Inertial-relaxed splitting for composite monotone inclusions

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Abstract

In a similar spirit of the extension of the proximal point method developed by M. Alves et al. [2], we propose in this work an Inertial-Relaxed primal-dual splitting method to address the problem of decomposing the minimization of the sum of three convex functions, one of them being smooth, and considering a general coupling subspace. A unified setting is formalized and applied to different average maps whose corresponding fixed points are related to the solutions of the inclusion problem associated with our extended model. An interesting feature of the resulting algorithms we have designed is that they present two distinct versions with a Gauss–Seidel or a Jacobi flavor, extending in that sense former proximal ADMM methods, both including inertial and relaxation parameters.

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