

# **Enhancing Speech in Noisy Background Using Spectral Subtraction**

**Wai Phyo Han**

*University of Computer Studies, Yangon*

[waiphyohan@gmail.com](mailto:waiphyohan@gmail.com)

## **Abstract**

*The presence of background noise in recorded speech reduces the quality of speech. It can also degrade the performance of other systems, such as speech compression, speech recognition, and speaker authentication. The aim of speech enhancement methods is to improve the quality of speech in noisy environment. The main objective of this paper is to develop a speech enhancement system based on the spectral subtraction. Using Fast Fourier Transform (FFT), these methods firstly transforms the spectra of noisy input speech into the magnitude signal spectra. To get the enhanced output speech, the expected noise spectrum is subtracted from the noisy speech spectra. The voices of male and female are used to test as input signals in this system. The effectiveness of the algorithm is tested by speech signals which are corrupted by the stationary noise and non-stationary noise at varying Signal-to-Noise Ratios (SNRs). The quality of the enhanced speech is tested subjectively and objectively.*