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A Kernel Based Multi-Resolution Time Series Analysis for Screening Deficiencies in Paper Production

This paper is concerned with a multi-resolution tool for analysis of a time series aiming to detect abnormalities in various frequency regions. The task is treated as a kernel based novelty detection applied to a multi-level time series representation obtained from the discrete wavelet transform. Having a priori knowledge that the abnormalities manifest themselves in several frequency regions, a committee of detectors utilizing data dependent aggregation weights is built by combining outputs of detectors operating in those regions.