Sparse approximation of signals and images

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A crucial problem in data analysis is to construct efficient low-level representations of mathematical objects from discrete signal data while preserving characteristic properties of the target object. In recent years, many ideas have been developed to design adaptive approximation schemes for signals and images taking into account some a-priori knowledge about their structure. In these lectures we want to present some different approaches to the subject as e.g. the easy path wavelet transform (EPWT), nonlinear techniques for diffusion inpainting and Prony-like methods.