Magazine Main Page

Society News

Conference News

Publication News

TC News

Chapter and DL News

Initiatives & Trends

New Theses

New Books

Research Opportunities

In-Depth Reports

About the E-Newsletter

Submission Instruction

E-Newsletter Team

IEEE Signal Processing Society

IEEE Signal Processing Magazine

July 2007   **June 2007**
May 2007   **April 2007**

Inside Signal Processing E-Newsletter

August & September 2007

Society News   Conference News   Publication News   TC News   Chapter/DL News
Initiatives & Trends   PhD Theses   New Books   Research Opportunities

Highlights of This Issue

- "Inside Signal Processing E-Newsletter": IEEE approved formal naming of E-Newsletter

- Society News: BoG election due Sept 1; Call for nomination of SPM Best Column Award

- Conference News: MMSP'09 call for proposal; Upcoming conferences and symposia

- Journal News: Check out the new IEEE Applications and Practice Online Magazine

- TC News: Exclusive report from the Sensor Array and Multichannel TC

- Chapter News: Learn what's happening at the Philadelphia Chapter and around the world

- New Initiatives: IEEE Mentoring Connection seeks volunteers; Banff International Research Station

- New PhD Theses, New Books, and Scholarship/Post-doc Opportunities

From the Editors: After a refreshing summer break, we are delighted to bring to our readers this new issue of the E-Newsletter under the newly approved name by the IEEE, "Inside Signal Processing E-Newsletter". We thank many contributors for their input and feedback and we look forward to hearing from more. Please bookmark <http://enews. ieee-spm.org> for current and archived issues of the Inside Signal Processing E-Newsletter. IEEE members may manage their subscription of the email notification of the E-Newsletter at this URL <http://ewh.ieee.org/enotice/options. php?LN=SP001>. Happy reading!

1. Society News and Awards Deadlines

IEEE Signal Processing Magazine Best Column Award - Now Call for Nomination

The IEEE Signal Processing Society has approved a new paper award, *IEEE Signal Processing Magazine Best Column Award*, to honor the author(s) of a column of exceptional merit and broad interest on a subject related to the IEEE Signal Processing Society's technical scope and appearing in the Society's magazine. The award will consist of $500 US per author (up to a maximum of $1500 US per award) and a certificate. In the event that there are more than three authors, the maximum prize will be divided equally among all authors and each shall receive a certificate. Following selection of the winner, presentation of the award shall be made at the Society's Awards Ceremonies, normally held during ICASSP in the Spring or at ICIP in the Fall.

To be eligible for consideration, an article must have appeared in the Columns & Forums section of IEEE Signal Processing Magazine in any issue predating the nomination deadline listed below. Evaluation of the articles shall be on the basis of quality and effectiveness in presenting subjects of broad interest to the Society's members. Nominations may arise from any individual (including readers of the Magazine), members of the IEEE Signal Processing Magazine editorial board or the Society's other publications, or technical committees, and shall be submitted directly to the Society's Awards Board (see below). Current members of the Signal Processing Society's Awards Board are ineligible. Self-nominations are not accepted or considered.

To nominate one or more articles for the award, email Mos Kaveh, Vice President-Awards and Membership at <mos AT umn.edu> before **1 November 2007** with the following information: (a) Article title; (b) Authors; (c) Column, Magazine issue, date of publication (any date prior to 1 November 2007); and (d) Short statement supporting the nomination (less than 1 page). Descriptions of various categories of the SPM columns as well as links and resources to published column articles can be found at this link.

Important Society Activities	Deadlines	Links
Election of Members-at-Large of SPS Board of Governors: cast your vote by mail, by fax, or by web for up to 3 candidates	**September 1, 2007**	Read more about BoG from July 2007 eNews
Nomination of 2007 SPS Publication Awards: for Best Paper Awards, Young Author Best Paper Awards, and Signal Processing Magazine Best Paper Award.	**September 1, 2007**	Nomination info. can be found online.
Nomination of 2007 SPS Major Individual Awards: for the Society Award, the Technical Achievement Award, the Education Award, and the Meritorious Service Award.	**October 1, 2007**	Nomination info. can be found online.
Nomination of the New SPM Best Column Award: honor the author(s) of an SPM column of exceptional merit and broad interest on a subject related to the IEEE SPS's technical scope	**November 1, 2007**	Read more in this issue and at SPM website.

