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# IEEE Signal Processing Magazine

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## Inside Signal Processing E-Newsletter

June 2009

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- [Call for nominations](#) for IEEE Medals, SPS Awards, and 2010 Distinguished Lecturers
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### From the E-Newsletter Team:

The Inside Signal Processing E-Newsletter invites nominations and applications to serve as E-News Correspondents and contribute timely and stimulating articles on SPS conference/workshop and chapter events. Graduate students are welcome! Application for reporting major SPS conference/workshop is due a month before the corresponding event, and should include name, affiliation, contact information, and a list of technical interests; links to writing samples, such as web blogs and articles, are encouraged. Please email applications in plain text to Associate Editor Prof. Huaiyu Dai at <huaiyu\_dai AT ncsu.edu>.

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 [this link](#).

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## 1. Society News

### Election of Members-at-Large of SPS Board of Governors: **Your Vote is Important!**

The election of Members-at-Large of the IEEE SPS Board of Governors for the term 1 January 2010 through 31 December 2012 will open on 1 July. Ballots will be mailed to SPS members shortly, including a slate of seven candidates supplied by the SPS Nominations and Appointments Committee, as well as a space for write-in candidates. This year's election offers SPS members the opportunity to cast their votes by mail, by fax, or by the [web](#) for up to three candidates. This year the Society is offering web balloting and members are encouraged to take advantage of this convenient service. Instructions on these voting options are included in the ballot package. Ballots must be received at IEEE no later than **1 September 2009** in order to be counted.

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 of the Signal Processing Society can be found at the [SPS website](#).

## CONTENT GAZETTE: A New Feature for SPS Members

SPS members will have found, packaged in with their July 2009 issue of the IEEE Signal Processing Magazine (SPM), the *Content Gazette*. The Gazette contains the full contents pages of all of the Society's wholly-owned publications plus calls for submissions for special issues and upcoming Society conferences and workshops.

As announced by SPS President José M.F. Moura in his article "[A New Point of View](#)" (May 2009 - SPM), all SPS members will receive all SPS wholly-sponsored publications for free in electronic format through *IEEE Xplore* beginning in 2010; and the award-winning *IEEE Signal Processing Magazine* and the new feature *Content Gazette* will arrive in print, as a free benefit of Society membership. The Gazette is designed to help readers know what is published by the Society in the latest issues of its journals when there is no print copy; members may then log on to the IEEE Xplore to download those papers most meaningful or most intriguing to them.

The Gazette will arrive polybagged with IEEE Signal Processing Magazine bi-monthly. In the off-month, it will be delivered separately. "We're sending the Gazette out early to get the SPS members accustomed to receiving it in lieu of print publications," said Society Executive Director Mercy Kowalczyk. Members who wish to continue receiving print copies can still do so, but prices will rise over the next few years to reflect the actual cost of publication. Learn more about the new features of SPS membership from the [May 2009 President's Message](#).

## Call for Nominations of 2010 IEEE Jack S. Kilby Signal Processing Medal

Nomination forms for the next year's IEEE Jack S. Kilby Signal Processing Medal are now available and due on **1 July 2009**. The IEEE Jack S. Kilby Signal Processing Medal was established in 1995 and may be presented "for outstanding achievements in signal processing." The achievement may be theoretical, technological or commercial. The Medal is named in honor of Jack S. Kilby. His innovation was a monumental precursor to the development of the signal processor and digital signal processing. Check [online](#) for more information.

Other IEEE medals, including the IEEE Medal of Honor, are also calling for nomination by **1 July 2009**. Check [online](#) for more information.

| Nomination Reminders  | Deadlines                     | Links  |
|---|-------------------------------|--|
| <p><b>Nomination of 2010-2011 Distinguished Lecturers (DLs):</b><br/>Nominees shall be individuals of distinction who are members of the IEEE and of the IEEE Signal Processing Society, who are recognized experts in their fields of endeavor, and who are capable of delivering a message of importance to the technical community as well as to the Society's members organized in chapters around the world.</p> | <p><b>July 1, 2009</b></p>    | <p>Nomination information can be found <a href="#">online</a>.<br/>Read more about DL nomination from <a href="#">April 2009 eNews</a>.</p>    |
| <p><b>Nomination of 2009 SPS Major Awards:</b><br/>including Society Award, Technical Achievement Award, Education Award, Meritorious Service Award, Best Paper Awards, Young Author Best Paper Awards, Signal Processing Magazine Best Paper Award, and Signal Processing Magazine Best Column Award.</p>  | <p><b>October 1, 2009</b></p> | <p>Nomination information can be found <a href="#">online</a>.<br/>Read more about award nomination from <a href="#">April 2009 eNews</a>.</p> |

