JANE YE, University of Victoria

On relaxed constant positive linear dependence constraint qualification

The classical relaxed constant positive linear dependence constraint qualification (RCPLD) is defined for a system of smooth equalities and inequalities. It is weaker than the usual constraint qualification such as Mangasarian Fromovitz constraint qualification. Moreover RCPLD is known to be a sufficient condition for the error bound property. In this work we extend RCPLD to a very general feasibility system which may include Lipschitz continuous inequality constraints, and closed sets. We show that RCPLD we introduced for the general system is still a constraint qualification and it is a sufficient condition for the error bound property under Clarke regularity conditions for the inequality constraints and the abstract constraint set. Moreover when the sets involved are the union of finitely many convex polyhedral sets, we propose a weaker form of RCPLD and its piecewise variant. We show that the weaker form of RCPLD is still a constraint qualification and its piecewise variant is a sufficient condition for the error bound property. This is a joint work with Mengwei Xu.