

Active Geometric Wavelets

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In this talk we present an algorithm for sparse representations of images that combines the active contour [1] and the adaptive geometric wavelet [2], [3] methods. The algorithm overcomes the limitation of the active contour method that can only segment between the limited number of regions and generalizes the geometry of adaptive wavelet representations beyond dyadic cubes and triangulations. Sample application in medical imaging will be presented.

Joint work with Nira Dyn and Itai Gershtansky (Tel Aviv University)

[1] T. Chen and L. Vese, Active Contours without edges, IEEE Trans. Image Processing 10 (2001), 266-277.

[2] S. Dekel and D. Leviatan, Adaptive multivariate approximation using binary space partitions and geometric wavelets, SIAM Journal on Numerical Analysis 43 (2005), 707-732.

[3] D. Alani, A. Averbuch and S. Dekel, Image coding using geometric wavelets, IEEE Trans. Image Processing 16 (2007), 69-77.