

CALL FOR PAPERS FOR SPECIAL SESSION IN DSP2009

Submissions are invited for a special session on
Compressed Sensing and Sub-Nyquist Sampling
to be held at the 16th International Conference on Digital Signal Processing (DSP2009) in Santorini, Greece, July 5-7, 2009.

For over 50 years, sampling theory has been focused around a result attributed to, among others, Nyquist and Shannon, stating that signals that are band-limited can be sampled and reconstructed using samples taken at a rate greater than twice the signal bandwidth. Recently, the focus has shifted to signals with structures other than band-limitedness. Two types of signal models stand out. In compressed sensing a sparse signals model is assumed, that is, signals are assumed to be well approximated using a small number of basis elements. The other model is the finite rate of innovations model, which is a parametric signal model that has a finite number of degrees of freedom in each time interval. Both of these models allow the derivation of sampling procedures and reconstruction algorithms. Importantly, the required number of samples is generally proportional to the information content of the signal which can be significantly lower than the number of samples required by the Nyquist limit.

At the heart of current research into compressed sensing and other sub-Nyquist sampling methods is the interplay between signal models, sampling operators and reconstruction algorithms. Important questions revolve around the specification of accurate signal models that exploit signal structure, the development and study of sampling systems that preserve the relevant signal information and the derivation of fast and provably efficient algorithms to reconstruct the signal from the samples.

This special session on Compressed Sensing and Sub-Nyquist Sampling, to be held in Santorini during the 2009 16th International Conference on Digital Signal Processing (July 5 – July 7, 2009), is a dedicated session that aims to bring together a diverse range of current work in this fast developing and interdisciplinary field. Contributions are solicited in the broad area of compressed sensing and other sub-Nyquist sampling methods. Topics can include, but are not limited to:

- Signal models
 - Finite rate of innovations models
 - Sparse models
 - Tree structures
 - Positivity constraints
 - Multiple measurement vectors
- Measurement system properties and design
- Recovery algorithms
- Bayesian methods
- Theoretical aspects
 - High dimensional geometry
 - Information Theory
 - Performance bounds
- Analogue to information conversion
 - Finite rate of innovations sampling
 - Analogue compressed sensing
- Applications
 - Imaging
 - Distributed sensing
 - Communications

All accepted papers will be published in the conference proceedings and will be available for online access via IEEE Xplore.

<i>Important Dates</i>	
Deadline for paper submission – Special Session	February 15, 2009
Acceptance Notification	March 15, 2009

Questions about the session should be sent to the session organizer:
Thomas Blumensath, The University of Edinburgh, UK : thomas.blumensath@ed.ac.uk

Authors of papers are invited to submit original contributions, not exceeding eight (8) pages, including figures, tables and references. The submission instructions can be found at www.dsp2009.org. Please note that all submissions will be peer-reviewed for quality and applicability. **The authors should submit the full camera-ready paper, following the general Call for Papers instructions**, at:

<http://www.dsp2009.org/default.asp?pg=submission&lng=en>

In addition to the submission via the EasyChair system, a copy of the paper should also be sent as an email attachment (in PDF format) to thomas.blumensath@ed.ac.uk