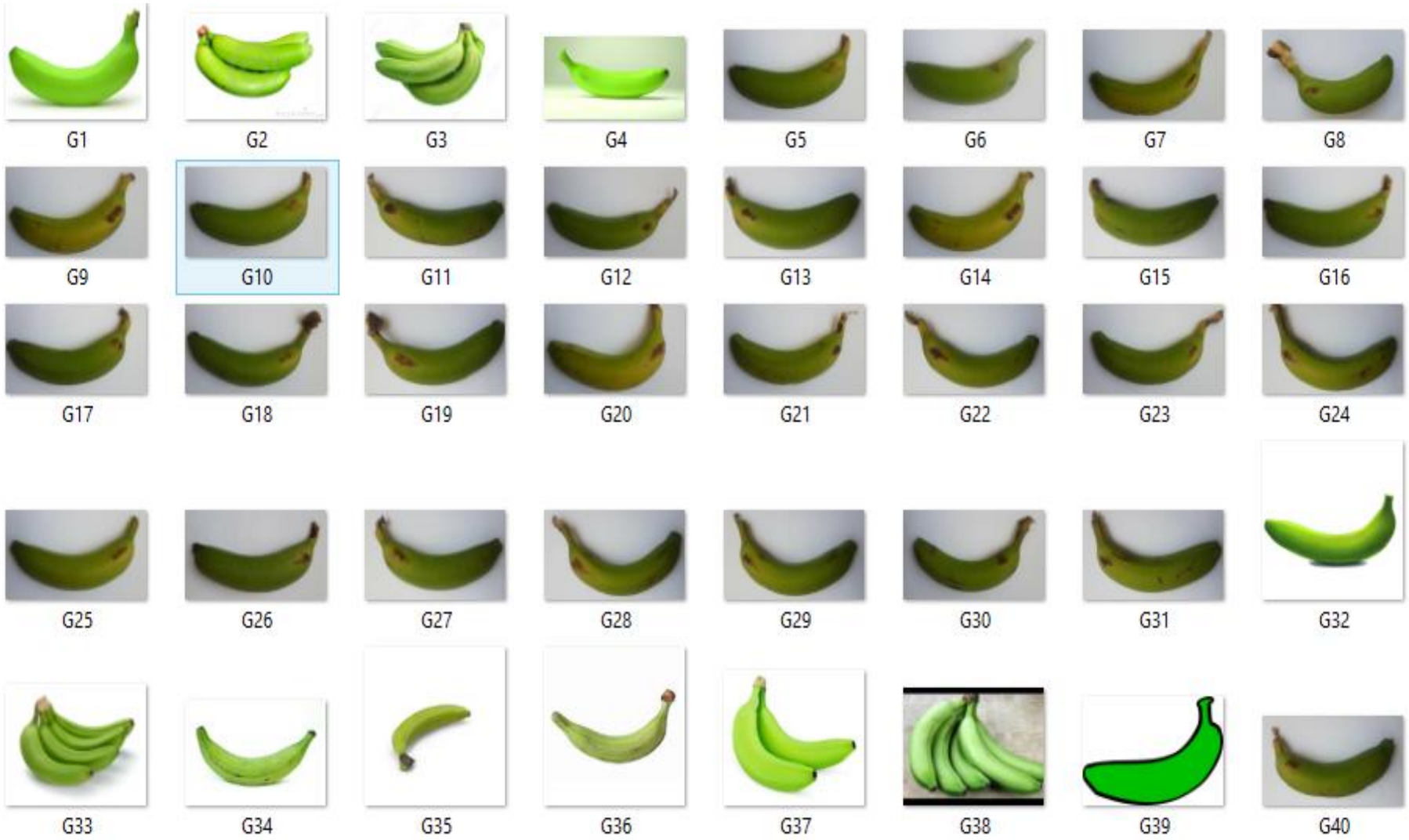
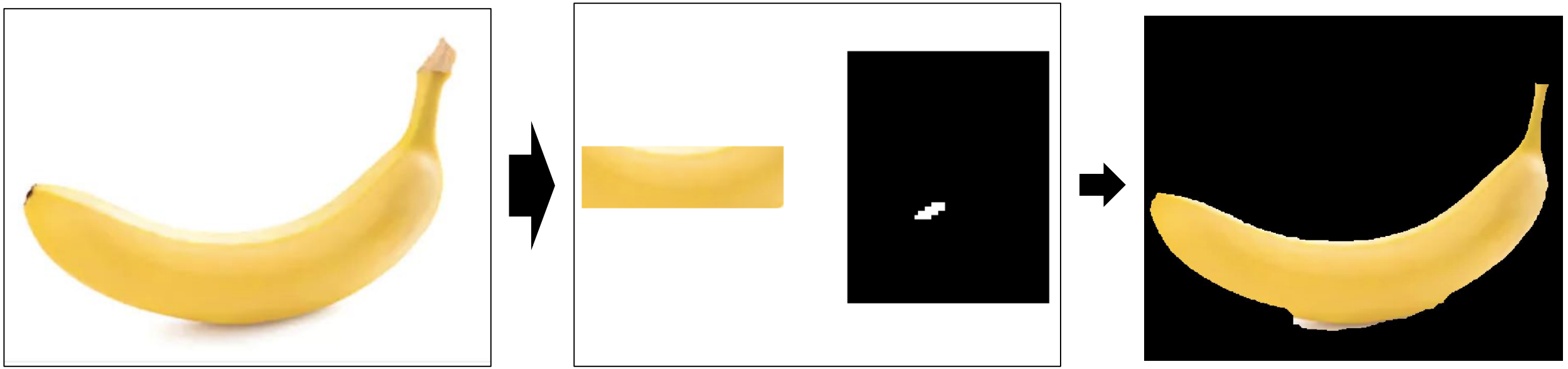


