Bioimaging has continued to evolve across a wide spectrum of applications from diagnostics to personalized therapy to mechanistic understanding of biological processes. The field continues to be challenged with ever-increasing demand on more robust methods and integration with clinical and molecular data.

The 2013 IEEE International Symposium on Biomedical Imaging will be held April 7-11, at the Westin Hotel in San Francisco, Ca. ISBI is a joint initiative of the IEEE Signal Processing Society (SPS) and IEEE Engineering in Medicine and Biology Society (EMBS).

ISBI has a strong tradition of fostering integration between different imaging communities and of contributing to an integrative imaging approach accessing all scales of observation. We are soliciting all aspects of biological and medical imaging, from mathematical image reconstruction for medical applications to integration of image-based modeling with genomic data for hypothesis generation and network inference.

The meeting will feature preconference tutorials, followed by a strong scientific program of plenary talks and special sessions as well as oral and poster presentation of peer-reviewed contributed papers.

For more information: www.biomedicalimaging.org or isbi2013-info@ieee.org

Deadline for submission of 4-page paper: October 28, 2012
Notification of Acceptance/Rejection: January 4, 2013
Submission of final accepted papers: January 28, 2013
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IEEE Transactions on Audio, Speech, and Language Processing
Special Issue on Large-Scale Optimization for Audio, Speech, and Language Processing

Large-scale optimization algorithms are finding a broad range of applications in modern computing. In the fields of data mining and signal processing, they have become ubiquitous. This special issue creates a forum for researchers working in various areas of audio, speech, and language processing to come together with optimization researchers and share ideas for improving the use of optimization approaches in these areas.

Further understanding of the relationships between standard optimization methods and the specialized approaches currently used in speech and language processing form a basis for future work at the intersection of these areas. Further leveraging of algorithmic ideas from optimization, cross-fertilization with existing algorithms, recognition of special structures and challenges, and adaptation to novel parallel computing environments will lead to significant advances in the state of the art.

Pattern recognition in audio, speech, and language processing requires estimation of parameters in statistical models via some optimization criteria. At large scale, these problems present challenges that cannot be resolved by naïve application of well known optimization techniques. Second-order algorithms cannot be applied directly to very large data sets, and even conventional first-order algorithms are impractical when they require repeated sweeps through the data. It is difficult even to obtain a well defined optimization formulation of the pattern recognition task. For example, likelihood criteria usually are inadequate if the training data do not represent all possible variations in patterns.

Significant progress in pattern recognition was achieved by introducing discrimination criteria for training, but overtraining remains a danger. A major challenge is to couple fast optimization techniques for these very large data sets with formulation techniques that prevent overtraining and degradation of pattern-recognition accuracy. Such formulations would allow prior information to be incorporated into the model, along with regularization techniques.

At the system level, fusion of decisions is commonly used in such speech and language processing problems as speaker / language recognition, and speech recognition / machine translation. As the optimization takes place at the system level, it involves many parameters of different types. This special issue provides a forum for authors to share their findings across different speech and language applications.

Over the past decades, a variety of specialized approaches have been proposed to solve pattern recognition problems. Recent success has been obtained with adaptations of conventional optimization approaches, including LBFGS, inexact Newton methods, coordinate descent, and stochastic gradient methods. One goal of the special issue is to build on these successes, identifying further relevant optimization techniques, hybridizing these approaches, analyzing their convergence properties, and specializing them to specific pattern recognition problems in audio, speech, and language processing. The community would benefit from a broader view that incorporates recent advances in large-scale optimization methods.

Other important avenues of research could include algorithms that use parallel computing architectures, including GPUs. Recent developments in optimization, machine learning, and computational statistics could be leveraged here. Another possibility is multilevel algorithms, in which part of the parameter search can be performed in reduced spaces, potentially improving robustness and efficiency. Because of the size of the data set, special attention must be paid to data handling and movement in the type of data structures. These factors must be considered in adapting and implementing optimization approaches to pattern recognition problems effectively.

In light of the important research already performed in this exciting space, we invite papers describing various aspects of large-scale optimization in audio, speech, and language processing. All submissions must have a specific connection to audio, speech, and language processing. Within this scope, topics of particular interest include, but are not limited to, the following.