2. Conference News

MMSP 2009 - Call for Proposals

The Technical Committee on Multimedia Signal Processing invites proposals to host the IEEE International Workshop on Multimedia Signal Processing (MMSP) in 2009. Proposals are open to all regions, but to keep with the practice of regional rotation, preference will be given to proposals from either North America (Regions 1-7) or South America (Region 9).

Check here for further details on the aspects that should be addressed by each proposal. The submission deadline is **September 10, 2007**. Please address inquiries and submit proposals to Prof. Ingemar Cox, MMSP-TC Chair, at <ingemar AT ieee.org>.

Call for Participation - Economic Strategy for Health Care through Bio and Information Standards & Technologies

The Biotechnology Council and the U.S. National Institute of Standards and Technology (NIST) is organizing a Conference on Economic Strategy for Health Care through Bio and Information Standards and Technologies. The conference will bring together key government, industry, academic and research leaders and patient advocates to discuss mechanisms for assessing the economic benefits and opportunities of bio and information technologies and standards in the life sciences and Health Care delivery and their role in bridging Health Care system gaps. The goal is to help attendees understand the economics of Bio and Information technology and learn useful approaches for evaluating promising technologies.

The Conference begins on September 24 evening with a reception, followed by an all day program on **September 25, 2007** at the NIST Gaithersburg Campus in Maryland, USA. Learn more about the conference and registration information at the conference website.

Call for Participation - Symposium on Challenges in Theoretical and Applied Signal Processing

On the occasion of the 50th anniversary of the launch of Sputnik, a one-day symposium on *Challenges in Theoretical and Applied Signal Processing* will be held on the Ecole Polytechnique Fédérale de Lausanne (EPFL) campus on **October 5, 2007**. Experts with interests ranging from imaging and communication to biology have been asked to outline key challenges with an emphasis on the role of signal processing. A roundtable discussion that closes the day focuses on start-up experiences and contrasting the roles and opportunities of industry and academia.

Attendance is open to all, but advance registration is required. Registration details and a preliminary program are available online. Email questions to <Sputnik50 AT mit.edu>.

SPS Conference Call-for-Paper & Deadlines	Location	Date	Tutorial/Special Session	Submission Deadline
IEEE Automatic Speech Recognition and Understanding Workshop (ASRU'07)	Kyoto, Japan	Dec. 9-13, 2007	Sept. 24, 2007 (demo)	
International Symposium on Communications, Control and Signal Processing (ISCCSP'08)	St. Julians, Malta	March 12-14, 2008		**Oct. 1, 2007**
IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP'08)	Las Vegas, NV	March 31 - April 4, 2008	Nov. 9, 2007 (tutorial)	**Oct. 5, 2007**
IEEE/ACM Information Processing in Sensor Networks (IPSN'08)	St. Louis, MO	April 22-24, 2008	Oct. 26, 2007 (abstract)	Nov. 2, 2007
IEEE International Symposium on Biomedical Imaging (ISBI'08)	Paris, France	May 14-17, 2008		Dec. 7, 2007

IEEE Workshop on Signal Processing Advances in Wireless Communications (SPAWC'08)	Receife, Brazil	July 6-9, 2008		Jan. 28, 2008

