Non-stationary Signal Processing in Voice Recognition

林柏宇、傅家啟

E-mail: 9900280@mail.dyu.edu.tw

ABSTRACT

The purpose of this thesis research is to use Wavelet Transform, Wavelet Packet Transform and the current speech processing technology to filter the noise generated by the external environmental influence in order to develop the basis of accent recognition system, thus the result of Pronunciation clarity will be improved. In addition, the accent diagnosis through the speech recognition system results in better quality. First, a speech signal processing system based on speech phonemes. Processes signal on the phonemes or de-noise through Wavelet Transform and Wavelet Packet Transform before conducting signal processing. Then the feature is extracted as characteristic parameters. The learning vector quantization neural network system is built according to different elements characteristic parametric distribution status of the Common International Phonetic Signs. The paired t test on the clarity difference between non de-noise and Wavelet Transform de-noise, and the clarity difference between non de-noise and Wavelet Packet Transform de-noise.

Keywords : Pronunciation clarity ; Learning Vector Quantization II ; Wavelet Transform ; Wavelet Packet Transform ; Chinese Speakers of English as a Foreign Language (ESL)

Table of Contents

REFERENCES

A.K.Peters Wellesley,Massachusetts. A.K.Peters Wellesley,Massachusetts. A.K.Peters Wellesley,Massachusetts. A.K.Peters Wellesley,Massachusetts. A.K.Peters Wellesley,Massachusetts. NO.1 pp69-76. NO.1 pp69-76. NO.1 pp69-76. 395.

[13] Waibel Alexander , Hanazawa Toshiyuki , Hinton Geoffrey, [13] Waibel Alexander , Hanazawa Toshiyuki , Hinton Geoffrey, [13] Waibel Alexander , Hanazawa Toshiyuki , Hinton Geoffrey, On Assp, 37(3),pp.328-339. On Assp, 37(3),pp.328-339. On Assp, 37(3),pp.328-339. Computation 1,pp39-46. Computation 1,pp39-46. dynamic programming neural networks for dynamic time dynamic programming neural networks for dynamic time neural systems, Vol.6 pp.79-89.

[16] van Christian den Lambrecht Branden, Karrakchou Mohsine [16] van Christian den Lambrecht Branden, Karrakchou Mohsine [16] van Christian den Lambrecht Branden, Karrakchou Mohsine [16] van Christian den Lambrecht Branden, Karrakchou Mohsine [16] van Christian den Lambrecht Branden, Karrakchou Mohsine [16] van Christian den Lambrecht Branden, Karrakchou Mohsine J.acoust. Soc. Am.97 (6),pp3649-3656.
[18] Wong.David.Y , Markel.John.D & Gray.Augustine.H,JR. (1979) [18] Wong.David.Y , Markel.John.D & Gray.Augustine.H,JR. (1979) [18] Wong.David.Y , Markel.John.D & Gray.Augustine.H,JR. (1979) and Signal processing, Vol.ASSP-27,NO.4 ,pp350-355. and Signal processing, Vol.ASSP-27,NO.4 ,pp350-355. and Signal processing, Vol.ASSP-27,NO.4 ,pp350-355. processing,39(6),pp.1398-1411. processing,39(6),pp.1398-1411. processing,39(6),pp.1398-1411. Electronics Letters Vol.32 NO.8 pp719-721. Electronics Letters Vol.32 NO.8 pp719-721. Electronics Letters Vol.32 NO.8 pp719-721. Electronics Letters Vol.32 NO.8 pp719-721. transformation for speaker adaptation in HMM based transformation for speaker adaptation in HMM based 17.pp131-143. 17.pp131-143. power spectral densities for non-stationary signals using power spectral densities for non-stationary signals using Simulation 38, pp183-188. Simulation 38, pp183-188. Simulation 38, pp183-188. Neural networks, Vol.3,pp23-43. Neural networks, Vol.3,pp23-43. Neural networks, Vol.3,pp23-43. Electronics Letters Vol.31 No.8,pp616-617. Electronics Letters Vol.31 No.8,pp616-617. of speech signals and its application to speech of speech signals and its application to speech of speech signals and its application to speech Quality Audio Signals,Including Recent Methods Using Quality Audio Signals,Including Recent Methods Using Quality Audio Signals,Including Recent Methods Using Quality Audio Signals,Including Recent Methods Using Transactions on Pattern Analysis and Machine Intelligence, Vol.11,NO.7,1989,pp.674-685. Vol.11,NO.7,1989,pp.674-685. Vol.11,NO.7,1989,pp.674-685. Communication 11.p109-118. Communication 11.p109-118. Communication 11.p109-118. 11. pp119-125. 11. pp119-125. analysis and signal processing.In Wavelets and their analysis and signal processing.In Wavelets and their B. Ruskai et al.eds. B. Ruskai et al.eds. Application of the Wavelet Transform for Pitch Detection Application of the Wavelet Transform for Pitch Detection theory, Vol.38,NO.2,pp917-925. theory, Vol.38,NO.2,pp917-925. theory, Vol.38,NO.2,pp917-925. theory, Vol.38,NO.2,pp917-925. IEEE computer,Mar.,pp.11-22. IEEE computer,Mar.,pp.11-22. IEEE computer,Mar.,pp.11-22. pp613-627 pp613-627 Computerized Tool for Accent Diagnosis among Chinese Computerized Tool for Accent Diagnosis among Chinese Computerized Tool for Accent Diagnosis among Chinese