- Hybrid modeling and optimization
- Computational studies of algorithm performance on large data sets
- Stochastic and semi-stochastic optimization methods
- Algorithms for parallel architectures, including clusters and GPUs
- High-dimensional MCMC methods
- Sparse and regularized optimization
- Inverse methods
- Optimization techniques in discriminative training
- System-level optimization for fusion of decisions
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- Effective handling of data in optimization algorithms

The authors are required to follow the Author’s Guide for manuscript submission to the IEEE Transactions on Audio, Speech, and Language Processing at http://www.signalprocessingsociety.org/publications/periodicals/taasl/taasl-author-information

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IEEE Transactions on Image Processing
Special Issue on 3D Video Representation, Compression and Rendering

A new set of 3D data formats and associated compression technology are emerging with the aim to achieve higher compression of 3D and multiview video content, and also facilitate the generation of multiview output, e.g., as needed for multiview auto-stereoscopic displays. This special issue will target the most recent technical developments in this area including novel representations of natural 3D scenes as well as corresponding compression and rendering techniques. Applications of interest include 3D broadcast, mobile delivery, as well as interactive and immersive applications. Since 3D quality assessment is critical to the development and evaluation of new 3D coding and rendering technologies, papers that address quality assessment of 3D video are also sought. This special issue also targets novel coding architectures and techniques that address interoperability and compatibility requirements of different 3D services, as well as emerging standards in this area. The primary objective of this special issue is to provide the image processing and video coding community with a collection of papers that present the most recent advances in 3D video representation, coding and rendering technology.

We invited prospective authors to submit original and unpublished research to this special issue. All submissions are expected to exhibit high novelty and demonstrate the merits of the proposed approach in terms of compression efficiency, rendering quality and/or quality assessment. The topics of interest include, but are not limited to:

- Novel representations of natural 3D scenes
- Compression techniques for stereo and multiview video content, supplemental data such as depth, as well as joint coding techniques that exploit inter-component correlations
- 3D warping and rendering techniques, including depth-based image rendering and media retargeting
- Encoder optimization techniques including rate-distortion modeling, optimization and bit allocation
- 3D quality assessment metrics and methodology, as well as evaluation studies, that relate to assessment of impairments caused by compression and rendering
- Novel coding architectures, interoperable systems and standardization

Submission Procedure: Manuscripts should be submitted by the below deadline using the Manuscript Central system at http://mc.manuscriptcentral.com/tip-ieee. Further information on paper preparation and submission can be found at http://www.signalprocessingsociety.org/publications/periodicals/image-processing/. Manuscripts will be peer reviewed according to the standard IEEE review process.

Reproducible Research: It is encouraged that papers report results based on publicly available test material and that software be made available for review and experimental validation.

Schedule
Submissions due: 1 October 2012
First reviews completed: 15 December 2012
Revised manuscripts due: 1 February 2013
Second reviews completed: 1 April 2013
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CALL FOR PAPERS
IEEE TRANSACTIONS ON INFORMATION FORENSICS AND SECURITY
Special Issue on Intelligent Video Surveillance for Public Security & Personal Privacy

Guest Editors
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Over the past decade video surveillance has rapidly become a widespread tool for addressing the problem of public security and personal privacy. It is desirable to replace human operators by cloud & distributed computing systems in surveillance data acquisition, recording, archival, indexing, retrieval and manipulation. The intelligent video surveillance (IVS) technology is the core of the emerging next-generation video surveillance system. Recent advances in computer vision have shown good potential for some high level vision tasks, such as object detection, human identification, tracking, and behavior understanding, based on which diverse security applications such as “suspect identification” and “fighting detection” can be realized. Besides, research on security and privacy issues in video surveillance is growing rapidly in recent years. New interdisciplinary technologies that integrate computer vision, data hiding and stenography have been developed in addressing privacy protection concerns. This Call for Papers seeks for ongoing research on IVS techniques, and collects cutting-edge research on security and privacy problems with respect to technological, behavioral, legal and cultural aspects in video surveillance systems.

Example topics include but are not limited to

- Video Analysis for Public Security Protection: foreground detection and motion tracking; object (face, pedestrian) identification and re-identification; action/activity/event/behavior recognition; fusion of vision with other sensing modalities
- Video Processing for Personal Privacy Protection: privacy information detection; video redaction/scrambling; privacy information storage/management; privacy encryption
- System & Performance: research prototypes; hardware & software architectures; performance evaluation
- Other Related Topics: privacy policies; user requirements; economics of video surveillance

Submission Procedure: Manuscripts are to be submitted according to the Information for Authors at http://www.signalprocessingsociety.org/publications/periodicals/forensics/forensics-authors-info/ using the IEEE online manuscript system, Manuscript Central. Papers must not have appeared or be under review elsewhere. The Guest Editors will not be submitting any papers to the SI.

Schedule
Submission deadline: October 1, 2012
First Review: January 16, 2013
Revisions Due: March 1, 2013
Final Decision: May 16, 2013
Final manuscript due: June 20, 2013
Tentative publication date: October 1, 2013
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Call for Papers—IEEE JOURNAL OF SELECTED TOPICS IN SIGNAL PROCESSING, Special Issue on Multi-target Tracking
CALL FOR PAPERS

IEEE International Conference on Multimedia and Expo (ICME) 2013
July 15-19, 2013 • Fairmont Hotel, San Jose, California, USA

With nearly 1200 submissions in 2011, the IEEE International Conference on Multimedia & Expo (ICME) has been the flagship multimedia conference sponsored by four IEEE societies since 2000. It serves as a forum to promote the exchange of the latest advances in multimedia technologies, systems, and applications from both the research and development perspectives of the circuits and systems, communications, computer, and signal processing communities. In 2013, an Exposition of multimedia products, animations and industries will be held in conjunction with the conference.

