Unified global optimality conditions for smooth minimization problems with mixed variables

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Abstract

In this paper we establish necessary as well as sufficient conditions for a given feasible point to be a global minimizer of smooth minimization problems with mixed variables. These problems, for instance, cover box constrained smooth minimization problems and bivalent optimization problems. In particular, our results provide necessary global optimality conditions for difference convex minimization problems, whereas our sufficient conditions give easily verifiable conditions for global optimality of various classes of nonconvex minimization problems, including the class of difference of convex and quadratic minimization problems. We discuss numerical examples to illustrate the optimality conditions. © EDP Sciences.

Author keywords

box constraints; Difference of convex functions; Discrete constraints; global optimization; Nonconvex optimization; Optimality conditions; Quadratic minimization

Indexed keywords

Engineering controlled terms: Constrained optimization; Trajectories

Engineering uncontrolled terms: box constraints; Convex minimization; Difference of convex functions; Discrete constraints; Global minimizers; Global optimality; Global optimality conditions; global optimization; Minimization problems; Non-convex minimization; Nonconvex optimization; Numerical examples; Optimality conditions; Optimiz ation problems; Quadratic minimization; Sufficient conditions

Engineering main heading: Optimization