Upcoming Signal Processing Conferences	Location	Advanced Registration	Conference Dates
IEEE International Conference on Advanced Video and Signal based Surveillance (AVSS'07)	London, UK		Sep. 5-7, 2007
Biometrics Symposium (BYSM'07)	Baltimore, MD		Sep. 11-13, 2007
International Symposium ELMAR (ELMAR'07)	Zadar, Croatia		Sep. 12-14, 2007
IEEE International Conference on Image Processing (ICIP'07)	San Antonio, TX		Sep. 16-19, 2007
Economic Strategy for Healthcare through Bio and Information Standards and Technologies (Sponsored by Biotechnology Council and NIST)	Gaithersburg, MD		Sep. 25, 2007
IEEE International Workshop on Multimedia Signal Processing (MMSP'07)	Chania, Crete		Oct. 1-3, 2007
IEEE Conference on Signal Processing Systems (SIPS'07)	Shanghai, China		Oct. 17-19, 2007
IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA'07)	New Paltz, NY		Oct. 21-24, 2007
Asilomar Conference on Signals, Systems, and Computers (Asilomar'07)	Pacific Grove, CA	**Oct. 10, 2007**	Nov. 4-7, 2007
Picture Coding Symposium (PCS'07)	Lisbon, Portugal	**Sept. 21, 2007**	Nov. 7-9, 2007
International Packet Video Workshop (PV'07)	Lausanne, Switzerland	TBA	Nov. 12-13, 2007
IEEE International Workshop on Computational Advances in Multi-channel Sensor Array Processing (CAMSAP'07)	U.S. Virgin Islands	Nov. 11, 2007	Dec. 12-14, 2007
IEEE International Symposium on Signal Processing & Information Technology (ISSPIT'07)	Cairo, Egypt	Nov. 1, 2007	Dec. 15-18, 2007
IEEE Speaker and Language Recognition Workshop (Odyssey'08)	Stellenbosch, South Africa	TBA	Jan. 21-25, 2008

Back to Top

3. Publication News

New **IEEE Applications and Practice Online Magazine**

The IEEE Signal Processing Society is a technical co-sponsor with the Communications, Robotics and Automation, Circuits and Systems, and Microwave Theory and Techniques Societies of the new IEEE Applications and Practice Online Magazine. The Magazine will publish technically reviewed articles, application notes, and technical papers for the engineering practitioner.

The Magazine is published by the IEEE Communications Society and is available through IEEE Xplore under IEEE Communications Magazine. The first two issues of the Magazine focus on RFID technology. The first issue appeared in April 2007 and can be found under "IEEE Communications Magazine, Issue 4 Part Supplement". The second issue will be available in September 2007, including articles on RFID

infrastructure, passive RFID, and applications of RFID in Healthcare.

Upcoming Deadlines for **Signal Processing Magazine**: http://www.ieee-spm.org/?i=cfp

Columns/Forums rolling submission deadlines

Special Issue Deadlines of SPS Journals

- "Genomic and Proteomic Signal Processing" - Deadline: **1 September 2007**.
  (Journal of Selected Topics in Signal Processing)

- "Distributed Processing in Vision Networks" - Deadline: 15 October 2007.
  (Journal of Selected Topics in Signal Processing)

Recent Issues of SPS Sponsored and Co-sponsored Publications

Journal Title	Latest Issue	Cover/ Contents (in PDF)	Xplore Link
IEEE Signal Processing Magazine • Special Issue on the Bootstrap Method • Column on Social Signal Processing • Column on SP for Humanitarian Mine Action • Feature Article on The Advent of Frame	vol. 24, no. 4	PDF	Html
IEEE Transactions on Audio, Speech, and Language Processing	vol. 15, no. 7	PDF	Html
IEEE Transactions on Image Processing	vol. 16, no. 8 vol. 16, no. 9	no.8 PDF no.9 PDF	Html
IEEE Transactions on Information Forensics and Security	vol. 2, no. 3	Part 1 Part 2	Html
IEEE Transactions on Signal Processing	vol. 55, no. 8 vol. 55, no. 9	no.8 PDF no.9 PDF	Html
IEEE Signal Processing Letters	vol. 14, no. 8 vol. 14, no. 9	no.8 PDF no.9 PDF	Html
Journal Title	Latest Issue	Cover/ Contents (in PDF)	Xplore Link
IEEE Transactions on Medical Imaging	vol. 26, no. 8	PDF	Html
IEEE Transactions on Mobile Computing	vol. 6, no. 9	PDF	Html
IEEE Transactions on Multimedia	vol. 9, no. 5	PDF	Html
IEEE Sensors Journal	vol. 7, no. 10		Html
IEEE Transactions on Wireless Communications	vol. 6, no. 8	PDF	Html
Computing in Science & Engineering Magazine	vol. 9, no. 4	PDF	Html
IEEE MultiMedia	vol. 14, no. 3	PDF	Html

