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Applications of Alpert wavelets to imaging-based medical diagnosis

We utilized an Alpert wavelet basis to encode images acquired as part of routine clinical late gadolinium enhancement (LGE) cardiac MRI protocols, and applied machine learning algorithms to develop a classification method to distinguish different types of cardio-myopathies. The results were compared to non-preprocessed images and images processed with standard wavelet bases. In this talk we introduce the basic concepts of Alpert wavelets and some encouraging outcomes of the study. The research is done in collaboration with Ramneet Hunjan from the University of Calgary, and the Libin Cardiovascular Institute at the University of Calgary.