

Indexing videos by key frames

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Abstract:

Indexing videos by key frames represents a great interest in the field of intelligent search of videos. When data increases, we are facing a problem of curse of dimensionality. For this purpose, various dimensionality reduction methods exist such as Principal Component Analysis. In this paper, we propose to exploit the Scale Invariant Feature Transform (SIFT) and Speeded up Robust Features (SURF) as images features, and PCA as dimensionality reduction method of the key frame to accelerate the research phase when data increase (big data). Our approach consists of developing a system based on three phases: indexing videos the key frames, compression within the application of PCA and finally the video search. By comparing multiple sets of experimental data, we found that PCA, can effectively reduce the research time, and maintain the high retrieval performance as well.

Keyword:

Indexing, Video, SIFT, SURF, PCA, retrieval, key frame

References:

Bingham, E., & Mannila, H. (2001). Random Projection in Dimensionality Reduction: Applications to Image and Text Data, 245–250. <http://doi.org/10.1145/502512.502546>

Cheng, B., Zhuo, L., & Zhang, J. (2013). Comparative Study on Dimensionality Reduction in Large-Scale Image Retrieval. In *2013 IEEE International Symposium on Multimedia* (pp. 445–450). IEEE. <http://doi.org/10.1109/ISM.2013.86>

Yue, H., Sun, X., Wu, F., & Yang, J. (2012). SIFT-based image compression. *Proceedings - IEEE International Conference on Multimedia and Expo*, 473–478. <http://doi.org/10.1109/ICME.2012.52>