

MULTIMEDIA MINING RESEARCH – AN OVERVIEW

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Abstract

Multimedia data mining is a popular research domain which helps to extract interesting knowledge from multimedia data sets such as audio, video, images, graphics, speech, text and combination of several types of data sets. Normally, multimedia data are categorized into unstructured and semi-structured data. These data are stored in multimedia databases and multimedia mining is used to find useful information from large multimedia database system by using various multimedia techniques and powerful tools. This paper provides the basic concepts of multimedia mining and its essential characteristics. Multimedia mining architectures for structured and unstructured data, research issues in multimedia mining, data mining models used for multimedia mining and applications are also discussed in this paper. It helps the researchers to get the knowledge about how to do their research in the field of multimedia mining.

Keywords: *Data Mining, Multimedia Mining, Architectures, Applications, Models*

1. INTRODUCTION

Multimedia data mining is used for extracting interesting information for multimedia data sets, such as audio, video, images, graphics, speech, text and combination of several types of data set which are all converted from different formats into digital media [18]. Multimedia mining is a subfield of data mining which is used to find interesting information of implicit knowledge from multimedia databases. Multimedia data are classified into five types; they are (i) text data, (ii) Image data (iii) audio data (iv) video data and (v) electronic and digital ink [2]. *Text data* can be used in web browsers, messages like MMS and SMS. *Image data* can be used in art work and pictures with text still images taken by a digital camera. *Audio data* contains sound, MP3 songs, speech and music. *Video data* include time aligned sequence of frames, MPEG videos from desktops, cell phones, video cameras [17]. *Electronic and digital ink* its sequence of time aligned 2D or 3D coordinates of stylus, a light pen, data glove sensors, graphical, similar devices are stored in a multimedia database and use to develop a multimedia system.

Since 1960s the research in the field of multimedia has initiated for combining different multimedia data into one application when text and images were combined in a document. During the research and development process of video synchronization of audio and animation was completed using a timeline to specify when they should be played [2]. The difficulties of multimedia data capture, storage, transmission and presentation have been explored in the middle of 1990s where the multimedia standards MPEG-4, X3D, MPEG-7 and MX have continued to grow. These are reformed and clearly handled sound, images, videos, and 3-D (three-dimension) objects that combined by events, synchronization, scripting languages which describe the content of any multimedia object [5]. For multimedia distribution and database applications different