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High-dimensional word spaces: Models of human semantic cognition or engineering approximations to meaning?

Abstract:

Word spaces are computational models of word meaning that utilize distributional patterns of words to represent semantic similarity in terms of spatial proximity. Such models have been used for over a decade, and have demonstrated their mettle in numerous experiments and applications. They are now on the verge of moving from research environments to practical deployment in commercial systems.

However, although extensively used and intensively investigated, our theoretical understanding of word spaces remains unclear at best. For example, in what sense are they models of meaning, and what is meaning anyway? Do word spaces constitute pertinent models of human semantic cognition, or should we view them more as engineering approximations to meaning? Both standpoints can be found in the literature, but there is seldom, if ever, any motivation for a certain standpoint.

In this talk, I wish to discuss these latter questions: do word spaces have any cognitive relevance, and if so: what are their merits, drawbacks and boundaries as cognitive models? Or are they better viewed exclusively as engineering tools, and if so: what can we and can't we use them for, and how can we improve their usefulness as computational tools?