Back to Top

4. TC News

Sensor Array and Multichannel (SAM) Technical Committee

The Sensor Array and Multichannel (SAM) Technical Committee (TC) promotes activities and advancement in the technical areas of sensor array and multi-channel signal processing. The committee interests span the areas of signal detection and estimation, direction-of-arrival estimation, beamforming, blind source separation, source localization and tracking, multiple-input multiple-output (MIMO) systems and space-time coding, sensor networks, and multichannel signal processing. The main application areas are focused on radar, sonar, wireless communications, microphone array processing, navigation, seismology, radio astronomy, and biomedicine. Learn more about the SAM TC effort through this **exclusive in-depth report**.

Back to Top

5. Chapter News and Distinguished Lectures

Chapter Activities Report - IEEE Philadelphia SP/BT/CE Joint Chapter

It has been an exciting and eventful year for the IEEE Philadelphia Joint Chapter of Signal Processing, Broadcast Technology, and Consumer Electronics (SP/BT/CE). In January 2007, Dr. Gail Rosen, assistant professor in Electrical and Computer Engineering at Drexel University became chapter chair. The SP/BT/CE joint chapter co-sponsored an IEEE Night meeting and hosted several seminar events in Spring 2007. Another exciting IEEE Night is being planed for Fall 2007. Learn more about the Philadelphia SP/BT/CE chapter from this in-depth report.

Do you know? IEEE SPS provides travel support for local chapters to invite **SPS Distinguished Lecturers**. See a list of 2007 SPS DLs and check below for upcoming **SPS Distinguished Lectures** near you.

Chapter	Dates	SPS Distinguished Lectures
Argentina	3-Sep-2007	Walter Kellermann: "Tackling the Acoustic Front-end for Distant-Talking Automatic Speech Recognition." See event details.
Beijing, China	10-14 Sep, 2007	Lin-Shan Lee: Tsinghua University (10-Sep-2007), Microsoft Research Asia (11-Sep-2007), and Xi'an Jiaotong University (14-Sep-2007).
Dallas, TX	17-Sep-2007	Georgios Giannakis: "Distributed Estimation Using Wireless Sensor Networks," 11am, at TI Auditorium, ECS Building South, University of Texas at Dallas. See event details.
Colombia	27-Sep-2007	Aggelos Katsaggelos: "Image and Video Recovery," invited DL talk at 12th Symposium on Signal Processing, Image Processing and Machine Vision (XII STSIVA), 9am. See event details. Contact: <xii_stsiva AT uninorte.edu.co>.
Portugal	1-2 Oct, 2007	By Walter Kellermann. Contact Chapter Chair Dr. Victor Barroso at <vab AT isr.ist.utl.pt> for details.
Germany	12-Oct-2007	Walter Kellermann's talk as part of one-day event on algorithms for signal processing. Check the chapter website for details.
Ottawa, Canada	Mid Oct-2007	By Tsuhan Chen. Contact Chapter Chair Dr. Miodrag Bolic at <mbolic AT site.uottawa.ca> for details.
Chapter	Dates	Other Upcoming Events
Central Texas	20-Sep-2007	Dr. Jerry Gibson, Professor UC-Santa Barbara, "Voice and Video over Wireless Networks," 7pm at the AT&T Laboratories, Austin, TX. Check more information online. Contact: <scrowl AT ieee.org>.

If you are interested in organizing a new SPS chapter, or participating in activities in a SPS local chapter near you, please check out **Local Chapter Resources**. Additional questions and comments can be addressed to the SPS Chapters Committee.

