Online data processing: Comparison of Bayesian regularized particle filters

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Abstract

The aim of this paper is to compare three regularized particle filters in an online data processing context. We carry out the comparison in terms of hidden states filtering and parameter estimation, considering a Bayesian paradigm and a univariate Stochastic Volatility (SV) model. We discuss the use of an improper prior distribution in the initialization of the filtering procedure and show that the regularized Auxiliary Particle Filter (APF) outperforms the regularized Sequential Importance Sampling (SIS) and the regularized Sampling Importance Resampling (SIR).

AMS 2000 subject classifications: Primary 65C60.

Keywords: Online data processing, Bayesian estimation, regularized particle filters, Stochastic Volatility models.

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