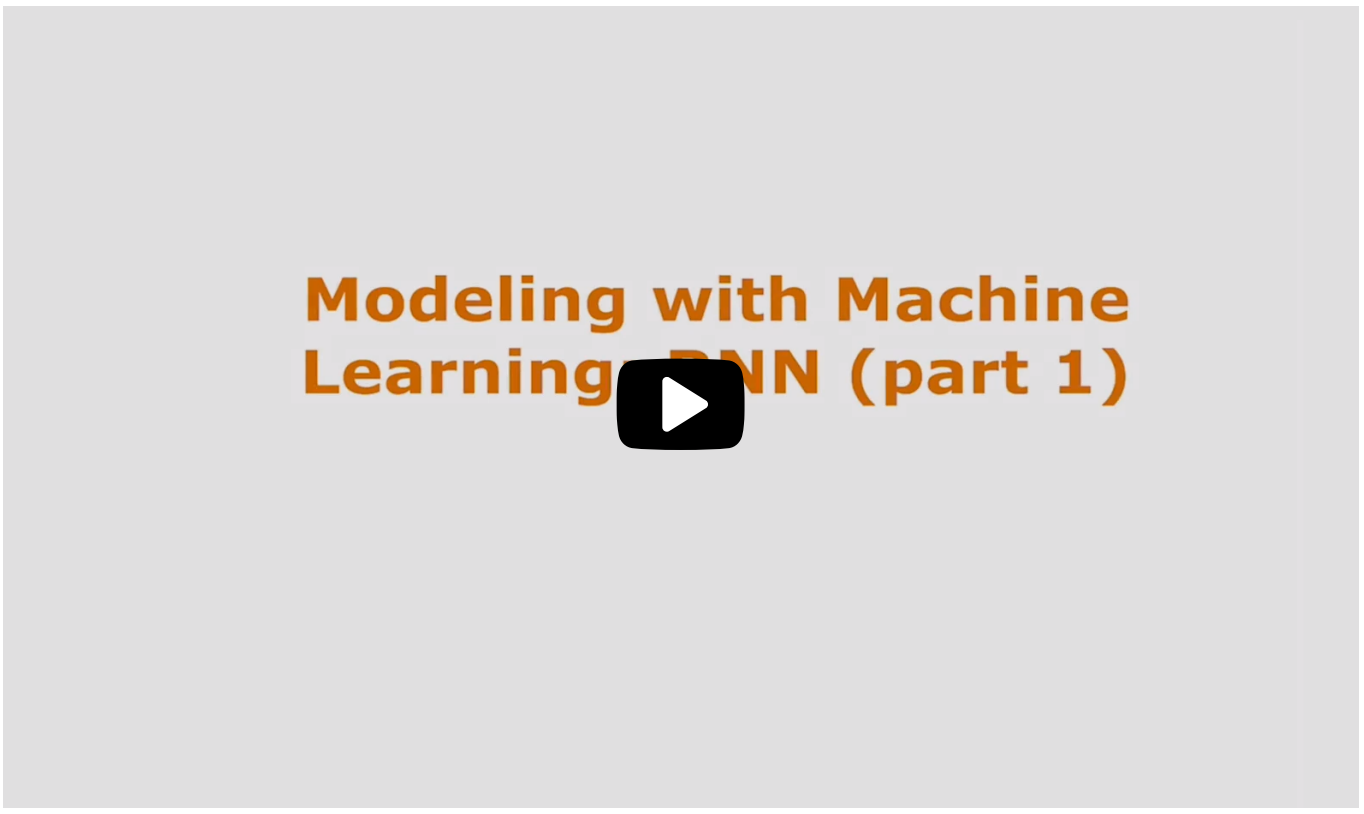
2. Introduction
Introduction to Recurrent Neural Networks



0:00 / 5:50 1.0x

Start of transcript. Skip to the end.

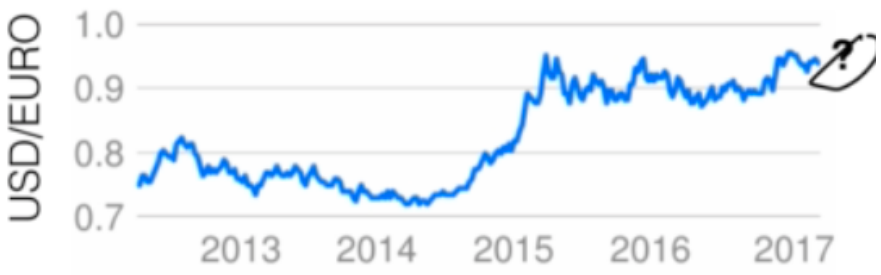
Hello.
Welcome back.
Today we're going to be talking about how to model sequences.
In particular, we're going to be using neural networks
to model sequences.
And as part of that, we will introduce
recurrent neural network models.
These lectures will be in two parts,
and we will start with part number one.

Video
Download video file

Transcripts
Download SubRip (.srt) file
Download Text (.txt) file

Encoding Sequences with Feed-Forward Neural Networks

1/1 point (graded)
We have a temporal dataset of USD/EURO conversion rate from late 2012 to early 2017. Our goal is to predict the value of USD/EURO at the next timestep of early 2017.



If we are trying to encode the data into feature vectors for a feed-forward neural network, which of the following is the most viable strategy?

- (•) slide a window of size 10 and use the most recent 10 points as a feature vector ✔
- ( ) calculate the mean and the standard deviation of the entire sequence, and use them as a feature vector
- ( ) Use the length of the sequence and the standard deviation as a feature vector

Solution:

As discussed in the lecture, a common scheme to encode sequences is to use sliding windows and use data inside the most recent sliding window.

Submit You have used 1 of 2 attempts

Answers are displayed within the problem

Context for Predicting Next Word

1/1 point (graded)
What is the issue with predicting the next word in the sentence using the previous three words as context?
(Choose all that apply.)

- [x] Some words might need more context to predict ✔
- [x] Some words might need less context to predict, and additional words could be inefficient ✔
- [x] Some words might be closely related to words far away in the sentence ✔
- [ ] Longer words are harder to predict because they have more letters

✔

Solution:

The amount of context we need to predict a word depends on the word. Therefore, some words could need more or less than 3 previous words as context. In addition, words could be related to other words far away in the sentence. Lastly, since we one-hot encode each of our words, the length of the word is irrelevant. All words, regardless of word length, have the same length one-hot encoding.

Submit You have used 2 of 2 attempts

Answers are displayed within the problem

Discussion

Show Discussion

Topic: Unit 3 Neural networks (2.5 weeks):Lecture 10. Recurrent Neural Networks 1 / 2. Introduction