

Assignment 3 Report

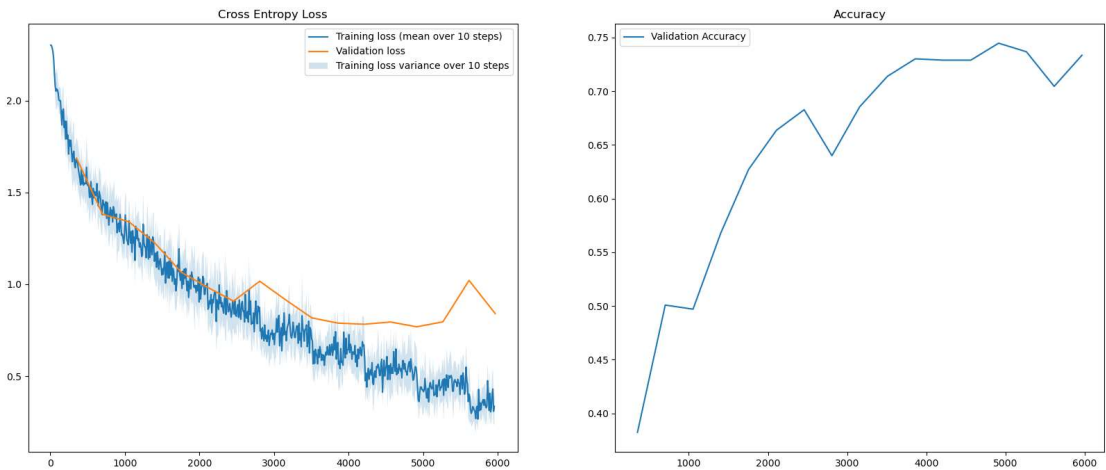
Task 1

This is appended as scanned handwriting

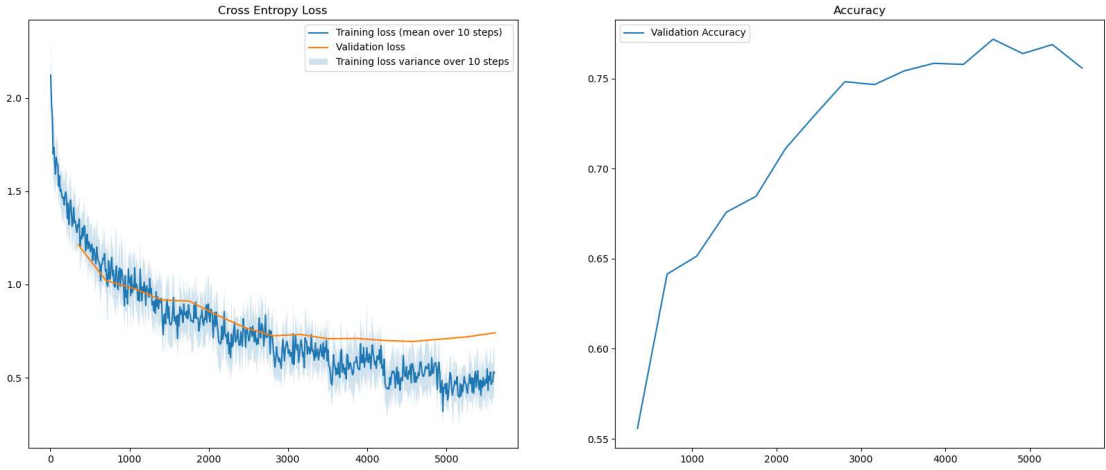
Task 2

Task 2b)

Train acc ca 0.8!



