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KEY WORD : SOUND TRANSFORMATION / LINEAR PREDICTIVE CODING

PONGRAT PASATCHASARTNUKON : A PROTOTYPE OF VOICE PERSONALITY TRANSFORMATION. THESIS ADVISORS : ASSOC. PROF. SUPPACHAI TANGWONGSARN, Ph.D., ASST. PROF. DAMRAS WONGSAWANG, Ph.D. 111 P. ISBN 974-662-954-2

This research work presents a prototype of voice personality transformation. This means changing the speech sound from one to another without changing the content. For example, changing the sound from a female voice to a male voice, or a child's voice, but with different tonation from the original person, so that one could not distinguish him/her as the originator.

The prototype was developed and based on two key features of sound transformation, namely pitch period and formant frequency. The model system consists of three main processes : sound analysis, sound transformation and sound synthesis. The sound analysis extracts the features that represent the value of speech signal by using the linear predictive coding algorithm (LPC). Then in the sound transformation, we attempt to change the key features with the preset percentage values depending on the desired voice types. Finally in the sound synthesis, we use new values of the features obtained from the previous step to create speech sounds.

The experiment done by transforming a set of recorded speech sounds with the preset percentage values of pitch period and formant frequency, confirms our approach is justifiable. Moreover, the experimental result shows the gender of speech signal can be detected by observing its pitch period, and also the sound quality can be controlled by comparing the values of formant frequency with those of the threshold.