Relaxed-inertial proximal point algorithms for problems involving strongly quasiconvex functions

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Abstract

Introduced in in the 1970's by Martinet for minimizing convex functions and extended shortly afterwards by Rockafellar towards monotone inclusion problems, the proximal point algorithm turned out to be a viable computational method for solving various classes of optimization problems, in particular with nonconvex objective functions.

We propose a relaxed-inertial proximal point type algorithm for solving optimization problems consisting in minimizing strongly quasiconvex functions whose variables lie in finitely dimensional linear subspaces, that can be extended to equilibrium problems involving such functions. We also discuss possible modifications of the hypotheses in order to deal with quasiconvex functions. Numerical experiments confirm the theoretical results, in particular that the relaxed-inertial algorithms outperform their "pure" proximal point counterparts [3, 4].

This talk is based on joint work [1, 2] with Felipe Lara and Raúl Tintaya Marcavillaca (Universidad de Tarapacá).

References

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