Week 4

Natural Language Processing with Probabilistic Models

Week 4

Discuss this week's modules here.

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Word embeddings with neural networks

Learn about how word embeddings carry the semantic meaning of words, which makes them much more powerful for NLP tasks, then build your own Continuous bag-of-words model to create word embeddings from Shakespeare text.

Key Concepts

- Gradient descent
- One-hot vectors
- Neural networks
- Word embeddings
- Continuous bag-of-words model
- Text pre-processing
- Tokenization
- Data generators

Less

Lecture: Word Embeddings

Video: Overview 2 min — Resume

Video: Basic Word Representations 3 min

Video: Word Embeddings 3 min

Video: How to Create Word Embeddings 3 min

Video: Word Embedding Methods 3 min

Video: Continuous Bag-of-Words Model 3 min

Video: Cleaning and Tokenization 4 min

Video: Sliding Window of Words in Python 3 min

Video: Transforming Words into Vectors 2 min

Lab: Lecture Notebook - Data Preparation 30 min

Video: Architecture of the CBOW Model 3 min

Video: Architecture of the CBOW Model: Dimensions 3 min

Video: Architecture of the CBOW Model: Dimensions 2 2 min

Video: Architecture of the CBOW Model: Activation Functions 4 min

Lab: Lecture Notebook - Intro to CBOW model 30 min

Video: Training a CBOW Model: Cost Function 4 min

Video: Training a CBOW Model: Forward Propagation 3 min

Video: Training a CBOW Model: Backpropagation and Gradient Descent 4 min

Lab: Lecture Notebook - Training the CBOW model 40 min

Video: Extracting Word Embedding Vectors 2 min

Lab: Lecture Notebook - Word Embeddings 20 min

Lab: Lecture notebook: Word embeddings step by step 1h

Video: Evaluating Word Embeddings: Intrinsic Evaluation 3 min

Video: Evaluating Word Embeddings: Extrinsic Evaluation 2 min

Video: Conclusion 2 min

Assignment: Word Embeddings

Programming Assignment: Word Embeddings 3h Due Oct 19, 1:59 AM CDT

Reading: Acknowledgments 10 min