**Instantaneous pitch estimation algorithm based on multirate sampling**

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**Abstract:** The paper presents an algorithm for accurate pitch estimation that takes advantage of the sinusoidal model with instantaneous parameters. The algorithm decomposes the signal into subband components, extracts their instantaneous parameters and evaluates period candidate generating function (PCGF). In order to achieve high accuracy for low and high-pitched sounds it is assumed that possible pitch variation range is proportional to current pitch value. The bandwidths of the decomposition filters and length of the analysis frame are scaled for each period candidate by multirate sampling. The algorithm is compared to other widely used pitch extractors on artificial quasiperiodic signals and natural speech. The proposed algorithm shows a remarkable frequency and time resolution for pitch-modulated sounds and performs well both in clean and noisy conditions.

**Keywords:** Noise reduction, spectral subtraction, time warping.

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