

EXTRACTION OF AURALLY RELEVANT PARAMETERS

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VIPER, a new tool for the VISual PERception of sound signals, will be presented. Requirement for the visualization of sound is a signal analysis modeling the information processing of the ear. The first step of the signal processing implemented in VIPER calculates an auditory spectrogram by a filter bank adapted to the time- and frequency resolution of the human ear. The second step removes redundant information by extracting time- and frequency contours from the auditory spectrogram in analogy to contours of the visual system. In a third step contours and/or auditory spectrograms can be resynthesised confirming that only aurally relevant information was extracted.

The visualization by contours intuitively allows us to grasp the important components of a signal. Contributions of parts of a signal to the overall quality can be easily auralized by editing and resynthesising them. Resynthesis of time contours alone allows e.g. to auralize impulsive components separately from the tonal components. Further processing of the contours determines tonal parts in form of tracks. Audible differences between two versions of a sound can in addition be visually inspected in VIPER through the help of auditory distance spectrograms. Applications are shown for various music and speech signals. For further information see <http://www.cortex-instruments.de>.