Problem: Sentence Similarity Measurement

Given two sentences, measure their similarity:

"The product also streams internet radio and comes with a 30-day free trial for realnetworks' rhapsody music subscription. The device plays internet radio streams and comes with a 30-day trial of realnetworks' rhapsody music service."

Approach: Multi-Perspective Sentence Representation and Structured Similarity Measurement

Part 1: Sentence Representation

to represent each sentence, we use multiple types of convolution and pooling

Part 2: Structured Similarity Measurement

sentence representations compared by structured similarity measurement layer

each uses multiple similarity metrics for vector comparison

Experimental Results on Three Datasets

Experimental Setup

- Classification: Microsoft Research Paraphrase Corpus (MSRP)
- Similarity: Sentences Involving Compositional Knowledge (SICK)
- Similarity: Microsoft Video Paraphrase Corpus (MSRVID)
- multiple embeddings: 300-dim GloVe (all tasks) 200-dim POS (MSRP only) 25-dim PARAGRAM (MSRP only)
- number of filters in Block A: 525 (GloVe+POS+PARAGRAM) for MSRP 300 for SICK/MSRVID
- embedding updating for MSRP only
- hinge loss for MSRP, KL-divergence loss (Tai et al., 2015) for SICK/MSRVID

References

- J. Wieging, M. Bansal, K. Gimpel, K. Livescu, and D. Roth. 2015. From paraphrase database to compositional paraphrase model and back. TACL.

code available: hohocode.github.io/textSimilarityConvNet/