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Survey paper on transform techniques & its applications

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Abstract:

In the realm of image processing, selecting the appropriate transform and their importance. This survey paper produce a comparative analysis of the Curvelet Transform alongside other transforms, exploring their efficacy in various image processing techniques. Specifically, it delves into the applications of the Curvelet Transform in image compression, phase recognition, and denoising, with the objective of achieving higher compression rates while maintaining quality reconstruction. The introduction of wavelets has significantly transformed compression techniques, adding a new dimension to the process. However, the Curvelet Transform demonstrates superior performance, particularly in terms of Peak Signal-to-Noise Ratio (PSNR). Face recognition emerges as a crucial aspect across numerous applications, including video surveillance, criminal investigations, forensic analysis, secure electronic banking, mobile phones, credit cards, and secure building access. The distinguishing feature of the Curvelet Transform lies in its multi-scale directional nature, allowing for an almost optimal non-adaptive sparse representation of objects with edges. Moreover, its utility extends beyond traditional image processing applications, proving effective in diverse fields.

Keywords:

Image processing, Curve let transform, Wavelet Transform.