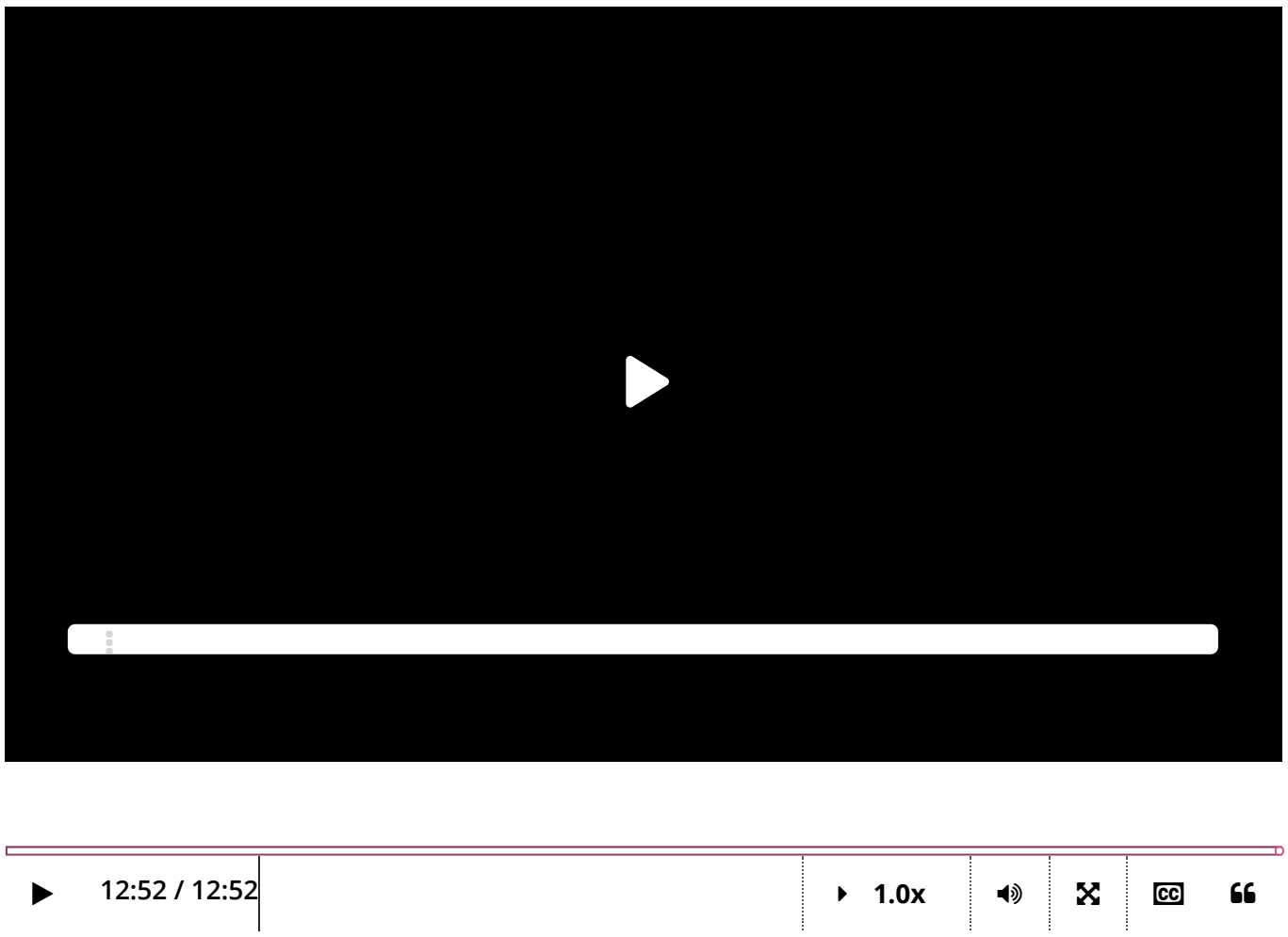
6. Word Embeddings
Word Embeddings



language,
how to do the composition of the language,
and I would like to close this lecture by saying
there are lots and lots of exciting things
that are happening in NLP everyday,
and I'm sure by the time you're watching it,
these numbers are going to be better.
This is a very fast evolving field
nowadays, and I'm really happy to be part of it.

End of transcript. Skip to the start.

Video
Download video file

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

Understanding Word Embeddings

1/1 point (graded)
Which of the following options is correct about word embeddings presented in the lecture.

- The goal of word embeddings is to increase the sparsity of the encoded input word features
- We would like similar words to have word embeddings that are far apart in order to minimize word sense disambiguation
- One way to learn word embeddings is by maximizing cosine similarity between words with related meaning. ✔
- To do a good job, word embeddings have to manually encoded by a natural language domain expert

Solution:

We would like to learn word embeddings that are much less sparse than one hot vector based encoding because reducing the sparsity of input features lowers the sample complexity (number of training examples required to do an accurate task) of the downstream text classification task.

In order to do the above, we should cluster the similar or related words together in the embedding dimension space. For instance, the words "dog" and "samoyed" must have similar embedding representations than "dog" and "lipstick"

Word embeddings are practically very useful because they can be learnt without any significant manual effort and they generalize well to completely new tasks.

Submit You have used 1 of 2 attempts

Answers are displayed within the problem

Sentence Embeddings vs bag-of-words

1/1 point (graded)
Consider the following two sentences with very different meanings:

(1) I ate pizza with my friend

(2) I ate my friend with pizza

- [x] Bag of words encoding approach would lead to identical encodings for both these sentences ✔
- [ ] Bag of words encoding approach would be able to successfully differentiate the above two sentences
- [ ] Recurrent neural network (e.g., LSTMs) based approach would lead to identical encodings for both these sentences
- [x] Recurrent neural network (e.g., LSTMs) based approach would be able to successfully differentiate the above two sentences ✔

✔

Solution:

Bag of words approach sums up all the word embedddings in order to encode an input sentence. Hence, it cannot capture the ordering of these words within a sentence.

LSTM or Recurrent Neural network based approaches encode an input sentence into a context vector capturing more than just a summation of its constitutent parts together.

Submit You have used 1 of 1 attempt

Answers are displayed within the problem

Discussion

Show Discussion

Topic: Unit 5 Reinforcement Learning (2 weeks) :Lecture 19: Applications: Natural Language Processing / 6. Word Embeddings