



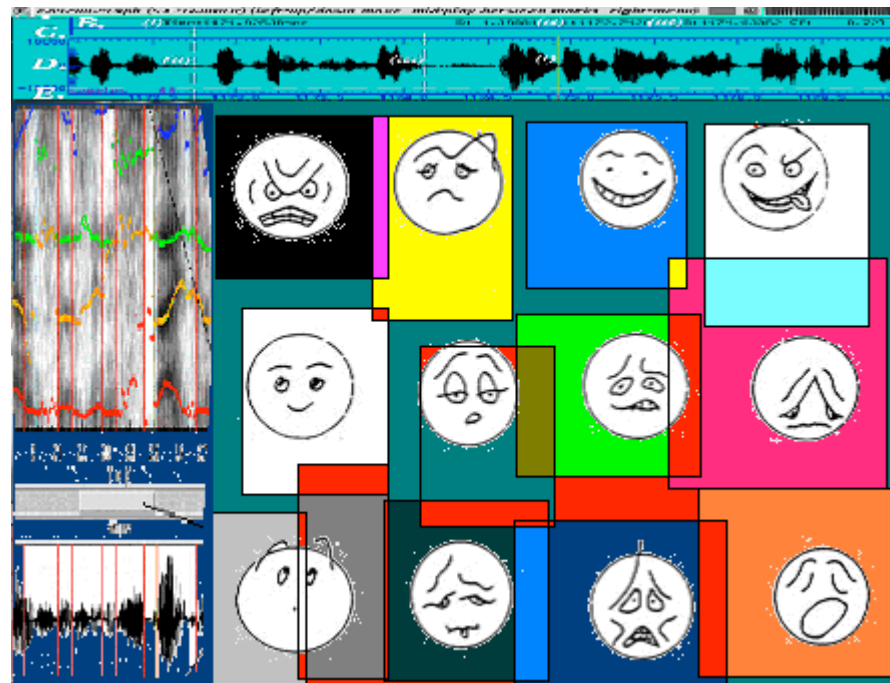
IMSC
Integrated
Media Systems
Center

INTEGRATED MEDIA SYSTEMS CENTER
A National Science Foundation
Engineering Research Center at the
UNIVERSITY OF SOUTHERN CALIFORNIA

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Expressive Speech Synthesis



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BRIEF DESCRIPTION OF THE DEMONSTRATION

Expressive Speech Synthesis

Emotions (anger, happiness, sadness, etc.) are inseparable components of the natural human speech. Because of that, the level of human speech can only be achieved with the ability to synthesize emotions. We follow data-driven methods to add emotions to the computer speech. Our approach is based on “emotional” data collected for each one of the targeted emotions (anger, sadness, happiness and frustration). Collected data is segmented into smaller speech units, which later are concatenated to produce the required emotional synthetic output. Adding emotions increases the naturalness and variability of synthetic speech and brings it close to the level of natural speech. The wide range of applications based on human-machine interaction, the need for more listenable systems for disabled people and the recent developments in the movie industry employing virtual actors are some of motivational factors for the project.

UNIQUE OR DISTINGUISHING CHARACTERISTICS RELATIVE TO STATE-OF-THE-ART	
<ul style="list-style-type: none"> Data-driven approaches for synthesis of emotional speech. 	
APPLICATIONS	RECENT HIGHLIGHTS, LEVEL OF DEVELOPMENT, UPCOMING MILESTONES
<ul style="list-style-type: none"> “Virtual Teacher” - educational software Web page, e-mail, book, etc. reading programs Systems for disabled people Human-machine based applications (ex. computer games, robots) Movie Industry (ex. Final Fantasy) 	<ul style="list-style-type: none"> Collection of large emotional inventory from both professional and amateur subjects. Synthesis of new emotions (surprise, boredom, disgust, various forms of anger, etc.). Development of emotion conversion algorithms. Classification of emotions based on their acoustical characteristics.
UNDERLYING TECHNOLOGIES	
<ul style="list-style-type: none"> Text-To-Speech Synthesis Automatic Emotion Recognition Voice Transformation Speech and Language Processing 	
REFERENCE URL	
<ul style="list-style-type: none"> http://sail.usc.edu 	

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