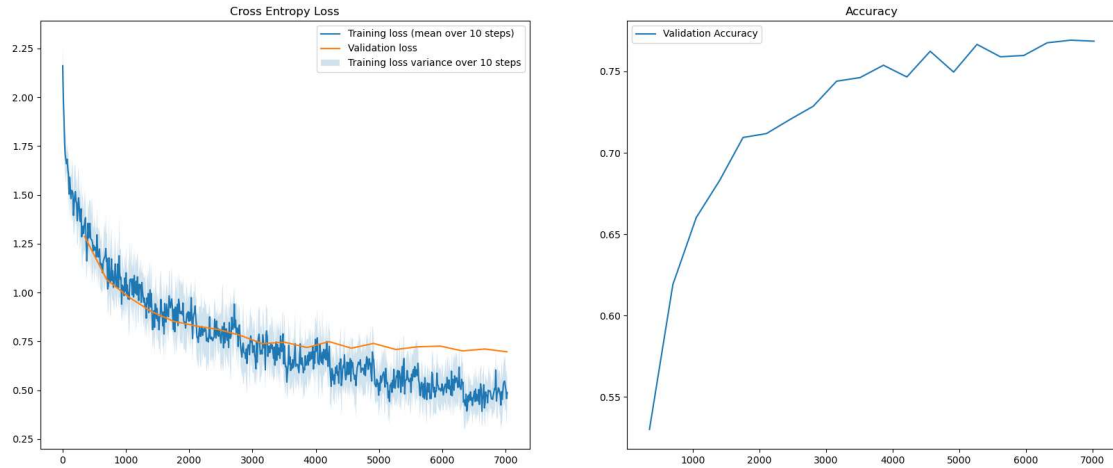
Task 3



Taask 3a) The first improved model introduces BatchNormmilization between the covolutional and maxpool

layer, and also uses a smaller kernel of 4x4 instead of 5x5. The 2nd improved model uses the sigmoid activation function for the output layer. The training time is a lot longer since it runs for all 10 epochs. As these were enough to achieve the task criteria, but not at all any good. I will explain the network architecture of the network in e!

Task 3b) Table of accuracy and loss of both models. And also a plot of the best model.



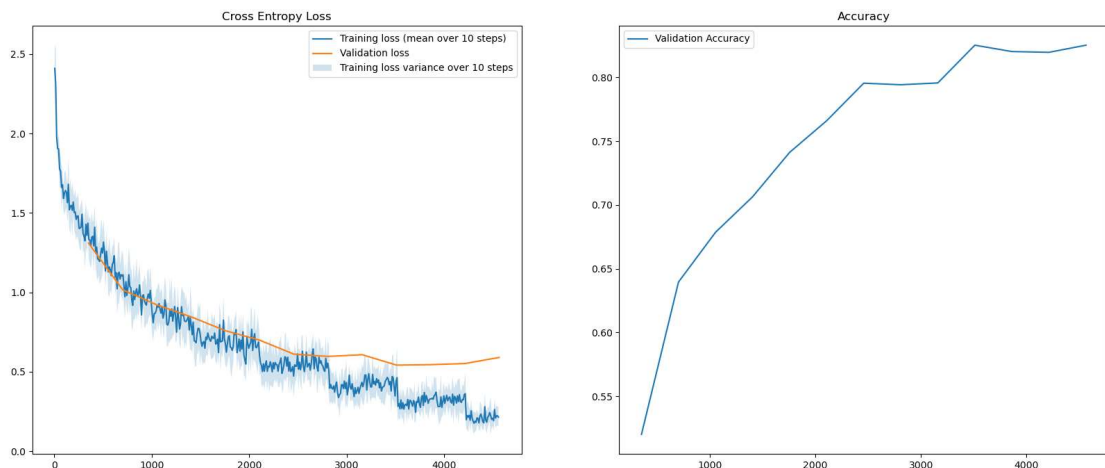
Task 3c) What worked: One size smaller kernel and Sigmoid activation function for output layer What didn't work: Sigmoid for all the layers

The most amount of work is redesigning the structure but is needed to achieve 80% so doing that for task e :)

Task 3d) The plot above with the sigmoid activation function for the output layer

Task 3e) Using ReLU in convolutional layers and sigmoid on output layer. Kernel of 4. Improving this by using adam optimizer with momentum = 0.9.

Redesigning the structure to the proper structure from the assignment text: (conv-relu-conv-relu-pool)x3 → (affine)x2 → softmax. Layer 4 and 5 the same, with sigmoid function. Final test accuracy is 0.825!



