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An iteration method to solve multiple constrained least squares problems*

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Abstract

In this paper we propose an iteration method to solve the multiple constrained least squares matrix problem. We first transform the multiple constrained least squares matrix problems into the multiple constrained matrix optimal approximation problem, and then we use the idea of Dykstra's algorithm to derive the basic iterative pattern. We observe that we only need to solve multiple single constrained least squares matrix problems at each iteration step of the proposed algorithm. We give a numerical example to illustrate the effectiveness of the proposed method to solve the original problems. Also, we give an example to illustrate that the method proposed by Escalante and Li to solve the single constrained least squares matrix problem are not correct.

Keywords. Constrained matrix; Constrained least-squares; Alternating projection method; Dykstra's algorithm.

AMS subject Classifications. 15A24, 15A39, 65F30

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