Assessment of broadband SNR estimation for hearing aid applications

An accurate estimation of the broadband input signal-to-noise ratio (SNR) is a prerequisite for many hearing-aid algorithms. An extensive comparison of three SNR estimation algorithms was performed. Moreover, the influence of the duration of the analysis window on the SNR estimation performance was systematically investigated. The most accurate approach utilized an estimation of the clean speech power spectral density (PSD) and the noisy speech power across a sliding window of 1280 ms and achieved an total SNR estimation error below 3 dB across a wide variety of background noises and input SNRs.