CSC421/CSC2516 Winter 2019 Homework 3

1. Dropout
2. Find expressions for E[y] and Var[y] for a given x and w.

Since are i.i.d and are independent, are independent from each other.

1. Determine as a function of such that .

Therefore: .

1. Prove the expression and give the expression of .

Substituting

Substituting

Therefore, we have

1. Binary Addition

Let be a vector containing and as the binary input at time t, be a vector containing and as the hidden state at time t, be a scaler of the output binary digit, be hard threshold activation function operated at unit cell level.

We set:

For all ,