

Exercise 12

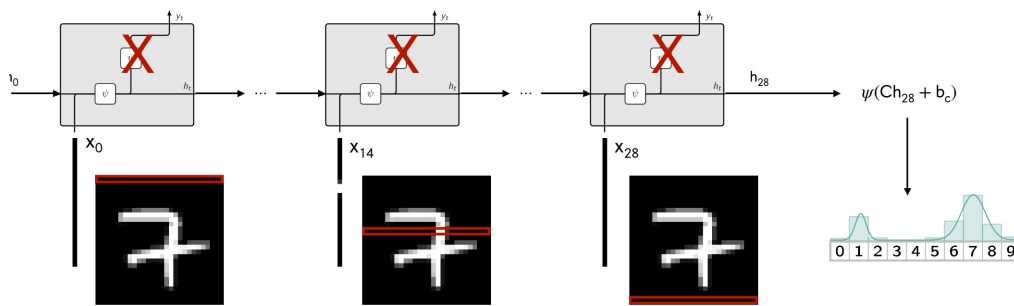
Advanced Methods in Medical Image Analysis, Julia Wolleb

Deadline: 27.05.2024

Exercise 12: RNNs for MNIST classification

In this exercise you will develop a RNN for the task of image classification of the MNIST dataset. For this, now we will interpret the 2D image as a sequence of rows. Follow the code snippet `mnist-classification-rnn.py`. At each time point a single row is used as input for the RNN (as shown in the lecture). The RNN structure you need is the *many to one* structure as described in the lecture.

Implement a basic RNN cell in PyTorch and use this for the classification of the generated sequence of the MNIST dataset. You do not need to use convolutions in this example.



- Design and implement a basic RNN for classification.
- Select the correct loss function.
- Plot the training loss curve, as well as the training and validation accuracy. You can (but don't have to) use Tensorboard for visualization.
- Hand in your code, which does not throw exceptions.