Convexization in Markov Chain Monte Carlo

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MCMC processes in general are governed by non convex objective functions that are difficult to optimize. Standard regularization of MCMC processes (e.g with quadratic penalties) in general improve optimization performance accuracy but slow optimization processes significantly. In our paper we suggest a different convexization recursion process that is based on local transformations of objective functions into auxiliary functions. When auxiliary functions are created then a recursive MCMC process is applied to these auxiliary functions to update parameters. Then this updated parameters are used to create a new auxiliary function and so on. We demonstrate our method on a compressive sensing problem with small dimensionality matrices.