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IEEE Signal Processing Magazine

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Inside Signal Processing E-Newsletter

October 2008

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Highlights

- [Society News](#): Member-at-Large election results announced
- [Publication News](#): Check out newly announced special issue call-for-papers
- [TC News](#): Technical committees establish liaison to E-Newsletter
- [Chapter News](#): Upcoming distinguished lectures and chapter events
- [Tech Trends/Standards](#): Ultra wideband WiMedia standard
- [Education News](#): Purdue honors four SPS members with chair & distinguished professorships
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From the E-Newsletter Team:

Learn about the features and plans for the E-Newsletter from the September 2008 Editorial "[A Window to the SP Community](#)" in the IEEE Signal Processing Magazine. The [E-Newsletter Team](#) sincerely welcomes your feedback and contributions.

Please share the Inside Signal Processing E-Newsletter with your colleagues by emailing and bookmarking <<http://enews.ieee-spm.org>> for current and archived issues. IEEE members may manage their subscription to email notification of the Inside Signal Processing E-Newsletter at <<http://ewh.ieee.org/enotice/options.php?LN=SP001>>.

1. Society News

IEEE Signal Processing Society 2008 Member-at-Large Election Results

Three new Members-at-Large will take their seats on the IEEE Signal Processing Society Board of Governors beginning 1 January 2009 and will serve until 31 December 2011. Six candidates competed for the three Member-at-Large positions. The successful candidates represent a broad spectrum of the IEEE Signal Processing Society. They are: **Charles A. Bouman** (Purdue University, West Lafayette, IN); **Sheila S. Hemami** (Cornell University, Ithaca, NY); and **Mari Ostendorf** (University of Washington, Seattle, WA).

Ali H. Sayed will vacate his Member-at-Large post on 31 December 2008 to become the incoming Vice President-Publications. The Society's bylaws require successful Member-at-Large candidates who are elected to serve as an Officer, to resign their Member-at-Large post. The vacancy is filled by the next candidate with the highest votes from the Member-at-Large election. **Ananthram Swami** has accepted to fill Prof. Sayed's vacant Member-at-Large post.

Completing their terms as Members-at-Large on 31 December 2008 are: Ahmed H. Tewfik (University of Minnesota, Minneapolis, MN); Isabel M. Trancoso (INESC, Lisboa, Portugal); and Alle-Jan van der Veen (Delft University of Technology, Delft, The Netherlands).

The Board of Governors (BoG) is the governing body that oversees the activities of the IEEE Signal Processing Society. The SPS BoG has the responsibility of establishing and implementing policy, and receiving reports from its standing boards and committees. The SPS BoG is comprised of 17 SPS members: seven officers of the Society who are elected by the Board of Governors and nine Members-at-Large elected directly by the voting members of the Society. The Executive Director of the Society serves ex-officio, without vote. Members-at-Large represent the member view point in the Board decision-making. They typically review, discuss, and act upon a wide range of items affecting the actions, activities, and health of the Society. More information on the IEEE Signal Processing Society can be found at <http://www.signalprocessingsociety.org>.

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2. Conference News

Signal Proc. Conferences: Call for Papers	Location	Date	Tutorial/Special Session	Submission Deadline
2nd International Conference on Immersive Telecommunications (IMMERC09)	Berkeley, CA	May 27-29, 2009	Feb. 1, 2009 (demo/panel)	November 14, 2008
6th IEEE International Symposium on Biomedical Imaging (ISBI'09)	Boston, MA	June 28-July 1, 2009		January 19, 2009
IEEE International Conference on Multimedia and Expo (ICME'09)	Cancún, Mexico	June 28-July 3, 2009	Dec. 1, 2008 (special session) Jan. 31, 2009 (tutorial)	December 31, 2008
10th IEEE International Workshop on Signal Processing Advances for Wireless Communications (SPAWC'09)	Perugia, Italy	June 21-24, 2009		January 30, 2009
IEEE Workshop on Statistical Signal Processing (SSP'09)	Cardiff, UK	Aug. 31 - Sept. 3, 2009	Feb. 9, 2009	April 14, 2009

