Multimedia Information Systems: Problems and Solutions

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Abstract

In this tutorial, problems and solutions in Multi-Media Information Systems (MMIS) is discussed. In particular, important MMIS issues are presented and their solution using AI are described. Some of these problems discussed in this talk are: storage and real-time retrieval of video images, audio, text by content, natural language interfacing between user and MMIS; compression and encryption of video images. More specifically, two significant storage problems are the volume of video images (50 billion bytes for a single movie), and the labeling/indexing process. For both of these two problems, several solutions (automated image understanding and neural nets) are presented.

The real-time retrieval problem is also addressed (the inflexibility of SQL) and content based retrieval is described. Another hot issue is the image understanding and interpretation where several suggestions are proposed by using the L-G graph method. The speech processing issue is also described and solutions are recommended. Also, the natural language text problem is addressed and solutions based on intelligent interfaces are presented. Two more critical issues are proposed, the video image compression/encryption. These two later issues are important for security and privacy reasons, and for a low cost/high speed communication. Finally, a number of MMIS applications is also presented.