

We gratefully acknowledge support from the Simons Foundation and member institutions

arXiv.org > stat > arXiv:1303.3518

Search or Article-id

(Help | Advanced search) All papers - Go!

Statistics > Other Statistics

## Propagation of initial errors on the parameters for linear and Gaussian state space models

## El Kolei Salima

(Submitted on 14 Mar 2013)

For linear and Gaussian state space models parametrized by \$\theta\_0 \in \Theta \subset \R^{r}, r \geq 1\$ corresponding to the vector of parameters of the model, the Kalman filter gives exactly the solution for the optimal filtering under weak assumptions. This result supposes that \$\theta\_0\$ is perfectly known. In most real applications, this assumption is not realistic since \$\theta\_0\$ is unknown and has to be estimated. In this paper, we analysis the Kalman filter for a biased estimator of \$\theta\_0\$. We show the propagation of this bias on the estimation of the hidden state. We give an expression of this propagation for linear and Gaussian state space models and we extend this result for almost linear models estimated by the Extended Kalman filter. An illustration is given for the autoregressive process with measurement noises widely studied in econometrics to model economic and financial data.

Subjects: Other Statistics (stat.OT); Statistics Theory (math.ST) Cite as: arXiv:1303.3518 [stat.OT]

## Download:

- PDF
- PostScript
- Other formats

Current browse context: stat.OT < prev | next > new | recent | 1303

Change to browse by:

math math.ST stat

## **References & Citations**

• NASA ADS

Bookmark(what is this?)

📄 💿 💥 🛤 📑 📊 🚽 🔛 🥳 Societae Vilse