Segmentation of ARX-Models Using Sum-of-Norms Regularization

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Segmentation of time-varying systems and signals into models whose parameters are piecewise constant in time is an important and well studied problem. It is here formulated as a least-squares problem with sum-of-norms regularization over the state parameter jumps, a generalization of ℓ_1-regularization. A nice property of the suggested formulation is that it only has one tuning parameter, the regularization constant which is used to trade off fit and the number of segments.