
**Abstract**

Two sequential short-time spectral analysis techniques, amenable to nonrecursive filter implementation, are the conventional chirp-z transform (CZT) realization of the discrete Fourier transform and the sliding CZT realization of the discrete sliding Fourier transform. This paper presents a comparative study of frame rate limitations, windowing, time and frequency resolution, spectral correlation, complexity, and inverse structures for these methods, with particular emphasis on the recently proposed sliding transform. The sliding transform and its CZT realization are viewed as skewed output samples of a filter bank, an approach which aids in understanding the relationship between the conventional and sliding schemes. Numerous forward and inverse CZT formulations are presented to improve resolution, frame rates, and compactness.