Query quality refinement in singular value decomposition to improve genetic algorithms for multimedia data retrieval

With the development of internet and availability of multimedia data capturing devices, the size of Multimedia Digital Database (MDD) collection is increasing rapidly. The complex data presented by such systems do not have the total ordering property presented by the traditional data handled by Database Management Systems (DBMSs). The quality of the search experience in such systems is also normally a big challenge since users from various domains require efficient data searching, browsing and retrieval tools. This has triggered an important research topic in Multimedia information retrieval concerning efficient and effective image similarity search. Modern search algorithms are fast and effective on a wide range of problems, but on MDD with a large number of parameters and observations, manipulations of large matrices, storage and retrieval of large amounts of information may render an otherwise useful method slow or inoperable. The focus of this work is the application of image enhancement technique, using histogram equalization, to the images retrieved using singular value decomposition (SVD). SVD is a linear algebra technique used for discovering correlations within data. The approach, herein referred to as query quality refinement (QQR) technique, improves the image similarity search result, and when incorporated with genetic algorithms further optimizes the search. These beneficial applications can be extended to other different types of multimedia data in various areas such as the P2P and WiMAX networks.