Sequential convex programs for tame optimization, an approach based on value functions

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Many iterative processes in nonlinear optimization rely on sequentially solving simple approximate models of the original problem. In this work, we deal with nonconvex nonsmooth problems and we consider majorant convex models which are solved successively in order to produce minimizing sequences. We address the issue of the convergence of such processes in the large context of tame optimization. The key idea of our analysis relies on the introduction of the value function and on the interpretation of arbitrary majorization-minimization processes as approximate gradient methods on this function. This approach is used to analyze the convergence of complex algorithms such as Fletcher's Sequential Quadratic Programming ellastic method. The talk will be based on materials presented in [1]

Références

[1] J. Bolte, E. Pauwels, *accepted for publication in Mathematics of Operation Research, Majorization-minimization procedures and convergence of SQP methods for semi-algebraic and tame programs*, 2015.