Back to Top

6. New Initiatives and Trends

IEEE Mentoring Connection™ Program Seeks Members to Mentor Young Professionals

One of the top IEEE Societies with young professional members includes the IEEE Signal Processing Society. Many of these members would appreciate the opportunity to have an "online" mentor to help guide them in their career planning and professional development. Mentor participation in the IEEE Mentoring Connection Program is open to all IEEE members above the grade of Student Member. Gary Hinkle, a mentor in the program, says "Helping young engineers develop in their careers is very rewarding. Working with some of these individuals has proven to be quite a challenge, because of the diversity among those seeking mentors. I'm glad to be contributing to this program."

The program enables the mentee to select their mentoring partner online from a list of individuals who have volunteered to serve as mentors. After mentors are identified as a potential match, they are contacted and asked to begin establishing a relationship. Interested members can visit the IEEE mentoring website for information on the roles and responsibilities of each mentoring partner, including additional program information and an FAQ page. Potential mentors are asked to review the time and effort commitment to the program necessary to ensure a successful mentoring partnership. The IEEE Mentoring Connection site can be accessed through this URL and use the Group ID "IEEE2006" to enter. Once you enter the site, you will need to set your own user id and password. If you have any questions, please contact Cathy Downer, Regional Activities, at <c.downer AT ieee.org>.

Introducing the Banff International Research Station - Now Accepting Proposals for 2009

The Banff International Research Station for Mathematical Innovation and Discovery (BIRS) is a joint Canada-US-Mexico initiative that provides an environment for creative interaction and the exchange of ideas, knowledge, and methods within the Mathematical Sciences, and with related sciences and industry. The BIRS Station is located on the site of the world-renowned Banff Centre in Alberta, Canada. It provides mathematical scientists a secluded environment, complemented with accommodation and board and the necessary facilities, for uninterrupted research activities in a variety of formats, all in a magnificent mountain setting.

The BIRS Station is hosting a 48-week scientific program in 2009, and is now accepting proposals for its 2009 program. Each week, the station will be running either a full workshop (42 people for 5 days) or two half-workshops (20 people for 5 days). The BIRS provides full accommodation, board, and research facilities at no cost to the invited participants, in a setting conducive to research and collaboration. The deadline for 5-day Workshop and Summer School proposals is **October 1, 2007**. Full information, guidelines, and online submission forms are available at the website http://www.birs.ca/.

In addition, BIRS will operate its Research in Teams and Focused Research Groups programs, which allow smaller groups of researchers to get together for several weeks of uninterrupted work at the station. Proposals for these programs can be submitted at any time (subject to availability and at least 4 months lead time before the requested start date) and submission by October 1, 2007 is encouraged.

Back to Top

7. New PhD Theses

Paul Brossier (Centre for Digital Music, Queen Mary College, University of London, UK)
"**Automatic Annotation of Musical Audio for Interactive Applications**", November 2006
Advised by Dr. Mark Plumbley and Prof. Mark Sandler

As machines become more and more portable, and part of our everyday life, it becomes apparent that developing interactive and ubiquitous systems is an important aspect of new music applications created by the research community. We are interested in developing a robust layer for the automatic annotation of audio signals, to be used in various applications, from music search engines to interactive installations, and in various contexts, from embedded devices to content servers. We propose adaptations of existing signal processing techniques to a real time context. Amongst these annotation techniques, we concentrate on low and mid-level tasks such as onset detection, pitch tracking, tempo extraction and note modeling. We present a framework to extract these annotations and evaluate the performances of different algorithms. Applications of our framework include live and interactive music installations, and more generally tools for the composers and sound engineers. We describe the design of our software solution, for our research purposes and in view of its integration within other systems.

Click here to download the dissertation, or contact the author <piem AT piem.org> for more information.

Daniel Edward Clark (Heriot-Watt University, Edinburgh, UK)
"**Multiple Target Tracking with the Probability Hypothesis Density Filter**", October 2006
Advised by Dr Judith Bell

The random-set framework for multi-target tracking offers a distinct alternative to the traditional approach to multi-target tracking by treating the collections of individual targets and observations as finite-sets. The complexity of computing the multi-target Bayes recursion grows exponentially with the number of targets and so a method for approximating the optimal filter using a recursion for the first-order moment of the multi-target posterior, known as the Probability Hypothesis Density (PHD) filter, was developed.

