

FRAMEWORK DEVELOPMENT OF REAL-TIME LIP SYNC ANIMATION ON VISEME BASED HUMAN SPEECH

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Abstract

Performance of real-time lip sync animation is an approach to perform a virtual computer generated character talk, which synchronizes an accurate lip movement and sound in live. Based on the review, the creation of lip sync animation in real-time is particularly challenging in mapping the lip animation movement and sounds that are synchronized. The fluidity and accuracy in natural speech are one of the most difficult things to do convincingly in facial animation. People are very sensitive to this when you get it wrong because we are all focused on faces. Especially in real time application, the visual impact needed is immediate, commanding and convincing to the audience. A research on viseme based human speech was conducted to develop a lip synchronization platform in order to achieve an accurate lip motion with the sounds that are synchronized as well as increase the visual performance of the facial animation. Through this research, a usability automated digital speech system for lip sync animation was developed. Automatic designed with the use of simple synchronization tricks which generally improve accuracy and realistic visual impression and implementation of advanced features into lip synchronization application. This study allows simulation of lip syncing in real time and offline application. Hence, it can be applied in various areas such as entertainment, education, tutoring, animation and live performances, such as theater, broadcasting, education and live presentation.

Keywords: Lip synchronization animation, real time, human speech recognition

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1.0 INTRODUCTION

Lip sync (short for lip synchronization) in animation is the art of making the animated character appear to speak by matching the mouth-movements to the phonemes from an audio track. The lip sync technique continues to this day, with animated films and television broadcasts which are one of an essential stage in the animation production. In real time, lip synchronization is an approach to perform a virtual computer generated character to talk, which synchronizes an accurate lip movement and speech signal in live. According to Huang and Chen (1998), real time lip sync animation is a technique driven by

human voice directly for synthesizing the mouth movement from acoustic speech information. It also considers as human-to-computer interaction interfaces. Consequently, there has been a large amount of research on incorporating bimodality of speech into human-computer interaction interfaces. Lip sync is one of the research topics in this area. However, based on the review, identifying each and every sound in a word or phrase in lip sync animation can create very busy and over-animated mouth action (Spevack, 2011). Conversely, the less of consideration, as a result every mouth shape was emphasised equally for each word, which led to frantic that confuses and tires the viewer. Thus, the