

Lab Help

Assignment 4: Word Embeddings

Welcome to the fourth (and last) programming assignment of Course 2!

In this assignment, you will practice how to compute word embeddings and use them for sentiment analysis.

- To implement sentiment analysis, you can go beyond counting the number of positive words and negative words.
- You can find a way to represent each word numerically, by a vector.
- The vector could then represent syntactic (i.e. parts of speech) and semantic (i.e. meaning) structures.

In this assignment, you will explore a classic way of generating word embeddings or representations.

• You will implement a famous model called the continuous bag of words (CBOW) model.

By completing this assignment you will:

- Train word vectors from scratch.
- · Learn how to create batches of data.
- Understand how backpropagation works.
- Plot and visualize your learned word vectors.

Knowing how to train these models will give you a better understanding of word vectors, which are building blocks to many applications in natural language processing.

Outline

- 1 The Continuous bag of words model
- 2 Training the Model
 - 2.0 Initialize the model
 - Exercise 01
 - 2.1 Softmax Function
 - Exercise 02
 - 2.2 Forward Propagation
 - ∘ Exercise 03
 - 2.3 Cost Function
 - 2.4 Backproagation
 - Exercise 04
 - 2.5 Gradient Descent
 - Exercise 05
- 3 Visualizing the word vectors

1 of 2

2 of 2