SML

Practice

Q1. Find an update equation for β in a perceptron where the error function

$$E(\beta, \beta_0) = e^{-y_i(\beta^\top x_i + \beta_0)} \text{ where } x_i \text{is a mis-classified point.}$$

Q2. Suppose for a binary classification task, there are two orthogonal Rosenblatt' perceptrons to be used. To classify a point x_i, the decision rule is to compute "sign of the summation of distances of x_i from each perceptron' decision boundary". Find the update rule for one of the perceptrons.

Q3. Suppose there are only two mini-batches to be used for training a network which has one batch-normalization layer. The two mini-batches for a given node are -

- Batch 1 pre-activations - { -1, 0, 1}
- Batch 2 pre-activations - { -2, 0, 5}

Compute the mean and variance that will be used during inference/testing?