Upcoming Signal Processing Conferences	Location	Advanced Registration	Conference Dates
IEEE Conference on Sensors (SENSORS 2008)	Lecce, Italy		Oct. 26-29, 2008
9th International Conference on Signal Processing (ICSP'08)	Beijing, China		Oct. 26-29, 2008
8th IEEE International Symposium on Signal Processing and Information Technology (ISSPIT 2008)	Sarajevo, Bosnia and Herzegovina	Nov. 1, 2008	Dec. 16-19, 2008
13th IEEE Digital Signal Processing Workshop (DSP'09) and 5th IEEE Workshop on Signal Processing Education (SPE'09)	Marco Island, FL		Jan. 4-7, 2009
IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP'09)	Taipei, Taiwan	TBA	April 19-24, 2009

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3. Publication News

Signal Processing Magazine Deadlines: <http://www.ieee-spm.org/?i=cfp>

- [Columns/Forums](#) rolling submission deadlines
- Proposals invited for special issues and feature articles ([details](#))
- [Special Issue on Signal Processing on Platforms with Multiple Cores](#) - Whitepaper Due 15 December 2008

Special Issue Deadlines

Journal of Selected Topics in Signal Processing ([website](#))

- [MIMO Radar and its Applications](#) - Deadline: 20 January 2009
- [Compressive Sensing](#) - Deadline: 20 February 2009

IEEE Transactions on Audio, Speech, and Language Processing ([website](#))

- [Signal Models and Representations of Musical and Environmental Sounds](#) - Deadline: 15 December 2008
- [Voice Transformation](#) - Deadline: 1 April 2009

IEEE Transactions on Information Forensics and Security ([website](#))

- [Electronic Voting](#) - Deadline: 15 February 2009

IEEE MultiMedia Magazine ([website](#))

- [Multimedia-Metadata and Semantic Management](#) - Deadline: 15 January 2009

Recent Issues of SPS Sponsored and Co-sponsored Publications

Journal Title	Latest Issue	Contents (in PDF)	Xplore Link
IEEE Signal Processing Magazine - Feature Articles on <ul style="list-style-type: none"> • Discriminative Learning in Sequential Pattern Recognition • Single-Carrier Frequency Domain Equalization • Finite-State Markov Modeling of Fading Channels • Distributed Synchronization in Wireless Networks 	vol. 25, no. 5	PDF	Html
IEEE Transactions on Audio, Speech, and Language Processing	vol. 16, no. 7	PDF	Html
IEEE Transactions on Image Processing	vol. 17, no. 11	PDF	Html
IEEE Transactions on Information Forensics and Security	vol. 3, no. 3	PDF	Html
IEEE Transactions on Signal Processing	vol. 56, no. 10	Part-1 Part-2	Html
IEEE Signal Processing Letters	vol. 15	Recent Articles Html	Html
IEEE Journal of Selected Topics in Signal Processing <ul style="list-style-type: none"> • Distributed Processing in Vision Networks 	vol. 2, no. 4	PDF	Html
Journal Title	Latest Issue	Contents (in PDF)	Xplore Link
IEEE Transactions on Medical Imaging	vol. 27, no. 10	PDF	Html
IEEE Transactions on Mobile Computing	vol. 7, no. 11	PDF	Html
IEEE Transactions on Multimedia	vol. 10, no. 5	PDF	Html
IEEE Sensors Journal	vol. 8, no. 10	PDF	Html
IEEE Transactions on Wireless Communications	vol. 7, no. 9	PDF	Html
Computing in Science & Engineering Magazine	vol. 10, no. 5	PDF	Html
IEEE MultiMedia	vol. 15, no. 3	PDF	Html

4. TC News

Technical Committees Establish Liaisons to E-Newsletter

Through the coordination of the Society's Technical Directions Board, a number of [technical committees](#) have established liaisons with the *Inside Signal Processing E-Newsletter*. These liaisons will serve as the conduit for TCs to share their activities and initiatives with society members on a regular basis.

