

Quadratic estimation from non-independent uncertain observations with coloured noise

S. Nakamori^(*), R. Caballero^(**), A. Hermoso^(***), J. Jiménez^(**), J. Linares^(***)

^(*)Department of Technology. Faculty of Education, Kagoshima University
1-20-6, Kohrimoto, Kagoshima 890-0065, Japan
E-mail: nakamori@edu.kagoshima-u.ac.jp

^(**)Departamento de Estadística e I.O., Universidad de Jaén
Paraje Las Lagunillas, s/n, 23071 Jaén, Spain
E-mail: raguila@ujaen.es

^(***)Departamento de Estadística e I.O., Universidad de Granada
Campus Fuentenueva, s/n, 18071 Granada, Spain
E-mail: ahermoso@ugr.es, jlinares@ugr.es

Abstract

Recursive least-squares quadratic filtering and fixed-point smoothing algorithms for signal estimation from uncertain observations are derived when the uncertainty is modeled by not necessarily independent variables and the observations contain white plus coloured noise. The proposed estimators do not require the knowledge of the state-space model generating the signal, but only the moments, up to the fourth one, of the processes involved, along with the probability that the signal exists in the observations and the $(2, 2)$ -element of the conditional probability matrix of the sequence describing the uncertainty.

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