This thesis addresses issues for the PHD filter to be of practical value in multiple target tracking applications. Two implementations of the PHD filter are studied; the Particle PHD filter, which is a Sequential Monte Carlo approximation, and the Gaussian Mixture PHD filter, which provides a closed-form solution. A study of the convergence properties is conducted, giving theoretical justification for the algorithms. Methods to determine the trajectories of the targets for each of the algorithms are developed.

Click here to download the dissertation, or contact the author <dec1 AT hw.ac.uk> for more information.

Jon Gudnason (Imperial College, London, UK)
"**Voice Source Cepstrum Processing for Speaker Identification**", May 2007
Advised by Mike Brookes

Voice source analysis and modeling has played a key role in important speech applications such as speech recognition, speech synthesis and speaker recognition. This work presents a robust algorithm for glottal closure detection and a novel set of voice source features for speaker recognition. A detailed study of group delay functions and their application to the linear prediction residual is presented and the DYPSA algorithm is developed for detecting glottal closure instants (GCIs).

The vocal tract transfer function is estimated using closed-phase analysis, converted to cepstrum coefficients and subtracted from the melfrequency cepstrum coefficients to derive a set of voice source cepstrum coefficients. These are then used for speaker identification on the TIMIT database. The combination of the voice source and melfrequency cepstrum coefficients reduces the recognition error from 1.51% to 0.16% (Fisher's exact test, one sided, $p = 1 \times 10^{-4}$).

Click here to download the dissertation, or contact the author <jon.gudnason AT imperial.ac.uk> for more information.

Interested in submitting or recommending a recent Ph.D. thesis?
Please prepare the following material and email Associate Editor at <piva AT lci.det.unifi.it>:
(1) thesis author's information (full name, contact, current affiliation, URL if available), Ph.D granting institution, thesis advisor's name and contact information;
(2) title, URL, and a short summary of the thesis (100-150 words); and
(3) an email from the thesis advisor confirming that the author has already successfully defended the Ph.D. thesis and that a final version of the thesis has officially been submitted according to the Ph.D. degree requirements of the author's institution.

Back to Top

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8. New Books

Books Featured in Previous Issues [details]

Wavelets and Subband Coding, by M. Vetterli and J. Kova•evi•. Open Access Edition.

Speech Enhancement: Theory and Practice, by P. Loizou, CRC Press, 2007.

Blind Image Deconvolution: Theory and Applications, by P. Campisi and K. Egiazarian (editors), CRC, 2007.

VLSI DESIGN OF WAVELET TRANSFORM -Analysis, Architecture, and Design Examples,
by Liang-Gee Chen, Chao-Tsung Huang, Ching-Yeh Chen and Chih-Chi Cheng, World Scientific, 2006.

Multirate Statistical Signal Processing, by O.S. Jahromi, Springer, April 2007.

Local Approximation Techniques in Signal and Image Processing, by V. Katkovnik, K. Egiazarian, and J. Astola, SPIE Press, September 2006.

Embedded Image Processing on TMS320C6000 DSP:
Examples in Code Composer Studio and Matlab, by Shehrzad Oureshi, Springer, 2005.

Back to Top

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9. Research Opportunities

Postdoctoral Positions at Washington University in St. Louis

The Signal Processing Laboratory led by Prof. Arye Nehorai at Washington University in St. Louis seeks highly qualified candidates for postdoctoral research fellow positions. The area of interest is statistical signal processing with multidisciplinary aspects. Applicants must have a Ph.D. in Electrical Engineering or a related field and have demonstrated ability for high quality research.

Application materials files should include: (1) A cover letter with a brief statement of research interests; (2) CV with a list of publications in pdf; and (3) Contact information of at least three references.

Applications should be submitted by email to Prof. Arye Nehorai at <nehorai AT ese.wustl.edu>.

Research Opportunities Featured in Previous Issues [details]

- R&D positions in Navigation and Wireless Terrestrial Communications at Universitat Autonoma de Barcelona (UAB) Spain.

