

Call for Papers
IEEE Signal Processing Society
IEEE Journal of Selected Topics in Signal Processing

Special Issue on Model Order Selection in Signal Processing Systems

Model determination is a fundamental problem in a wide variety of signal processing applications, such as model-order determination for linear predictive coding of speech signal, model-order selection for image segmentation and diversity-order selection for linear equalization in telecommunications. Generally speaking, the criterion for selecting a proper model order is to discover an appropriate tradeoff between the model-fitness and the implementation complexity associated with hardware or software for digital signal processing platforms. Crucial tradeoffs between the system performance and the methodological complexity appear to draw a lot of recent research attention. In this call for papers, we would like to invite novel ideas, theoretical analyses as well as the practical implementation studies regarding the tradeoff between system performance and model-order subject to hardware and/or software constraints for signal processing applications. The new tradeoff measures are essential in this issue. Subject to these new tradeoff measures, novel model determination techniques and joint optimization approaches for parameter estimation, or hybrid models are encouraged to be addressed thereupon.

Original papers, previously unpublished and not currently under review by another journal, are solicited for this special issue. The scope of this special issue includes, but is not limited to:

- new measures, concepts and theories of the model determination in the tradeoff among system performance, hardware, software for general signal processing applications
- trade-off oriented model-order determination for autoregressive (AR), moving-Average (MA), autoregressive-moving-average (ARMA) signals and systems
- signal processing applications for the system performance optimization subject to the resource constraints, i.e., storage space, algorithm complexity, etc.
- optimal model-based array signal processing subject to implementation constraints
- model-order selection or hybrid models for signal processing applications
- new studies on the tradeoff effects of improper model-order selections
- tradeoff learning for reference-based/blind and supervised/unsupervised paradigms

Submission information is available at <http://www.ece.byu.edu/jstsp>. Prospective authors are required to follow the Author's Guide for manuscript preparation of the IEEE Transactions on Signal Processing at <http://ewh.ieee.org/soc/sps/tsp>. Manuscripts will be peer reviewed according to the standard IEEE process.

Manuscript submission due:	Apr. 1, 2009
First review completed:	Jul. 1, 2009
Revised manuscript due:	Aug. 15, 2009
Second review completed:	Oct. 15, 2009
Final manuscript due:	Nov. 15, 2009

Lead guest editor:

Hsiao-Chun Wu, Louisiana State University, USA, wu@ece.lsu.edu

Guest editors:

Iain Collings, University of Sydney, Australia, Iain.Collings@csiro.au

Are Hjørungnes, University of Oslo, Norway, arehj@unik.no

Chin-Liang Wang, National Tsing Hua University, Taiwan, clwang@ee.nthu.edu.tw

Michael Wicks, Air Force Research Laboratory, USA, Michael.Wicks@rl.af.mil