

NESTED BREGMAN ITERATIONS FOR IMAGE DECOMPOSITION

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We consider the task of image deblurring while simultaneously decomposing the reconstruction into components with different features. A commonly used tool for this is to use a variational approach with an infimal convolution of regularizing functions. While for noise corrupted observations the method of Bregman iterations provides a robust method to obtain an overall good approximation of the true image, the quality of the single components depends on the proper choice of weights associated to the infimally convoluted functions. We propose the method of Nested Bregman iterations to improve a decomposition in a structured way without the need of a weighting choice. We discuss the convergence behavior and well-definedness of the proposed method and illustrate its strength numerically for various examples. This is joint work with D. Driggs, K. Papafitsoros, E. Resmerita and C. Schönlieb.