- PhD Scholarships in Multimedia Signal Processing area at TU Berlin (Germany).

- Post-doc Position on Wireless Biomedical Sensor Network at National Hospital of Norway in Oslo and Norwegian University of Science and Technology in Trondheim.

- Vice Chancellor's Strategic Research PhD Scholarship at Victoria University of Wellington, New Zealand.

- Post-doc positions in Network Science at Army Research Laboratory (ARL), Adelphi, MD, USA.

Job Posting Portals

http://careers.ieee.org/
http://jobs.phds.org/jobs/engineering/
http://engineering.academickeys.com/seeker_job.php

Back to Top

Contributors of articles in this issue:

Kristine Bell, Alex Gershman, and Gail Rosen.

About the Inside Signal Processing E-Newsletter

Since April 2007, the IEEE Signal Processing Magazine has introduced a new form of publication - the Inside Signal Processing E-Newsletter. This monthly electronic newsletter will complement the bi-monthly Magazine to serve the members in the IEEE Signal Processing Society (SPS). Through email notification and expanded coverage on its website, the E-Newsletter will provide members with timely updates on:

- society and technical committee news,

- conference and publication opportunities, new books, and Ph.D. theses,

- signal processing related research opportunities, and

- activities in industry consortiums, local chapters, and government programs.

The Inside Signal Processing E-Newsletter is a gateway to reach out to signal processing professionals around the world. We invite you to contribute and share your news with tens of thousands of SPS members through this monthly electronic publication with fast turn-around cycle. IEEE members may manage their subscription of the email notification of the E-Newsletter and related SPS announcements at this page. Please bookmark <http://enews.ieee-spm.org> for current and archived issues of the Inside Signal Processing E-Newsletter.

Submission Instructions - Contribution for the October '07 Issue Due September 20, 2007

Please contact the Associate Editors of the corresponding sections as listed below to provide your input or if you have questions. Make sure that you include your name, affiliation, and email and phone contact information. Contributions submitted by **September 20, 2007** will be considered for inclusion in the **next issue** of the Inside Signal Processing E-Newsletter.

Contact Information of the E-Newsletter Team

Min Wu, *SPM Area Editor for E-Newsletter*, University of Maryland, College Park, USA (minwu AT umd.edu)

Huaiyu Dai, *Associate Editor*, North Carolina State University, Raleigh, USA (huaiyu_dai AT ncsu.edu)
   Conference and publication news

Alessandro Piva, *Associate Editor*, University of Florence, Italy (piva AT lci.det.unifi.it)
   News and activities in local chapters and research groups (including new Ph.D. theses)

Mihaela van der Schaar, *Associate Editor*, University of California, Los Angeles, USA (mihaela AT ee.ucla.edu)
   News and activities of SPS Technical Committees, industry consortiums and international standards

Nitin Chandrachoodan, *Digital Production Editor*, Indian Institute of Technology – Madras (nitin AT ee.iitm.ac.in)
   Online submission and production system

Shih-Fu Chang, *SPM Editor-in-Chief*, Columbia University, New York, USA (sfchang AT ee.columbia.edu)

* Please replace "AT" in the email addresses with @.

Back to Top

In-Depth Articles of eNews - August & September 2007

Exclusive Report from

Sensor Array and Multichannel Technical Committee

Contributors: Alex Gershman and Kristine Bell

The Sensor Array and Multichannel (SAM) Technical Committee (TC) promotes activities and advancement in the technical areas of sensor array and multi-channel signal processing. The committee interests span the areas of signal detection and estimation, direction-of-arrival estimation, beamforming, blind source separation, source localization and tracking, multiple-input multiple-output (MIMO) systems and space-time coding, sensor networks, and multichannel signal processing. The main application areas are focused on radar, sonar, wireless communications, microphone array processing, navigation, seismology, radio astronomy, and biomedicine.

The responsibilities of the SAM TC are to coordinate the paper reviews for ICASSP in the SAM area and to run the SAM and the Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP) workshops

which have been organized on a biannual basis since 2000 and 2005, respectively. The next workshops will be held July 2008, Darmstadt, Germany (SAM Workshop) and December 2007, US Virgin Islands (CAMSAP Workshop).