Figure 2. Dataset of unripe bananas

FEATURE EXTRACTION



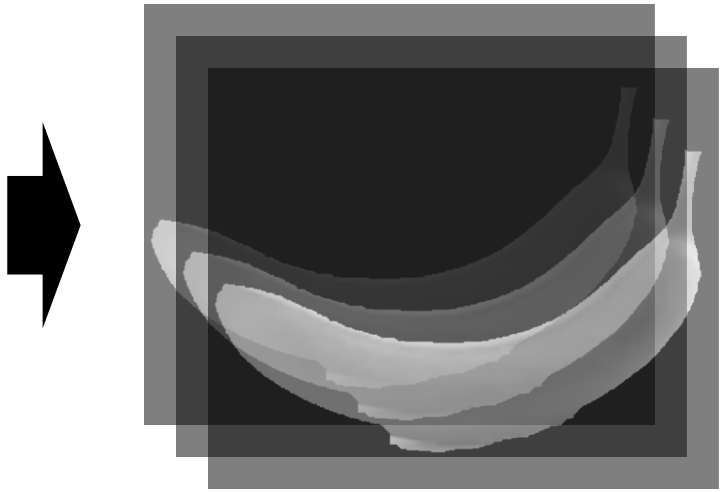
DATASET IMAGE

NON-PARAMETRIC SEGMENTATION

COLOR IMAGE

RGB CHANNELS' MEAN

COLOR SEGMENTED IMAGE



RGB CHANNELS

CALCULATE MEAN VALUE OF EACH CHANNEL

The final weights are :

