

A primal-dual splitting algorithm for solving systems of monotone inclusions

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Abstract

In the following presentation we propose an algorithm for solving systems of coupled monotone inclusions in Hilbert spaces. The operators arising in each of the inclusions of the system are processed in each iteration separately, namely, the single-valued are evaluated explicitly (forward steps), while the set-valued ones via their resolvents (backward steps). In addition, most of the steps in the iterative scheme can be executed simultaneously, this making the method applicable to a variety of convex minimization problems. The numerical performance of the proposed splitting algorithm is emphasized through applications in image deblurring.