- [Audio and Electroacoustics](#) - Steve Grant (sgrant AT umr.edu)
- [Bio Imaging and Signal Processing](#) - Christopher Wyatt (clwyatt AT vt.edu)
- [Design and Implementation of Signal Processing Systems](#) - Jarmo Takala (jarmo.takala AT tut.fi)
- [Information Forensics and Security](#) - Pierre Moulin (moulin AT ifp.uiuc.edu)
- [Industry DSP Technology Standing Committee](#) - Michael Deisher (michael.deisher AT intel.com)
- [Multimedia Signal Processing](#) - Anthony Vetro (avetro AT merl.com)
- [Signal Processing for Communications and Networking](#) - Nikos Sidiropoulos (nikos AT telecom.tuc.gr) and Geert Leus (g.j.t.leus AT tudelft.nl)
- [Signal Processing Education](#) - Engin Erzin (eerzin AT ku.edu.tr)
- [Signal Processing Theory and Methods](#) - Xiaoli Ma (xiaoli AT ece.gatech.edu)
- [Speech and Language Processing](#) - Gokhan Tur (gokhan AT speech.sri.com)

5. Chapter News and Distinguished Lectures

Do you know? IEEE SPS provides travel support for local chapters to invite **SPS Distinguished Lecturers**. See a list of SPS [2007 and 2008 Distinguished Lecturers](#), and check each issue of the E-News for upcoming SPS Distinguished Lectures near you.

Chapter	Dates	SPS Distinguished Lectures
Toronto, Canada	3-Nov-2008	Prof. Walter Kellermann (University of Erlangen-Nuremberg, Germany): "Acoustic Signal Processing for Next-Generation Multichannel Human/Machine Interfaces." See detailed announcement for more information.
Serbia and Montenegro	5 and 7-Nov-2008	Prof. Petar M. Djuric (SUNY Stony Brook). Contact Chapter Chair Dr. Reljin Branimir [reljinb AT etf.bg.ac.yu] for more information.
Western Puerto Rico	6-Nov-2008	Dr. Amy Reibman (AT&T Labs-Research). Contact Chapter Chair Rogelio Palomera-Garcia [palomera AT ece.uprm.edu] for more information.

Chicago	7-Nov-2008	Prof. Nikos Sidiropoulos (University of Crete, Greece): "Analyzing Data 'Boxes': Multi-way Linear Algebra and its Applications in Signal Processing and Communications." See detailed announcement for more information.
Chapter	Dates	Other Chapter Events
Florida West Coast	15-Oct-2008	Dr. Jean Krause (University of South Florida): "Evaluating the role of spectral and envelope characteristics in the intelligibility advantage of clear speech." See detailed announcement for more information.
Santa Clara Valley	20-Oct-2008	Dr. Hubert Harrer (IBM - Server and Technology Group): "Multichip module packaging and its impact on architecture". See chapter web site for more information.
Dallas	22-Oct-2008	Gene Frantz (Texas Instrument): "Giving Technology 2020 Vision." See detailed announcement for more information.
Toronto, Canada	23-Oct-2008	Prof. K. Max Wong (McMaster University): "The QR Decomposition and the Decision Feedback Detectors: Applications to Block Data Transmission Systems." See detailed announcement for more information.
Toronto, Canada	3-Nov-2008	Dr. Ali Khademhosseini (Harvard Medical School): "Microengineered hydrogels for stem cell bioengineering and tissue regeneration." See detailed announcement for more information.
Santa Clara Valley	3-Nov-2008	Prof S. S. Jamuar (University Putra, Malaysia): "Design Techniques and CMOS Implementation of Low Noise Amplifier (LNA)." See chapter web site for more information.

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](#).

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6. New Initiatives and Trends

Ultra Wideband WiMedia Standard

WiMedia is a radio platform standard that enables short range, high-speed wireless connectivity using ultra wideband (UWB) multiband orthogonal frequency division multiplexing (MB-OFDM) technology. It currently enables rates of up to 480 Mb/s in the physical layer and provides an architecture that supports multiple applications via various protocol adaptation layers. As a result, it is being considered for wireless USB and Firewire as well as the next generation Bluetooth standards.

The [Standards in a Nutshell](#) article by N. Kumar and R.M. Buehrer in the September 2008 issue of the IEEE Signal Processing Magazine presents an overview of the WiMedia standard - the architecture, the technologies deployed in the standard, the applications enabled by it - and compares WiMedia to existing wireless local area network (WLAN) and wireless personal area network (WPAN) standards.

