

Abstract

Towards Automatic Highlights for Cricket Broadcasts

Akash Pooransingh

This thesis presents an initial framework for detecting highlights in cricket broadcast video. Cricket video comprises of different events with the most significant being the 'Bowler Run-up' sequence. This thesis seeks to detect the 'Bowler Run-up' sequences distinctly from all other sequences based on the classification of image content. Content based description is based on the classification of intermediate level motion and colour feature descriptors of identified objects within the image sequence. Objects are identified by image segmentation where colour is used as the primary low level descriptor. A novel approach to colour image segmentation is introduced in this thesis where the results of initial fuzzy k-means clustering are parsed for refinement using a Bayesian framework. This framework models the likelihood as a Normal Distribution and the prior as a Markov Random Field. Results of this thesis serves as a stepping stone for automatic detection of complete cricket highlights.

Keywords: Colour Image Segmentation, Content Based Retrieval, Cluster Analysis, fuzzy k-means, Markov Random Fields.