A Temporal Decay Model for Mapping between fMRI and Natural Language Annotations

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Presentation Abstract Summary Several research groups have shown how to correlate fMRI responses to the meanings of presented stimuli. We study fMRI data gathered from subjects watching an episode of BBC's Sherlock. Previous work demonstrated that a combination of applying shared representations and semantic sentence embeddings while incorporating temporal dynamics information enabled the creation of high-quality bidirectional mappings between fMRI responses and natural language representations (Vodrahalli et al, 2017). However, in this previous work, the methodology for incorporating previous time points was very uninterpretable from a cognitive neuroscience point of view. In this short paper, we present novel tweaks to the temporal dynamics methodology of Vodrahalli et. al. (2017) which result in great improvements in cognitive interpretability with only small penalties in overall accuracy.

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Keywords

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