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7. SP Education and Resources

Purdue University Honors Four SPS Members with Chair and Distinguished Professorships

Purdue University Board of Trustees ratified in September 2008 the appointments of several SPS members to chair and distinguished professorships. They are: Charles A. Bouman, as the Michael J. and Katherine R. Birck Professor of Electrical and Computer Engineering; Edward J. Delp, as the Silicon Valley Distinguished Professor of Electrical and Computer Engineering; and Michael D. Zoltowski, as the Thomas J. and Wendy Engibous Professor of Electrical and Computer Engineering. Jan P. Allebach, who is currently Michael J. and Katherine R. Birck Professor of Electrical and Computer Engineering, is also being elevated to Distinguished Professor status, effective in January 2009.

These four SPS members are IEEE Fellows and have been actively involved in SPS activities. Allebach is a former SPS Distinguished Lecturer and Board of Governor (BoG) member; Bouman is serving as Editor-in-Chief for IEEE Transactions on Image Processing and recently elected to BoG; Delp chairs the Information Forensics and Security Technical Committee, and previously served as BoG member and Chair of the Image and Multidimensional Signal Processing Technical Committee; and Zoltowski is serving as Vice President-Awards and Membership.

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8. New Ph.D. Theses

Luis Pérez-Freire (University of Vigo, Spain): "**Digital Watermarking Security**," July 2008.
Advised by Prof. Fernando Pérez-González.

This thesis presents a performance analysis of digital watermarking and data hiding techniques from a security point of view. In our context, security has to do with the ability of watermarking systems to properly conceal the information that must be kept secret, such as the secret keys and the embedded messages. Our security assessment is inspired in a cryptanalytic approach and it is based on information-theoretic grounds. First, a formal framework for assessing security is proposed, quantifying in a precise manner the amount of secret information that is made available to attackers upon the observation of marked contents. In the second part of this thesis we design estimators and algorithms that exploit the security weaknesses identified in the theoretical analysis, comparing the obtained results with the theoretical security limits. It is also shown how attackers can exploit the non publicly available information after performing a security attack. The presented methodology has been applied to the two main groups of watermarking methods: spread spectrum and quantization-based ones.

Click [here](#) to access the thesis and related publications by the author, or contact him at <lpfreire AT gts.tsc.uvigo.es> for more information.

Interested in submitting or recommending a recent Ph.D. thesis?

Please prepare the following material and visit the [web submission site](#) to provide your input. Contact Associate Editor Prof. Alessandro Piva at <piva AT lci.det.unifi.it> if you have any questions.

- (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 to Associate Editor at <alessandro.piva AT unifi.it>, 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.

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9. New Books

Resource Allocation for Wireless Networks: Basics, Techniques, and Applications,

by Zhu Han and K.J. Ray Liu, Cambridge University Press, 2008.

[Description from the publisher](#): Merging the fundamental principles of resource allocation with the state-of-the-art in research and application examples, the authors present a novel and comprehensive perspective for improving wireless systems performance. Cross-layer multiuser optimization in wireless networks is described systematically. Starting from the basic principles, such as power control and multiple access, coverage moves to the optimization techniques for resource allocation, including formulation and analysis, and game theory. Advanced topics such as dynamic resource allocation and resource allocation in antenna array processing, and in cooperative, sensor, personal area, and ultra wideband networks, are then discussed. Unique in its scope, timeliness, and innovative author insights, this invaluable work will help graduate students and researchers to understand the basics of wireless resource allocation whilst highlighting modern research topics, and will help industrial engineers to improve system optimization.

Visit the [book's website](#) for detailed Table of Contents and ordering information.

Books Featured in Previous Issues [\[details\]](#)

Ultra Wideband Signals and Systems in Communication Engineering,
by Mohammad Ghavami, Lachlan Michael, and Ryuji Kohno, Wiley, 2nd edition, 2007.

Mathematics of Digital Images: Creation, Compression, Restoration, Recognition,
by S.G. Hoggar, Cambridge University Press, 2006.

Nonlinear Digital Filters: Analysis and Applications, by W. K. Ling, Elsevier, 2007.

Wireless Sensor and Actuator Networks: Technologies, Analysis and Design,
by R. Verdone, D. Dardari, G. Mazzini and A. Conti, Elsevier, 2008.

