Aparna M. Surve, Analysis of radial arterial pulse wave form, M. Tech. Thesis, Department of Electrical Engineering, Indian Institute of Technology Bombay, 2004.

Supervisor(s): P. C. Pandey

Abstract **-**Noninvasive recording of pressure pulse waveform from radial artery can be used for obtaining valuable diagnostic information, by analyzing it for temporal characteristics, spectral characteristics and its cross-correlation with phonocardiogram and ECG. The pulse waveform can be obtained by the transducer of electronic stethoscope or phonocardiograph as well as a piezoelectric transducer. The pulse waveform obtained using phonocardiograph sensor is found to be noisy, and further processing needed signal enhancement. Spectral subtraction method, reported earlier for enhancement of noisy speech, was used for enhancement of pulse signal. The noise spectrum is estimated using a noise recording from a nearby site, and it is used during the entire duration of signal to be enhanced. Next, quantile-based estimate of noise spectrum from the noisy pulse waveform itself is used for continuous updating of noise spectrum for spectral subtraction. The effect of physical exercise on the pulse waveform and its cross-correlation with phonocardiogram is studied.