An important part of the TC activities is also to make nominations for Society and paper awards, to participate in the selection of Signal Processing Society Distinguished Lecturers, and to support IEEE publications including the IEEE Transactions on Signal Processing and IEEE Signal Processing Letters. The Editors-in-Chiefs of the latter two journals both are current regular members of the SAM TC.

The SAM Technical Committee is currently composed of 32 members from 10 countries. For more details about the activities related to this TC, please visit the SAM TC website.

Return to TC News

Chapter Activity Report from

IEEE Philadelphia SP/BT/CE Joint Chapter

Contributors: Gail Rosen (Drexel University), Chapter Chair

It has been an exciting and eventful year for the IEEE Philadelphia Signal Processing/Broadcast Technology/ Consumer Electronics (SP/BT/CE) Joint Chapter. On April 17th, 2007, the SP/BT/CE chapter co-sponsored an IEEE Night meeting. In this event, Dr. Gail Rosen, assistant professor in Electrical and Computer Engineering at Drexel University and chapter chair, presented on her labs' work on "Signal Processing for Chemotaxis-Inspired Design and DNA Analysis". Her presentation described the field of bio-signal processing and using biological complexity to engineer better systems. Two areas were identified as critical to understanding biology: 1) examining the overall biological function and 2) evaluating these systems in environmental (i.e.: turbulent) conditions. The Bio-Signal Processing (BSP) Laboratory at Drexel University models bio-systems such as DNA structure and chemotaxis, the way a single-cell mobilizes in response to a chemical gradient. The lab is engineering new techniques and devices for chemical tracking using bio-inspired signal processing methods. It was shown how a model of cellular membrane-receptor cooperation with modified Hebbian learning was effective in locating chemicals. Also, methods for structure discovery and analysis in DNA via coding, communication and signal processing theory were discussed.

Also at the co-sponsored meeting, Dr. Stan Bumble, Adjunct Professor of Engineering, Physics and Mathematics at the Community College of Philadelphia spoke about "Networks and Pathways to a Sustainable Planet Energy Production and Environmental Health". Dr. Stan Bumble spoke about modeling microbial metabolic networks. A new computer method was described that can help improve efficiency, cost and environmental benefits to both new and old control processes and to convert both old and new feedstocks to fuels for energy. The control-theoretic model may also help the new fields of systems biology and synthetic biology to supply energy by harnessing microbial metabolic networks to produce fuels of the future.

On June 7th, the SP/BT/CE chapter co-sponsored a Drexel University ECE Department Seminar, titled "Programmable and Configurable Analog Signal Processing," by Dr. Paul Hasler, Associate Professor at the Georgia Institute of Technology. Dr. Hasler spoke about the potential of using Programmable Analog Signal processing techniques for impacting low-power portable applications like imaging, audio processing, and speech recognition. The range of analog signal processing functions available results in many potential opportunities to incorporate these analog signal processing systems with digital signal processing systems for improved overall system performance. Programmable, dense analog techniques enable these approaches, based upon programmable transistor approaches. Dr. Hasler's lab shows experimental evidence for the factor of 1000 to 10,000 power efficiency improvement for programmable analog signal processing compared to custom digital implementations. The viewpoint was presented showing that analog signal processing approaches are becoming configurable and programmable like their digital counterparts, while retaining a huge computational efficiency, for a given power budget, compared to their digital counterparts.

The Philadelphia SP/BT/CE Chapter will be co-hosting another IEEE Night in the Fall. For more information about the IEEE SP/BT/CE Philadelphia Chapter, contact Dr. Gail Rosen, Philadelphia SP/BT/CE Chapter Chair at <gailr AT ece. drexel. edu>.

Return to Chapter News

IEEE Signal Processing Magazine 2007 - Hosted by the Digital Video and Multimedia Lab at Columbia University
Inside Signal Processing E-Newsletter Hosted by the Communications and Signal Processing Labs at University of Maryland