

Outline

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1 Introduction

2 Foundations

2.1 Wikidata

2.2 Taxonomy

2.2.1 Ontology

2.2.2 Directed graph

2.2.3 Walks and paths

2.2.4 Cycles

2.2.5 Acyclic graph

2.2.6 Class

2.2.7 Statement

2.2.8 Taxonomy

2.2.9 Subclass-of relation

2.3 Similarity

2.3.1 Notion

2.3.2 Semantic similarity

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2.4 Neural networks

2.5 Text processing

2.5.1 Bag-of-words

2.5.2 N-gram

2.5.3 Skip-gram

2.5.4 Count-based word embeddings

2.5.5 Predictive word embeddings

3 Comparison of neural networks

3.1 Neural network language models

3.1.1 Continuous Bag-of-Words

3.1.2 Skip-gram with negative sampling

3.1.3 ?GloVe?

3.2 Neural networks for graph representations

3.2.1 Recursive neural networks

3.2.2 Deep neural networks

4 Algorithm

4.1 Baseline algorithm

4.2 Skip-gram model