An Study of Nonconvex Optimization Problems via Global Directional Derivatives

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Resumen

We use global directional derivatives for studying two problems from the theory of nonconvex nonsmooth optimization; Optimality conditions for nonsmooth optimization problems and connections between nonconvex constraint optimization problems via variational inequalities. For the first problem, we characterizes local and global optimality via the lower global directional derivative, while for the second problem, a full connection between constraint optimization problems and Stampacchia and Minty variational inequalities is provided, in both cases, neither differentiability nor convexity nor continuity assumptions are considered. As a corollary, the well-known results of convex analysis are recover.