Authors are invited to submit a full paper (two-column format, 6 pages maximum) according to the guidelines available on the conference website at www.icme2013.org. Only electronic submissions will be accepted. Topics of interest include, but are not limited to:

- Speech, audio, image, video, text processing
- Signal processing for media integration
- 3D visualization, animation and virtual reality
- 3D imaging and 3DTV
- Multi-modal multimedia computing systems and human-machine interaction
- Multimedia communications and networking
- Multimedia security and content protection
- Multimedia databases and digital libraries
- Multimedia applications and services
- Media content analysis
- Multimedia standards and related issues
- Multimedia quality assessment

ICME 2013 aims to have high quality oral and poster presentations. Several awards sponsored by industrial and scholarly organizations will be presented. Best papers will be presented in a single-track session to all participants. Accepted papers must be presented at the conference in order to be included in the IEEE Xplore Library.

A number of Workshops will be organized by the sponsoring societies. To further foster new emerging topics, ICME 2013 also welcomes researchers, developers, and practitioners to organize regular Workshops. Potential organizers please contact the Workshop Chairs for further details. Proposals for Tutorials, Demos, and Exhibitions are also encouraged. Please visit the ICME 2013 website for submission details.

Regular Paper Abstract Submission: December 10, 2012
Regular Paper Submission: December 15, 2012
Workshop & Demo Paper Submission: February 20, 2013
Industrial & Application Short Paper Submission: March 31, 2013
Notification of Regular Paper Acceptance: March 1, 2013
Notification of Workshop and Demo Paper Acceptance: April 15, 2013
Camera-Ready Paper Due: April 30, 2013
Workshop Proposal Due: December 31, 2012
Tutorial Proposal Due: January 31, 2013

Conference Website: www.icme2013.org
Contact Email: webmaster@icme2013.org
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Special Issue on Learning-Based Decision Making in Dynamic Systems under Uncertainty

The design of dynamic systems for many emerging applications faces increasing uncertainty: in cognitive radio systems for dynamic spectrum access, secondary users need to detect and exploit temporally and spatially varying spectrum white space under incomplete, inaccurate, and even unknown models of spectrum occupancy, noise, and fading; in large-scale wireless sensor networks with random deployment, low-cost battery-powered sensors need to function collectively without assuming a priori knowledge of the network topology or the communication environment; in cyber systems, intrusion detection algorithms need to counter increasingly sophisticated attacks that may not follow a well behaved stochastic model and may react in real time to the detection scheme. In designing such dynamic systems, learning becomes a crucial part of decision making: actions cannot be predetermined but rather must adapt to past observations obtained through interactions with the environment.

This special issue covers both theories and applications of learning-based stochastic optimization and decision making. It focuses on learning and decision-making techniques that emphasize the temporal dynamic nature of the underlying system and adapt and improve over time through active interactions with the system. Original unpublished contributions are solicited in the following non-exhaustive list of topics.

- Stochastic optimization and control under incomplete, inaccurate, or unknown models.
- Sequential decision making, adaptive control, Markov decision processes under uncertainty.
- Reinforcement learning, Q-learning in dynamic systems.
- Stochastic online learning, multi-armed bandit problems.
- Sample-path-based learning, event-based sequential optimization.
- Distributed learning, control, and decision making.
- Learning and optimization under resource and computational constraints.
- Applications in various dynamic systems.

Prospective authors should visit http://www.signalprocessingsociety.org/publications/periodicals/jstsp/ for information on paper submission. Manuscripts should be submitted using the Manuscript Central system at http://mc.manuscriptcentral.com/jstsp-ieee. Manuscripts will be peer reviewed according to the standard IEEE process.

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Revised manuscript due: Feb. 1, 2013  
Second review completed: Apr. 1, 2013  
Final manuscript due: Apr. 20, 2013

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IEEE SIGNAL PROCESSING LETTERS

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March 15, 2013
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July 12, 2013
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ICASSP 2013

2013 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)
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The 38th International Conference on Acoustics, Speech, and Signal Processing (ICASSP) will be held in the Vancouver Convention & Exhibition Centre, Vancouver, Canada, on May 26 - 31, 2013. ICASSP is the world’s largest and most comprehensive technical conference focused on signal processing and its applications. The conference will feature world-class speakers, tutorials, exhibits, and over 120 lecture and poster sessions. Topics include but are not limited to:

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Notification of Paper Acceptance................................................................. February 18, 2013
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