以顏色爲基礎的視訊擷取

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摘要

隨著網路頻寬、高速處理器、以及壓縮技術的快速發展，多媒體資訊系統在最近幾年變的越來越重要。而由於視訊資料需要大量的儲存空間及處理，因此大型視訊資料庫需要有效的檢索及擷取方法，藉以快速存取資料庫中的視訊。在本論文中，我們提出一個以顏色爲基礎的視訊擷取方法。我們的方法包括三步驟：首先，資料庫中的視訊先以換景偵測方法切割出若干段場景，接著第二步，從各個場景中選出最具有代表性的畫面，藉以代表整段場景，最後，再從這些具代表性畫面中取出顏色特徵當作視訊擷取用的檢索資料。執行完所有步驟，資料庫中的視訊皆轉換成一串特徵向量。使用者提出的視訊片段執行上述三個步驟後，該視訊片段同樣轉換成一串特徵向量，接著比較該串特徵向量與資料庫中的特徵向量的相似度，將資料庫中與使用者提供的視訊片段最相近的前五名視訊片段輸出給使用者。由最後的實驗結果可以看出我們的視訊檢索系統有很高的準確度。

Color-based Video Retrieval

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Abstract

With the advances of broadband networks, high-powered workstations, and compression standards, multimedia information systems are becoming very important in recent years. Since visual media requires large amounts of storage and processing, visual database systems need efficient indexing and retrieval approach to facilitate fast access to the image and video sequences in the database. In this thesis, we propose a color-based video retrieval approach. Our approach includes three phases. First, every database video is segmented into a finite number of shots. Second, one or more key frames are selected from each shot. Third, we compute a color feature vector from each key frame. Thus, every database video is transformed into a sequence of feature vectors.

As to a query video clip, we do the same process as we did for video database. Therefore, there also exists a sequence of feature vectors for the query video. Then, we slide and match the query sequence with the sub-sequence of feature vectors in the feature database, and compute the similarity between them. The database video sequences that have better correlation with the query video sequence are output and returned to the user. The experimental results show that our video retrieval system has good precision and recall.