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## 2. Conference News

### **NEW!** IEEE Thematic Meetings On Signal Processing to Launch in March 2010

The IEEE Signal Processing Society is initiating a new technical series called **IEEE -Thematic Meetings on Signal Processing (THEMES)**. IEEE-THEMES is a one-day event and will be held for the first time March 15, 2010 in conjunction with ICASSP in Dallas, Texas, USA. THEMES is organized in a single track to cover intensively one focus area each meeting. IEEE - THEMES 2010 will focus on *Signal and Information Processing for Social Networks*. The meeting will be webcast live to facilitate virtual participation for those who cannot travel to Dallas. For more information about IEEE-THEMES and to download the Call for Papers, please visit <http://www.ieee-themes.org>.

Accepted papers will be published in the August 2010 issue of the IEEE Journal of Selected Topics in Signal Processing. Submission procedures of the IEEE Journal on Selected Topics in Signal Processing (J-STSP) should be followed by submitting authors for IEEE-THEMES 2010. Visit the [J-STSP website](#) for more instructions on how to submit a manuscript. The deadline for paper submission of full-length papers is **October 15, 2009**.

### Signal Processing Conferences: Call for Papers

| Conference Name  | Location                       | Date              | Tutorial/Special Session       | Submission Deadline      |
|--|--------------------------------|-------------------|--------------------------------|--------------------------|
| <a href="#">IEEE International Conference on Signal &amp; Image Processing Applications (ICSIPA'09)</a>      | Kuala Lumpur, Malaysia         | Nov. 18-19, 2009  |                                | June 30, 2009 (extended) |
| <a href="#">IEEE Workshop on Computational Advances in Multi-Channel Sensor Array Processing (CAMSAP'09)</a> | Aruba, Dutch Antilles          | Dec. 13-16, 2009  |                                | July 24, 2009            |
| <a href="#">9th IEEE International Symposium on Signal Processing and Information Technology (ISSPIT'09)</a> | Ajman and United Arab Emirates | Dec. 14-17, 2009  | July 1, 2009 (tutorial)        | July 1, 2009             |
| <a href="#">IEEE Workshop on Automatic Speech Recognition and Understanding (ASRU'09)</a>                    | Merano, Italy                  | Dec. 13-17, 2009  | Sept. 24, 2009 (demo proposal) | July 15, 2009            |
| <a href="#">IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2010)</a>       | Dallas, TX, TX                 | March 15-19, 2010 | July 31, 2009                  | September 14, 2009       |
| <a href="#">International Symposium on Communications, Control and Signal Processing (ISCCSP 2010)</a>       | Limassol, Cyprus               | March 3-5, 2010   |                                | October 9, 2009          |

### Upcoming Signal Processing Conferences

| Conference Name   | Location       | Advanced Registration | Conference Dates     |
|---|----------------|-----------------------|----------------------|
| <a href="#">10th IEEE International Workshop on Signal Processing Advances for Wireless Communications (SPAWC'09)</a> | Perugia, Italy |                       | June 21-24, 2009     |
| <a href="#">6th IEEE International Symposium on Biomedical Imaging (ISBI'09)</a>                                      | Boston, MA     |                       | June 28-July 1, 2009 |
| <a href="#">IEEE International Conference on Multimedia and Expo (ICME'09)</a>  | New York, NY   |                       | June 28-July 3, 2009 |

|  |                           |                |                        |
|--|---------------------------|----------------|------------------------|
| 16th International Conference on Digital Signal Processing (DSP'09)  | Santorini, Greece         |                | July 5-7, 2009         |
| IEEE Workshop on Statistical Signal Processing (SSP'09)  | Cardiff, UK               | June 29, 2009  | Aug. 31 - Sep. 3, 2009 |
| 6th IEEE International Conference on Advanced Video and Signal Based Surveillance (AVSS)   | Genova, Italy             |                | Sept. 2-4, 2009        |
| IEEE International Workshop on Machine Learning for Signal Processing (MLSP'09)  | Grenoble, France          | July 5, 2009   | Sept. 2-4, 2009        |
| IEEE International Conference on Ultra-Wideband (ICUWB'09)   | Vancouver, CA             |                | Sept. 9-11, 2009       |
| IEEE International Workshop on Multimedia Signal Processing (MMSP'09)  | Rio de Janeiro, Brazil    | TBA            | Oct. 5-7, 2009         |
| IEEE Workshop on Signal Processing Systems (SiPS'09)   | Tampere, Finland          | TBA            | Oct. 7-9, 2009         |
| IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA'09)  | New Paltz, NY             | Sept. 1, 2009  | Oct. 18-21, 2009       |
| IEEE Conference on Sensors (SENSORS'09)  | Christchurch, New Zealand | July 31, 2009  | Oct. 25-28, 2009       |
| 43rd Annual Asilomar Conference on Signals, Systems, and Computers (Asilomar'09)   | Pacific Grove, CA         | TBA            | Nov. 1-4, 2009         |
| 11th International Conference on Multimodal Interfaces and Workshop on Machine Learning for Multi-modal Interaction (ICMI-MLMI'09) | Cambridge, MA             | Sept. 19, 2009 | Nov. 2-6, 2009         |
| IEEE International Conference on Image Processing (ICIP'09)  | Cairo, Egypt              | TBA            | Nov. 7-11, 2009        |
| First IEEE International Workshop on Information Forensics and Security (WIFS'09)  | London, UK                | Oct. 10, 2009  | Dec. 6-9, 2009         |

