ABSTRACT

This article describes a new automatic digital content generation system we have developed. Recently some universities, including Hosei University, have been offering students opportunities to take distance interactive classes over the Internet from overseas. When such distance lectures are delivered in English to Japanese students, there is a pressing need to provide materials for review after class, such as video content on a CD-ROM or on a Web site. To meet this need, we have developed a new automatic content generation system, which enables the complete archiving of lectures including video/audio content, synchronized presentation materials, and handwritten traces on virtual whiteboards. The content is generated in real time and is immediately available at the end of the class. In addition, this system incorporates a unique video search algorithm which adopts a phonetic-based search technology. This enables quick review of the video content by typed-in keywords. The system can automatically create a vast amount of digital content and provide students with an efficient learning tool.

Keywords: automatic content generation; digital content archiving; distance learning; handwritten trace archiving; phonetic-based searching

INTRODUCTION

Hosei University has been providing numerous classes and lectures in the form of distance lectures through Hosei University Research Institute, California (HURIC). Since such distance lectures from abroad are delivered in English, we have strongly required an e-learning system for postproducing a lecture, including video/audio and other
This article proposes an new automatic digital content generation system for lectures, developed and improved based on practical experience accumulated through distance classes at Hosei University (Hayashi, 2003), which allows handwritten data to be incorporated and audio-based keyword searching to be performed. Since the system can digitally reproduce and distribute videotaped information of a lecture, including handwritten data, immediately after class without any editing, students can play back sections that they did not fully understand as much as they like and continue their studies in detail after the lecture for a thorough understanding. Also, although still at a prototype stage, a function allowing applicable sections to be searched using audio data as keywords is automatically added so that any section requiring review may be located and played back immediately.

REAL-TIME DISTANCE LECTURE SYSTEM

Since April 2002, Hosei University has been offering a pre-MBA course toward an MBA to be acquired by further studying abroad for a minimum of one year. Figure 1 shows photos of the pre-MBA class. In this course, a service is provided in which students can attend some MBA-accredited courses in advance at Kudan Hall in Ichigaya Campus through distance classes from the Hosei University Research Institute California. Furthermore, an internation-
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