

# Efficient Search in Time-Series—A Group-based Indexing Approach

Frank Kurth

Efficient search in large sets of time-series has attracted a considerable amount of interest during the last years. An important class of problems is the localization of a short piece of a time-series (the query) within one or many long time series (the database). In this, the quality of the localization is measured by certain distance measures like the Euclidean-,  $L^p$ -, or dynamic time warping distance. Applications of such kinds of problems include the search in stock data or content-based search in digital audio data. Our group has recently developed a general technique for index-based search in multimedia documents. The framework is based on concepts of groups acting on sets combined with methods of classical full-text retrieval. In our poster we propose a general concept for applying the group-based approach for efficiently searching time-series. We consider several types of search problems including real-time comparison of high data-rate audio streams. The capabilities of the proposed techniques are demonstrated by several prototypes for both off- and online searching in audio data-streams.