Content based Video Retrieval (CBVR), using low-level cues.

Content based Video Retrieval (CBVR) involves the process for retrieving a set of alike video shots from a large database, with similar content as that of the query video shot. Two significant cues in this context are shape (of the moving object) and motion kinematics (movement pattern), which describe the low-level content of a video shot. This finds application in content analysis, video on demand, duplicate detection and incident analysis. A novel joint spatio-temporal representation, called Multi-Spectro-Temporal-Curvature-Scale-Space (MST-CSS), had been proposed as a video content descriptor. An iterative sequence of processing on the STV (Space time volume) creates a hilly surface terrain, from which Peaks and Ridge lines are extracted as features. This provides an improved feature representation of MST-CSS, based on which a suitable matching method has been proposed for CBVR. Comparative study with two state-of-the-art methods for CBVR shows enhanced performance on one synthetic and two real-world video datasets.

Profile:

Sukhendu Das was the Professor in Department of Computer Science Engineering of IIT Madras. He has worked as a visiting scientist in the University of Applied Sciences, Pforzheim, Germany, for post-doctoral research work. His research interest are in Visual Perception, Computer Vision, Image Intelligence, Graphics and Visualization, Biometry, Computational Science and Engineering, Analog and Digital Systems, Soft Computing. He has received two best papers and a best design contest award. Significant and novel technical contributions are: MST-CSS representation for CBVR tasks; SLAR framework for smart CBIR; and SUBBAND face, Eigen-domain transformation (EDT) and Eigen-scale space (ESS) for face-based biometry applications.