

Using multi-modal markers for importance in academic lecture understanding

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Academic lectures provide students with information of various importance for the learning outcome. In order to successfully integrate new knowledge with their existing body of knowledge, students need to identify important aspects of any lecture. When computerized tools are used to record a lecture and make content available to students, it would be helpful if such systems could identify the importance of different parts of the lecture as well to make it accessible for contextualised querying and summarization.

There is an established body of research in natural language processing that focuses on the integration of lexical, acoustic/prosodic, textual and discourse features for effective summarization. The combination of different modalities achieves more accurate results than any modality alone. It is further suggested that it is useful to augment the combined features mentioned with behaviour. Behaviour is frequently under-utilised as a modality because it is treated as a contextual footnote to speech when it can be equally meaning bearing and can often signal meaning prior to verbalisation.

In this paper, we will demonstrate how an approach based on the systemic-functional theory of language (SFL) can help to jump start the analysis of given video and audio recordings of lectures. The results demonstrate the benefit of the alignment of behavioural, gestural, acoustic and language features to identify importance in spoken discourse.