

Melody extraction is arguably one of the most important and challenging problems in Music Information Retrieval. It is melody that we are likely to recall after listening to a song and so it is one of the most relevant aspects of music. However the presence of accompaniment in songs makes the task hard to address using rule-based methods. During the last years data-driven methods based on deep learning started to outperform methods traditionally used in the field. In this thesis we continue in these efforts and propose three new methods for melody extraction. Among these an architecture called *Harmonic Convolutional Neural Network*, based on a modification of convolutional neural networks to better capture harmonically related information in an input spectrogram with logarithmic frequency axis, was able to achieve state-of-the-art performance on several publicly available melody datasets.