

Abstract:Due to the growth of technology, the expansion of communication infrastructure and crises of COVID-19 pandemic, e-learning and virtual education is expanding. One of the best ways to access and organize these information is indexing using automatic intelligent methods. Indexing requires assigning keywords or keyphrases to each video, to represent its content. The main focus of this research is to propose an approach by which appropriate keyphrases are assigned to scientific video lectures. For this purpose, a new algorithm called LVTIA, Lecture Video Text mining-base Indexing Algorithm, is proposed in which the textual content of video frames along with the text extracted from audio signal are merged together, and a new keyphrase extraction method is proposed. The proposed method considers new local and global features for each candidate phrases, along with a new feature reflecting the occurrence of each phrase in the audio signals or video frames. The method is implemented using five distinct data sets in English and Persian. The results are evaluated based on precision, recall, F1-measure and MAP@K metrics and compared with some of the well-known keyphrase extraction algorithms. Based on the results, the best MAP@K for English videos is related to LVTIA algorithm with the values of, 0.7912, 0.8069, 0.8069 for $k = 5, 10, 15$, respectively. In addition, LVTIA is able to provide best MAP@K for Persian videos which are 0.6367, 0.6866, 0.6874 for $k = 5, 10, 15$, respectively. According to Friedman nonparametric statistical test, the performance of different algorithms in precision, recall, F1-measure metrics, are statistically different from LVTIA as well.