

Convex regularized variable-forgetting-factor recursive least squares algorithm for sparse system identification

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Abstract

A convex regularized variable-forgetting-factor recursive least squares algorithm (CR-VFFRLS) is proposed for sparse system identification, in which the variable-forgetting-factor is deduced by minimizing the convex regularized cost function via the gradient descent method. It overcomes the drawback that the fast-tracking ability with the high steady-state error or the low steady-state error with slow tracking ability, which is ineluctable in the fixed forgetting-factor RLS algorithm. Simulation results demonstrate the superiorities of the proposed algorithm to the CR-RLS and VFFRLS algorithm.

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CR-VFFRLS-5.19\begin{CJK}{UTF8}{gbsn}.\end{CJK}\selectlanguage{english}pdf available at <https://authorea.com/users/483857/articles/569816-convex-regularized-variable-forgetting-factor-recursive-least-squares-algorithm-for-sparse-system-identification>