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Nonlinear Conjugate Gradient Methods for the Output Feedback Pole Assignment Problem

The nonlinear conjugate gradient methods are very effective iterative methods for solving large-scale optimization problems. Indeed, these methods are widely used to obtain the numerical solution of the optimal control problems arising in various applications such as engineering and

finance, especially for solving large-scale problems. In this article, we propose three nonlinear conjugate gradient methods for solving the output and state feedback pole assignment problems. Also, we establish the global convergence of the proposed algorithms under standard assumptions. Moreover, we extend these methods in order to tackle the output feedback pole assignment problem for decentralized control systems.