Laplace deconvolution on the basis of time domain data and its application to Dynamic Contrast Enhanced imaging

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In the present talk, we consider the problem of Laplace deconvolution with noisy discrete non-equally spaced observations on a finite time interval which appears in many different contexts. We propose a new method for Laplace deconvolution which is based on expansions of the convolution kernel, the unknown function and the observed signal over Laguerre functions basis using regression setting. The advantage of this methodology is that it leads to very fast computations and produces no boundary effects. The methodology is illustrated by a simulation study and a real data example from medical imaging.

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