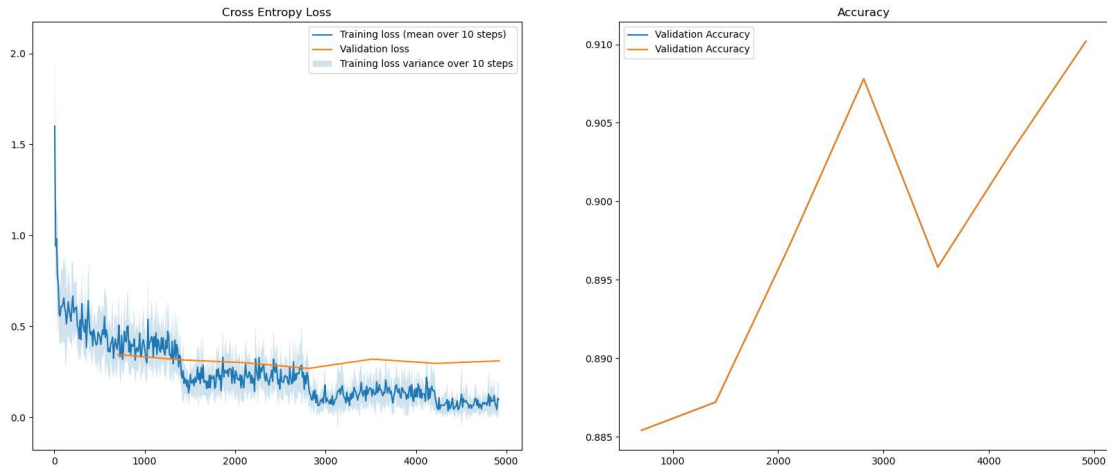
f) We observe that the training loss keeps decreasing even though the validation loss flattens out. This could be

because the model is overfitting and therefor not improving on unseen data that it is not trained on.

Task 4

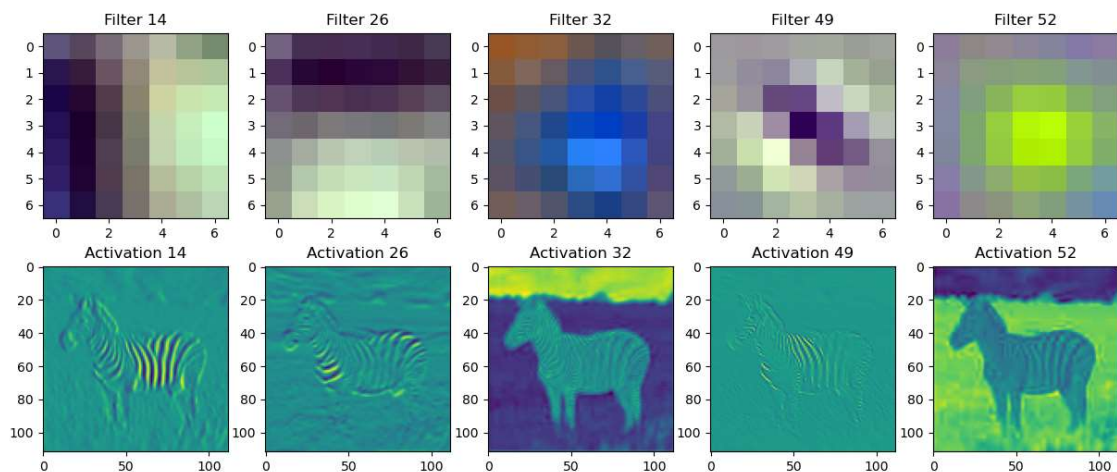
Task 4a)

final test accuracy = 0.9



Task 4b)

This was kinda hard to se but here are my guesses based on structure of the filters. First one is horizontal, next is vertical. The last three is kinda hard to guess, but i think one is contrast and one is edge filtering maby? Maby four is sharpness?



Task 4c)

I could not do this as the last "Øvingstime" was used to complete the other tasks

In []: