Exercise for module A2I2 of at University of applied Studies in Rosenheim.

Exercise for lecture #13

Recurrent Neural Networks (RNNs)

Goal

The goal of this exercise is to get yur hands dirty with with some RNN work.

Task 1

This task is about to guess the weight matrices. Just see how the hidden state evolves through the network over time.

Storyline:

In this story, you live with other students in one house. One of your friends like to cook 😃

The drawback is that he can cook only 4 dishes (he is a guy from Germany):

- Schweinsbraten
- Pasta
- Soup
- Haxen

On the other hand he likes to ride his bycicle whenever the weather is sunny outside. In this case he reuses the dish from the day before. If it rains he will cook a new dish.

He is going to cook always in the same order: Schweinsbraten -> Pasta -> Suppe -> Haxen.

1. Define the hidden state tensors and the input vektors.
2. Define the matrices following the rules above.
3. Start with the RNN defined in the Notebook - RNN.ipynb.

Task 2

In this task you have to deal with time series data using RNNs and Keras. Please use the Notebook and vary the parameter.

1. Modify the Notebook - RNN-Keras.ipynb in a way that it can work with time series.

2. Vary the parameter.