GMM-based Parametrization of the Characteristic Melody of Bird Vocalizations

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ABSTRACT

The characteristic melody of bird vocalizations is among the most informative descriptors for the needs of modeling and automatic recognition of birds based on their acoustic emissions. In the present paper, we report on a new method for modeling the characteristic melody by means of GMM-based interpolation of the short-term energy of dominant frequency component. In order to validate our approach, we carried out experimental evaluation and report that the description based on a mixture of Gaussian functions outperforms other approximation methods. The experimental protocol is based on a real-world dataset of eighty segments with acoustic events of Myrmotherula multostriata recorded in their wildlife habitats.