

Automatic song-type classification and individual identification of the ortolan bunting (*emberiza hortulana L*) bird vocalizations

This paper presents a method for automatic song-type classification and individual identification of the ortolan bunting (*emberiza hortulana L*). This method is based on Hidden Markov Models (HMMs) commonly used in the signal processing and automatic speech recognition research communities. The features used for classification and identification include both fundamental frequency and spectral characteristics. Fundamental frequency features consist of center frequency f_0 , relative f_0 to moving-average baseline, peak strength, and peak bandwidth. Spectral features are derived from frequency-weighted cepstral coefficients. Using these features one HMM is trained for each type of vocalization both for each individual bird and across the entire population. Preliminary results indicate accuracies of above 90% for both song-type classification and individual identification tasks.