ACOUSTICS2008/2035
Automatic detection of short time periodic bird calls in realistic monitoring scenarios

Daniel Wolff[a], Klaus Tauchert[b], Karl Frommolt[c], Rolf Bardeli[a], Frank Kurth[d] and Michael Clausen[a]

[a]Department of Computer Science III, University of Bonn, Roemerstr. 164, 53117 Bonn, Germany

[b]Humboldt-University Berlin, Institute of Biology, Invalidenstr. 43, 10115 Berlin, Germany

[c]Humboldt-University Berlin, Museum für Naturkunde, Tierstimmenarchiv, Invalidenstr. 43, 10115 Berlin, Germany

[d]FGAN-FKIE, Abteilung KOM, Neuenahrer Str. 20, 53343 Wachtberg-Werthhoven, Germany

In this contribution, we propose a method for the automatic detection and localisation of bird calls featuring simple as well as highly repetitive structures. Reporting from a research project focused at computer aided acoustical monitoring, a detector for Locustella luscinoides (Savi's Warbler) is presented, performing reliably even on highly distorted recordings. In cooperation with the Animal Sound Archive at the Humboldt University, Berlin, this detector was incorporated into a multimodal censusing method combining GPS-data and automatically annotated audio recordings to perform line mapping. An evaluation of the proposed techniques for unsupervised monitoring purposes was also performed on 20 hours of multichannel recordings from Lake Parstein, a cane brake area in Germany. Finally, exemplifying the discriminative potential of the underlying features, we will point out the application to other members of the Warbler family as well as the detection of cricket and toad sounds.