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A Statistical Approach for Tuning the Windowed Fourier Transform

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Abstract

The windowed Fourier transform is one of the most widely used time-frequency representations. In order to use this technique several parameters must be defined according to the signal analyzed. In this paper are studied the effects of the type, the shape, the length and the overlap of the windows, and new method for tuning the window parameters is presented. The study method is based on the information theory and is applied to signals captured during the movement of a robotic manipulator. The experimental results demonstrate the applicability and the effectiveness of the proposed approach.