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Enhancing multimedia document modeling through extended orbit-based rhetorical structure: an approach to media weighting for importance determination

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Abstract

This paper proposes a graph-based approach to determine the importance of each media in a multimedia document by expanding the traditional four-dimensional model with a dimension that captures the rhetorical relations between different media types. The proposed approach utilizes an algorithm to weight the media types based on their significance. The use of rhetorical structure theory enables the determination of the significance of each media type, making it useful for document adaptation, automatic composition, and automatic generation of summaries. The approach utilizes an extended orbits-based rhetorical structure that is a novel method for determining the importance of media types in multimedia documents. The proposed approach is effective in capturing the importance of each media type and can be utilized in a wide range of applications, making it a potential solution to the limitations of the traditional model. This research has implications for a range of applications, including document adaptation, automatic composition, and automatic generation of summaries.

Keywords Multimedia document modeling · Graph-based approach · Rhetorical relations · Media weighting · Document adaptation

1 Introduction

Multimedia documents play a crucial role in various domains, including education, entertainment, and information dissemination. However, the complex structures of these documents, which can include diverse media types (e.g., text, images, audio, and video), present significant challenges for modeling and analysis. The traditional four-dimensional model, which

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