MARGINALIZED PARTICLE FILTERING FOR BLIND SYSTEM IDENTIFICATION (TueAmOR5)

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Abstract :

This paper presents a Bayesian approach for blind source recovery based on Rao−Blackwellised particle filtering techniques. The proposed state space model uses a time−varying autoregressive (TVAR) model for the sources, and a time−varying finite impulse response (FIR) model for the channel. The observed signals of the SISO, SIMO (Single Input, Multiple Output) or MIMO system are the convolution of the sources with the channels measured in additive noise. Sequential Monte Carlo (SMC) methods are used to implement a Bayesian approach to the nonlinear state estimation problem. The Rao−Blackwellisation technique is applied to directly recover the sources by marginalizing the AR and FIR coefficients from the joint posterior distribution. Simulation results are given to verify the performance of the proposed method.

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