Detection Of Helicopters Using Neural Nets

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Summary

Artificial neural networks (ANNs), in combination with parametric spectral representation techniques, are applied for the detection of helicopter sound. Training of the ANN detectors was based on simulated helicopter sound from four helicopters and a variety of nonhelicopter sounds. Coding techniques based on linear prediction coefficients (LPCs) have been applied to obtain spectral estimates of the acoustic signals. Other forms of the LPC parameters such as reflection coefficients, cepstrum coefficients, and line spectral pairs (LSPs) have also been used as feature vectors for the training and testing of the ANN detectors. We have also investigated the use of wavelet transform for signal de-noising prior to feature extraction. The performance of various feature extraction techniques is evaluated in terms of their detection accuracy