$$w = [-23.86 \quad 53.05 \quad 0.8426 \quad 14.84]$$

which describes the plane equation

$$z = \frac{(-23.86 - 53.05x - 0.8426y)}{14.84}$$

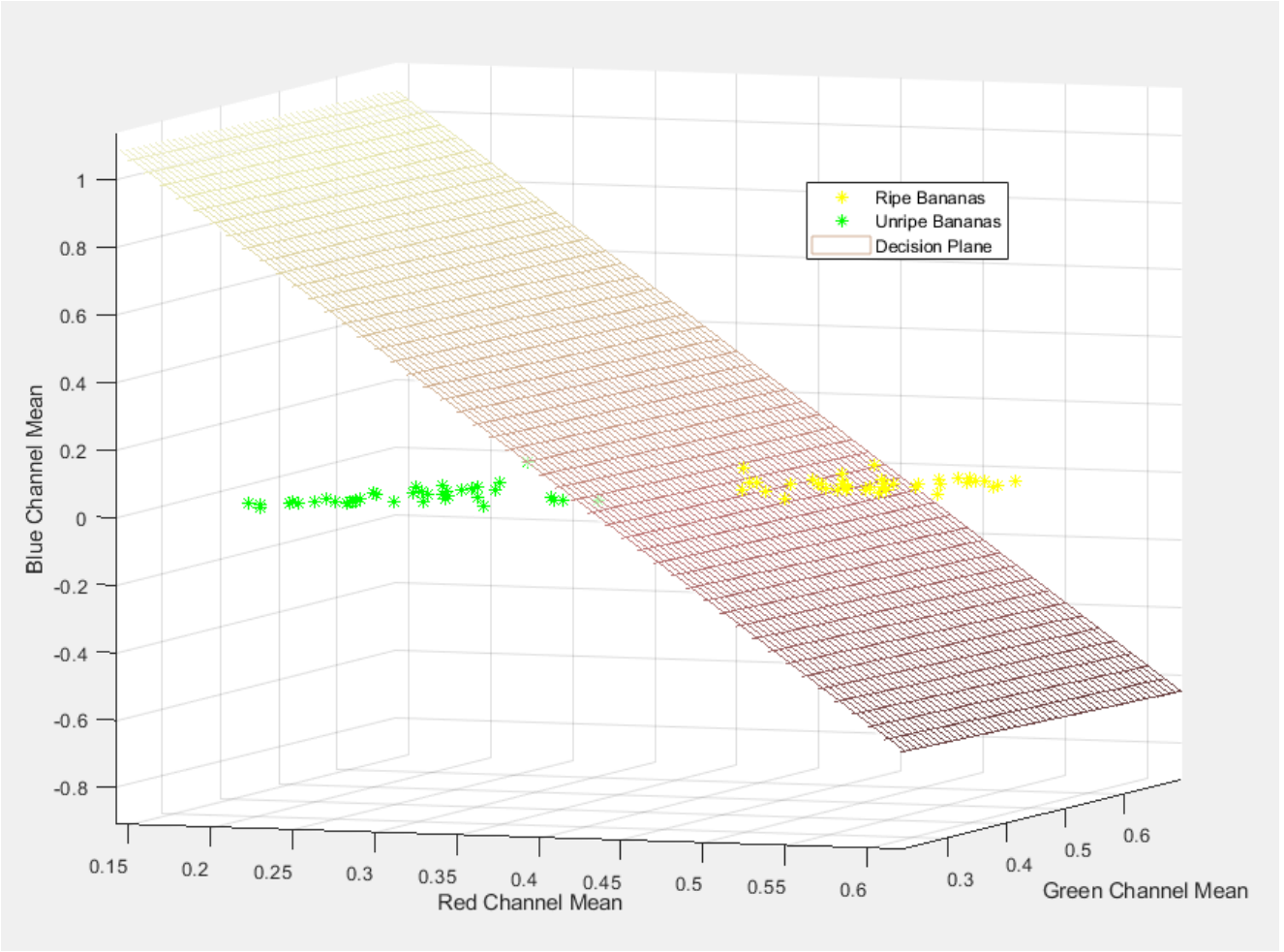


Figure 3. Feature plot of ripe and unripe bananas with the calculated decision plane.

With the trained dataset and the smooth continuous sigmoid function as the activation function, we can infer a test banana to be either ripe or unripe. Fig. 4 are seven bananas ranging from unripe to ripe.

