电子与信息学报 2007 29 (3): 690-695 ISSN: 1009-5896 CN: 11-4494/TN

论文

多媒体会议中新型快速实时混音算法

王文林, 廖建新, 朱晓民, 沈奇威

北京邮电大学网络与交换技术国家重点实验室 北京 100876

收稿日期 2005-8-18 修回日期 2006-1-3 网络版发布日期 2008-1-18 接受日期

摘要
混音处理是多媒体会议系统中的一个关键环节，直接影响用户之间的相互交流。现有常用的混音算法中存在着音量突变的问题，通过对这些混音算法的分析，得出了变化的混音权重是导致音量忽大忽小的主要原因的结论。在此基础上，该文提出了一种采用与混音输入无关的恒定混音权重的非均匀波形收缩混音算法，该算法混音结果自然流畅，避免了音量突变的问题。该算法运算简单，速度快，没有乘除法操作，容易硬件实现。可以广泛应用于大规模的多媒体会议系统中。

关键词 多媒体会议 音频处理单元 非均匀 波形收缩 混音

分类号 TN919.8

A Novel Fast Real-Time Audio Mixing Algorithm in Multimedia Conference

Wang Wen-lin,Liao Jian-xin, Zhu Xiao-min, Shen Qi-wei

State Key Lab. of Networking and Switching Tech., Beijing Univ. of Posts and Telecomm., Beijing 100876, China

Abstract
In multimedia conference, audio mixing is an essential component, which affects the communication between users. At present, the commonly used audio mixing algorithms have a protean volume. By analyzing those algorithms, the conclusion of mutative mixing weights bring on protean volume is drawn. Base on this, a novel algorithm named Asymmetrical Wave-Shrinking (AWS) is proposed. A fixed mixing weight independent of inputs is used to ensure the natural and fluent outputs without protean volume. Without multiplication and division operations, the algorithm is so simple and fast that it can be easily implemented by hardware and widely applied in large scale multimedia conference systems.

Key words Multimedia conference APU (Audio Process Unit) Asymmetrical Wave-shrinking Audio mixing

DOI:

通讯作者

作者个人主页 王文林; 廖建新; 朱晓民; 沈奇威