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Abstract

Different signal processing transforms provide us with unique decomposition capabilities. Instead of using specific transformation for every type of signal, we propose in this paper a novel way of signal processing using a group of transformations within the limits of Group theory. For different types of signal different transformation combinations can be chosen. It is found that it is possible to process a signal at multiresolution and extend it to perform edge detection, denoising, face recognition, etc by filtering the local features. For a finite signal there should be a natural existence of basis in it's vector space. Without any approximation using Group theory it is seen that one can get close to this finite basis from different viewpoints. Dihedral groups have been demonstrated for this purpose.

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