Abstract

Fractional Fourier Transform function (FrFT) is a generalization of Fourier transforms (FT). Finite Impulse Response (FIR) filters are implemented based on Fractional Fourier transform domains, then modified filters characteristics some what tunable when compare with existing FT based FIR filters. So, in our proposals implementation is made on the FrFT FIR filters for different windows like Rectangle, Bartlett, Hamming, Hanning, and Kaiser, based on the adaptive algorithms, and the performance of the proposed filters is made by SNR values of the different obtain filters for given noisy sinusoidal inputs.

References

- Saurabh Singh Rajput, Dr. S. S. Bhaduria- Implementation Of Fir Filter Using Efficient Window Function And its Application In Filtering A Speech Signal-International Journal of Electrical, Electronics and mechanical control.
- Sonika Gupta, Aman Panghal- Performance Analysis of FIR Filter Design by Using
Performance Analysis of FrFT based Adaptive Filters with LMS Algorithm

- TAO ZHANG- RESEARCH ON DESIGN FIR DIGITAL FILTER USING MATLAB AND WINDOW FUNCTION METHOD- Journal of Theoretical and Applied Information Technology- 10th February 2013. Vol. 48 No. 1
- J. Parak, J. Havlik-ECG Signal Processing And Heart Rate Frequency Detection Methods
  - P Bonizzi, O Meste, V Zarzoso-Spectral analysis of atrial signals directly from surface ECG exploiting compressed spectrum.
  - LEIF SO RNMO, PABLO LAGUNA-ELECTROCARDIOGRAM (ECG) SIGNAL PROCESSING.
  - CN Nowak, G Fischer, L Wieser, B Tilg, HU Strohmenger-Frequency Spectrum of the Intracardiac and Body Surface ECG during Ventricular Fibrillation – a Computer Model Study
  - Michael A. Vaudrey, William T. Baumann, William R. Saunders-&quot;Stability and operating constraints of adaptive LMS-based feedback control&quot; -Automatics-Sciencdirect
  - Wang An-dong, Liu Lan ,Wei Qin-&quot;An Adaptive Morphologic Filter Applied to ECG De-noising and Extraction of R Peak at Real-time&quot; - 2012 AASRI Conference on Computational Intelligence and Bioinformatics,Elsevier
  - Soo-Chang pei,Mon Hung Yeh,TzyyiangLuo-&quot;Fractional Fourier Series Expansion for Finite signals and Dual Extension to Discrete-Time Fractional Fourier Transform&quot; -IEEE Transactions on signal processing,vol:47,No:10,1999.
  - Soo-Chang pei – &quot;Two-Dimensional Affine generalized Fractional Fourier Transform&quot; -IEEE Transactions on signal processing,vol: 49,No:4,April 2009
  - I. SamilYetik,M. AlperKutay, Haldun . M. Ozaktas-&quot;Image representation and compression with the Fractional Fourier Transform&quot;, Optics communications
Performance Analysis of FrFT based Adaptive Filters with LMS Algorithm


Index Terms
Computer Science      Signal Processing

Keywords
Adaptive Filters      FrFT      LMS Algorithm      SNR