

Call for papers
Journal of Mathematical Modelling and Algorithms (JMMA)

Special issue on
Mathematics of Filtering and its Applications

Guest editors

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The problem of estimating the latent states of a dynamical system from observed data often arises in many branches of physical and social sciences, including image processing, navigation, econometrics, finance and meteorology.

Filtering refers to any method for obtaining such state estimates, recursively in time, by combining model predictions with noisy observations. While the solution to filtering problem for a linear dynamic system is well understood and has been studied extensively since 1960s, there is no single solution available for filtering in nonlinear systems which outperforms all the other possible solutions. For commonly occurring nonlinear model structures, the conditional distribution is often given by solution of a stochastic partial differential equation. This equation is usually quite difficult to solve numerically and is intractable if we need a solution in real time (as in the case of navigation applications) or if the state dimension is very large (as in the case of meteorology). Different Bayesian approximation methods exist for solving the nonlinear filtering problem arising in different fields such as image processing, meteorology and econometrics, each offering an application-specific compromise between estimation accuracy, computational burden and numerical robustness.

This special issue will focus on innovative aspects of filtering techniques and related methodologies offering a comprehensive and unifying view starting from the contribution of different fields.

We invite researchers coming from different application areas to share state-of-the-art knowledge about filtering in their respective fields and to provide a platform for further research interaction.

All manuscripts should be submitted electronically via the JMMA's website
<http://www.springer.com/mathematics/applications/journal/10852>
stating clearly that the paper is for this special issue.

The submission deadline is **January 1, 2012**.

The special issue will be open for submission from September 2011, and the co-editors will start processing the submissions at the beginning of January

2012. The plan is to publish the special issue in summer 2013.

Researchers from all relevant disciplines are invited to consider this special issue as an outlet to publish their quality work on this topic of increasing significance.

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