

In Perceptron Algorithm, Why use  $y - \hat{y}$  Instead of  $\hat{y} - y$ ?

In Perceptron algorithm,  $\text{error} = y - \hat{y}$ . so if  $\hat{y}$  is bigger than  $y$ , error must be negative value, and weight value will be decreasing.

The opposite case, in same logic, the weight value will be increasing.

but if we denote  $\text{error} = \hat{y} - y$ , the weight value will be adjusted in the wrong direction.

In this algorithm, if  $\hat{y} > y$ ,  $\hat{y}$  must be decreased.

else if  $\hat{y} < y$ ,  $\hat{y}$  must be increased. so we use  $\text{error} = y - \hat{y}$ .