

Effect of Removing Low and High Frequency Spectrum from the Bird’s Calls on Perception

Randhir Singh¹, Ajay Kumar² and Parveen Kumar Lehana³

¹Ph.D Scholar, I. K. Gujral Punjab Technical University, Kapurthala, Punjab, India

²Associate Professor (HOD, ECE), Beant College of Engineering and Technology,
Gurdaspur, Punjab, India

³Professor, Department of Electronics, University of Jammu, Jammu, India
E-mail: ¹errandhir81@gmail.com, ²ajaykm_20@yahoo.co.in, ³pklehana@gmail.com

Abstract— A few birds like parrots have excellent cognitive and communicative abilities. They are known for extraordinary ability of mimicking human speech. Birds convey a lot of information in their calls and songs. Just listening to the calls does not provide important information because of limited time and frequency resolution of our auditory system. The constituent organs for producing sound in birds are larynx, trachea, syrinx, and lungs. The basic structure of the sound production mechanism of birds is similar to that of human beings. The objective of this research is to investigate the effect of removing low and high frequency spectrum from the bird’s sounds on perception. The scope of the present investigations is limited to the sound of parrots and crows, in comparison to the human beings. The investigations showed that pre-filtering in the band 500 Hz to 3000 Hz does not degrade the quality appreciably in the phrases uttered by the human beings and the birds. It may be used for reducing the level of background noise present in the recordings.

Keywords: Bird calls Bird songs, Perceptual evaluation of speech quality (PESQ), Speech production, Speech quality.