Abstract

Speech processing includes the various techniques such as speech coding, speech synthesis, speech recognition and speaker recognition. In the area of digital signal processing, speech processing has versatile applications so it is still an intensive field of research. Speech processing mostly performs two fundamental operations such as Feature Extraction and Classification. The main criterion for the good speech processing system is the selection of feature extraction technique which plays an important role in the system accuracy. This paper intends to focus on the survey of various feature extraction techniques in speech processing such as Fast Fourier Transforms, Linear Predictive Coding, Mel Frequency Cepstral Coefficients, Discrete Wavelet Transforms, Wavelet Packet Transforms, Hybrid Algorithm DWPD and their applications in speech processing.
- Yoshua Bengio, Renato De Mori, Regis Cardin, "Speaker Independent Speech Recognition with Neural Networks and Speech Knowledge", Department of Computer Science McGill University, pp. 218-225.
- Adam Glowacz, Witold Glowacz, Andrzej Glowacz, "Sound Recognition of Musical Instruments with Application of FFT and K-NN classifier with Cosine Distance", AGH University of Science and Technology, Work supported by European Regional Development Fund INSIGMA Project No. POIG. 01. 01. 02-00-062/09, 2010.
- Gil Lopes, Fernando Ribeiro, Paulo Carvalho, "Whistle Sound Recognition in Noisy Environment", Universidade do Minho, Departamento de Electrónica Industrial, Guimarães, Portugal.
- Shady Y. EL-Mashed, Mohammed I. Sharway, Hala H. Zayed, "Speaker Independent Arabic Speech Recognition using Support Vector Machin", Department of Electrical Engineering, Shoubra Faculty of Engineering, Benha University, Cairo, Egypt.
- Vaishali M. Chavan, V. V. Gohokar, "Speech Emotion Recognition by using

- Tobias Bengtsson, ”Speech recognition using multilayer perceptron artificial neural network”, Department of Computer Science Lund University.
- Adriano de Andrade Bresolin, Adriaio Duarte Doria Neto e Pablo Javier Alsina, "A New Hierarchical Structure for Speech Recognition by units smaller than words, using Wavelet Packet and SVM," UTFPR Brazil, UFRN Brazil.
- Bartosz Ziolko, Wojciech Koz Iowski, Mariusz Ziolko, Rafa Samborski, David Sierra, Jakub Ga Ika, "Hybrid Wavelet-Fourier-HMM Speaker Recognition," AGH University of Science and Technology Krakow, Poland, July 2011.
- Sanja Grubesa, Tomislav Grubesa, Hrvoje Domitrovic, "Speaker Recognition Method combining FFT, Wavelet Functions and Neural Networks," Faculty of Electrical Engineering and Computing, University of Zagreb, Croatia.
- Marco Jeub, Dorothea Kolossa, Ramon F. Astudillo, Reinhold Orglmeister, 
"Performance Analysis of Wavelet-based Voice Activity Detection";
NAG/DAGA-Rotterdam, 2009.
- Beng T Tan, Robert lang, Hieko Schroder, Andrew Spray, Phillip Dermody,
"Applying Wavelet Analysis to Speech Segmentation and Classification";
Department of Computer Science.
- Bartosz Zioko, Suresh Manandhar, Richard C. Wilson and Mariusz Zioko,
"Wavelet Method of Speech Segmentation"; University of York Heslington, YO10 5DD, York, UK.
- Akhilesh Tiwari, Dr. A. S. Zadgaoankar, "Speech Signal Analysis through
Wavelets and Finding Similar Patterns in Signals of Regional Dialects of Large Demographic Region";
International Journal of Advanced Research in Computer Science and Software
- Mohamed El-wakdy, Ehab El-sehely, Mostafa El-tokhy, Adel El-hennawy I. M.,
"Speech Recognition using a Wavelet Transform to establish Fuzzy Inference System
through Subtractive Clustering and Neural Network (ANFIS)"; 12th WSEAS International

**Index Terms**

Computer Science  
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**Keywords**

Feature Extraction; Fast Fourier Transform; Mel Frequency Cepstral Coefficients;
Linear Predictive Coding; Discrete Wavelet Transforms; Wavelet Packet Transform; Hybrid
Algorithm DWPD.