

Development of a Real Time Video Retrieval System Using DSP

2008

Oh Shinrai

In this thesis, a real time video retrieval system using DSP was investigated and enabling technologies were developed. The movement vector is a mode of expression of the video stream. By calculating the movement vector using high speed DSP, processing of retrieving the specific scene could be completed in 33ms. A real time video retrieval system for retrieving a pitching scene in the baseball game was proposed and it was developed using DSP. In order to offer convenient MMI (Man Machine Interface) for user, not only a content of a short period of the pitching scene, but also specified event after the pitching scene had been shown to the user.

In addition, in order to realize flexible application of the system, a new real time video retrieval method using Mahalanobis distance was proposed. A tachiai scene in sumo game was selected as a specific scene. After the features of the directionality of the movement vector in the tachiai scene were investigated, distinctive conditions of the specific scene was calculated by using the Mahalanobis distance. Not only the pitching scene and the tachiai scene but also other specific scenes which wanted to be retrieved could be applied by this technology. Retrieval with an excellent reproduction and relevance rate was realized. The technology of the proposed real time video retrieval system was applied to network communications, and a new on-demand video delivery system was developed. The new on-demand video delivery system does not depend on editor's choice, but the scene which meets user's choice was displayed on HDTV or PC.