



DATA-AIDED TIMING RECOVERY IN THE PRESENCE OF DATA-DEPENDENT NOISE (WedPmOR8)

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✳ Abstract :

This paper presents a new data-aided timing recovery algorithm for channels with data-dependent noise. Based on a data-dependent Gauss-Markov model of the noise, a maximum-likelihood timing recovery scheme is derived. The proposed timing recovery algorithm incorporates data-dependent noise prediction parameters in the form of linear prediction filters and prediction error variances. Moreover, because noise can be nonstationary in practice, an adaptive algorithm is proposed in order to estimate and track the noise prediction parameters. Simulation results, for a partial response maximum-likelihood system, show that our algorithm allows an important reduction in timing jitter whenever noise is dominantly data-dependent.