Solution of Mismatched Monotone+Lipschitz Inclusion Problems

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Abstract

Adjoint mismatch problems arises when the adjoint of a linear operator is replaced by an approximation, due to computational or physical issues. This occurs in inverse problems, particularly in computed tomography. In this talk we address the convergence of algorithms for solving monotone inclusions in real Hilbert spaces in the presence of adjoint mismatch. In particular, we investigate the case of a mismatched Lipschitzian operator. We propose variants of the algorithms *Forward-Backward-Half-Forward*, *Forward-Douglas-Rachford-Forward*, and the *Forward-Half-Reflected-Backward* methods allowing to cope the mismatch. We establish conditions under the weak convergence to a solution of these variants is guaranteed. Moreover, the proposed algorithms allow each iteration to be implemented with a possibly iteration-dependent approximation to the mismatch operator, thus allowing this operator to be modified in each iteration.

Joint work with: Emilie Chouzenoux[1] and Jean-Christophe Pesquet[1]

References

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