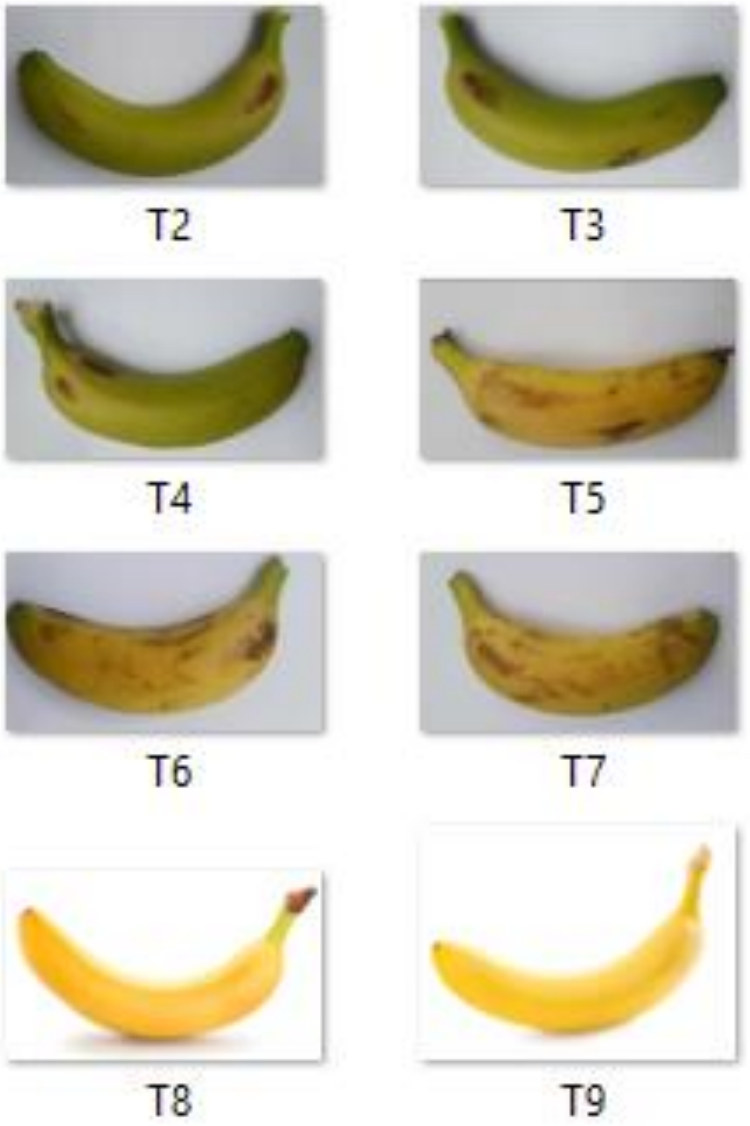
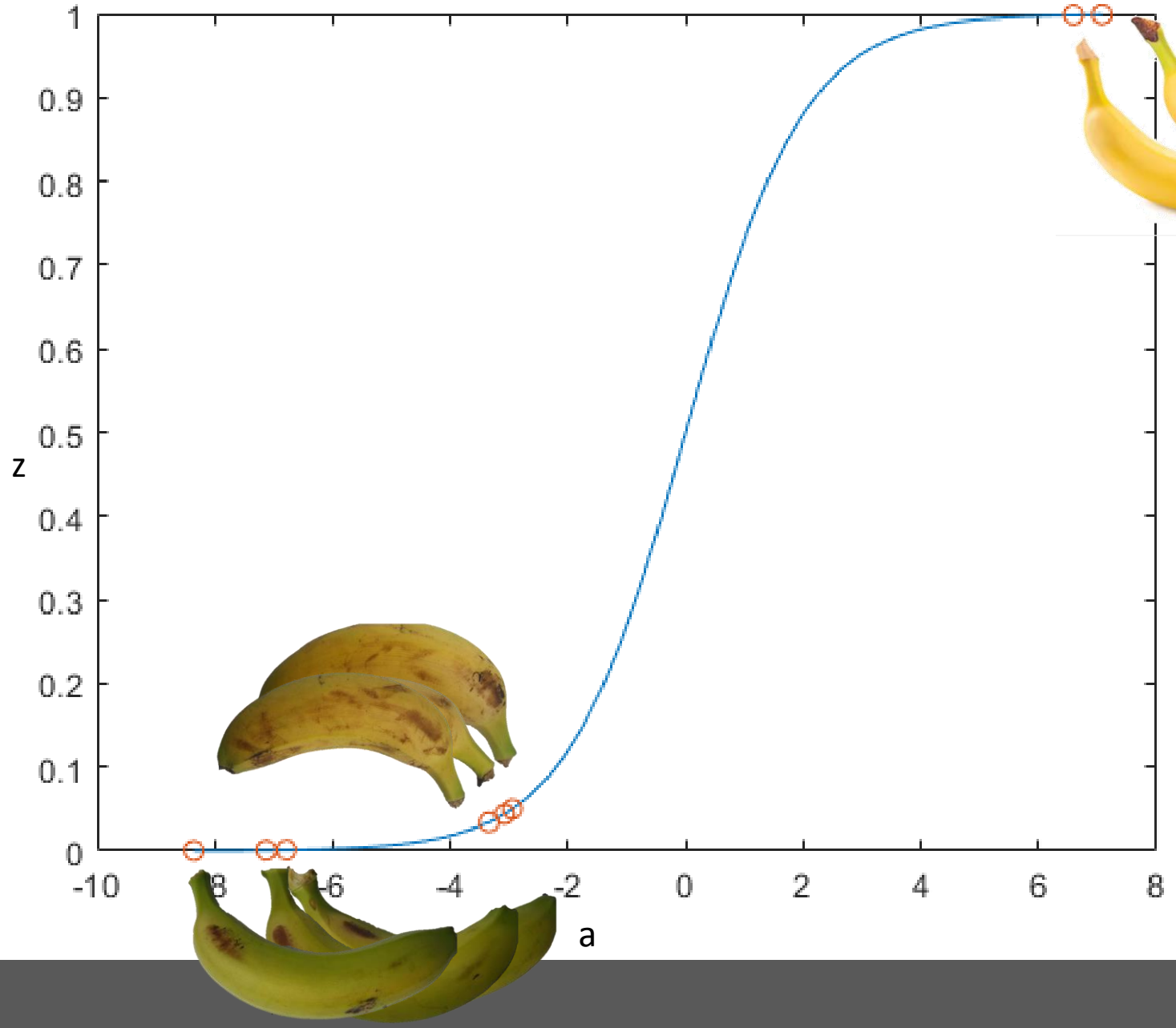


Figure 4. Data set of test images



Visually, we can see that the bananas were sorted successfully

Figure 5. z = 0 represents unripe, and z = 1 represents ripe. The orange points are those of the test data with its corresponding test image.

I thank LJ and Rhei for the brainstorming and help in this activity.

I rate myself 10/10 for accomplishing all requirements