Subtask 1: The No-Entry Sign Detector

# Training Performance

Training performance improved rapidly over the three stages. The initial stage had only 100% rate of true and false positives by evaluating every image to be positive. The two next stages quickly reduced the false positive rate to 1.65% and 0.05% respectively. The true positive rate remained at a constant 100% throughout, exposing the model’s bias towards positive images on the training data. This is because the positive images are very straightforward and are tested on the same data that it is trained on.

# Testing Performance

Compared to the training, the model performed considerably worse on testing data than training data. The true positive rate averaged \_\_\_ and the false positive rate averaged \_\_\_\_. Due to the testing positives being partially obscured while varying much in shape and colour, there is a considerable drop of the true positive rate from the training performance. The model is unable to spot signs without the high contrast borders that are present in the positive training images but is also unable to distinguish between brighter areas in images and the symbol on the stop sign. This is most likely due to the regularity and lack of variety of the positive training images.

Performance could be improved with a wider variety of training images, both positive and negative. Given the drastic drop in false positive rates seen in the training, it is also reasonable to believe further stages of training would result in a better classifier.