Summary of the research proposel

High performance computers and networks enable the digital management of multimedia documents. The content-based analysis of these data is a desired component for a broad range of applications. Extandable database systems currently support the analysis of text and image documents, however audio data is not effectively fostered.

One reason for that is the time dependence of audio data. As a result complex content relationships are created which are diffilcult to extract from characteristical features such as tempo, rhythm or pitch. Methods for the extraction, classification and indexing of such features already exist. However there are no generally applicable techniques which enable their integration within more complex systems such as digital libraries.

Therefore the current PhD thesis focuses on the definition of generally applicable methods for content-based analysis of audio data and their implementation in an object-relational database environment. Only music audio data are considered in this work, since speech can be converted in textual form and further on analysed as text.

Appropriate feature extraction, classification as well as indexing methods are currently evaluated. Additionally the possibility to integrate these methods in ORDBMS is considered, whereas the methods should be as much as possible configurable and combinable with each other. Furthermore system architectures of digital libraries for management of audio data and eventually relevant copyright aspects shall be taken into account.