Data Compression: The Complete Reference, 4th Edition, edited by D. Salomon, Springer, 2007.

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10. Research Opportunities**PhD Position on Secure Identification and Authentication Codes
at the University of Geneva, Switzerland**

[Stochastic Information Processing \(SIP\) group](#) invites applications for a PhD position on secure identification and authentication codes for multimedia and physical objects protection. The candidate is expected to have strong background in information theory, digital communications, coding or statistical signal processing. Experience in software development using Matlab is mandatory. Excellent skills of speaking and writing English are requested and the knowledge of French is welcome. The salary is about 50'000 CHF per annum. Applications should include a curriculum vitae and names and addresses of two references. The position should start as soon as possible. All applications should be sent to Prof. Slava Voloshynovskiy [svolos AT cui.unige.ch].

**PhD Scholarship in Cochlear Signal Detection and Modelling
at Victoria University of Wellington**

Applications are invited for a 3-year PhD scholarship to apply advanced signal processing methods to

noninvasive detection of the cochlear microphonic signal from the human ear. Techniques used in this project include: blind source separation, array processing - including in non-homogeneous media, nonlinear system identification. This PhD will be supervised by [Dr. Paul Teal](#) at the School of Chemical and Physical Sciences at Victoria University of Wellington, where there is a strong team of signal processing researchers. The team involved in this project also includes [Industrial Research Limited](#) and the [Audiology Department](#) in the School of Population Health of the University of Auckland. The project is funded by the prestigious [Marsden Fund](#) administered by the Royal Society of New Zealand.

Qualifications: Applicants must have a Masters or First Class Honors Bachelors degree in electronic engineering or a closely allied discipline, and excellent mathematical, electronic and programming skills.

Funding: The 3-year scholarship will comprise full fees and an annual stipend commencing at NZ\$25,000, exempt of tax. The position will commence January 2009, or as soon as possible thereafter. For inquiries and applications, please contact Dr Paul Teal via [paul.teal AT vuw.ac.nz]. The application deadline is 5 December 2008.

Research Position Featured in Previous Issue [\[details\]](#)

- Three-Year PhD Studentship on Variational Bayesian Filtering for Telecommunications at Trinity College Dublin, Ireland
- Postdoctoral Researcher Position on Video Event Detection and Retrieval at Columbia University, USA
- Postdoctoral and Ph.D. Researcher Positions on Multi-sensor Signal Processing at Darmstadt University of Technology, Germany
- Ph.D. Research Assistantship to Explore the Potential of DSP for Digital Terrain Elevation Data at the Netherlands Defense Academy and Delft University of Technology

Job Posting Portals

<http://careers.ieee.org/>

<http://jobs.phds.org/jobs/engineering/>

http://engineering.academickeys.com/seeker_job.php

Interested in advertising graduate scholarship, post-doc positions, or funding opportunities?

Please prepare a short text of the announcement (150-200 words) and visit the [web submission site](#) to enter your input. It is recommended to include the deadline or valid period of the announcement, and an URL for more information such as group/research description and detailed qualification expectation. Contact Associate Editor Prof. Alessandro Piva at <alessandro.piva AT unifi.it> if you have any questions. Note that advertisements on faculty and other full-time position are in the domain of IEEE job advertisement (<http://careers.ieee.org/>); the IEEE Signal Processing Magazine also provides opportunities for paid advertisement.

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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 next issue is due November 10, 2008

Visit the [web submission site](#) to provide your input. Make sure that you include your name, affiliation, email and phone contact information. Contributions submitted by **November 10, 2008** will be considered for inclusion in the **next issue** of the Inside Signal Processing E-Newsletter. Please contact the Associate Editors of the corresponding sections as listed below if you have questions. Your comments and suggestions on the new submission system are welcome.

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 (including new books)

Pascal Frossard, *Associate Editor*, EPFL, Switzerland (pascal.frossard AT epfl.ch)
News and activities of SPS Technical Committees, industry consortiums and international standards

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

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 @ .

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2007: [December'07](#) [November'07](#) [October'07](#) [August-September'07](#) [July'07](#) [June'07](#) [May'07](#) [April'07](#)

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IEEE Signal Processing Magazine 2008 - 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](#)