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Time series data mining has become a hot topic for years and all the field need data analysis for time series data. One of the important step to process the data is representation. And there are lots of representation methods such as PAA (Keogh, 2001a), APCA (Keogh, 2001b), SAX (Lin, 2007) and etc. Though many researches are about dimensionality reduction, but there is a lack of the comprehensive comparison of the between these approaches. And also scholars need a comparison to find further improvement direction for existing methods.

I want to focus on a comprehensive comparison of different methods of representation of time series data in recent. My purpose is to provide information and basic knowledge of different methods of time series for people who just step into this area then help them make the decision on choosing appropriate method for their research or works. In Tak-chung Fu (2010) different approaches of representation are introduced and Leonidas Karamitopoulos (2007) discussed the recent trend of time series data mining researches about representation. In the future will there be a better method that can balance the accuracy and efficiency for the representation? SAX is the most widely used method in recent years and has lots of researches and improvements based on it. However SAX still has limitations need improve such as the application on multidimensional dataset.