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### 3. Publication News

#### **NEW!** Introducing Overview Articles in Signal Processing Transactions

The IEEE Signal Processing Society (SPS) is introducing overview articles as a new feature in the four SPS Transactions. Overview articles are intended to be of solid technical depth with lasting value and provide advanced readers with a thorough overview of a field of interest. They are technically more comprehensive than tutorials, which are intended for readers with a basic knowledge in a given field and are currently published in the IEEE Signal Processing Magazine.

Learn more about this new feature and the process of submitting an overview article from this [in-depth article](#) by the SPS Vice President-Publications, Ali H. Sayed.

#### Signal Processing Magazine Deadlines ([Magazine website](#))

- [Special Issue on Video Analytics for Surveillance: Theory and Practice](#) - Whitepaper Due **1 July 2009**
- [Special Issue on Immersive Communication](#) – Whitepaper Due **1 August 2009**

- [Graphical Models in Signal Processing](#) – Whitepaper Due **1 August 2009**
- [Columns/Forums](#) rolling submission deadlines

**Special Issue Deadlines:** Follow [this link](#) for **on-going Special Issues** in SPS journals

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

- [Speech Processing for Natural Interaction with Intelligent Environments](#) - Deadline: **3 July 2009**
- [Statistical Learning Methods for Speech and Language Processing](#) - Deadline: **7 August 2009**
- [Signal Processing in Cooperative Cognitive Radio Systems](#) – Deadline: **6 November 2009**
- [Recent Advances in Video Processing for Consumer Displays](#) - Deadline: **4 December 2009**

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

- [Processing Reverberant Speech: Methodologies and Applications](#) – Deadline: **15 October 2009**

IEEE Transactions on Image Processing ([website](#))

- [Distributed Camera Networks: Sensing, Processing, Communication and Computing](#) – Deadline: **30 August 2009**

**Recent Issues** of SPS Sponsored and Co-sponsored Publications

| Journal Title  | Latest Issue   | Contents (in PDF)   | Xplore Link          |
|--|----------------|---|----------------------|
| IEEE Signal Processing Magazine <ul style="list-style-type: none"> <li>• Feature articles on "Curious Science"; "Reproducible Research in Signal Processing"; and "Beyond Bandlimited Sampling"</li> </ul> | vol. 26, no. 3 | <a href="#">PDF</a>   | <a href="#">Html</a> |
| IEEE Transactions on Audio, Speech, and Language Processing <ul style="list-style-type: none"> <li>• Special Section on Processing Morphologically Rich Languages</li> </ul>                               | vol. 17, no. 5 | <a href="#">PDF</a>   | <a href="#">Html</a> |
| IEEE Transactions on Image Processing  | vol. 18, no. 6 | <a href="#">PDF</a>   | <a href="#">Html</a> |
| IEEE Transactions on Information Forensics and Security  | vol. 4, no. 2  | <a href="#">PDF</a>   | <a href="#">Html</a> |
| IEEE Transactions on Signal Processing   | vol. 57, no. 6 | <a href="#">PDF</a>   | <a href="#">Html</a> |
| IEEE Signal Processing Letters   | vol. 16        | Recent Articles<br><a href="#">Html</a> , <a href="#">PDF</a> | <a href="#">Html</a> |
| IEEE Journal of Selected Topics in Signal Processing <ul style="list-style-type: none"> <li>• DSP Techniques for RF/Analog Circuit Impairments</li> </ul>  | vol. 3, no. 3  | <a href="#">PDF</a>   | <a href="#">Html</a> |

| Journal Title                                | Latest Issue   | Contents (in PDF)   | Xplore Link          |
|--|----------------|---------------------|----------------------|
| IEEE Transactions on Medical Imaging         | vol. 28, no. 6 | <a href="#">PDF</a> | <a href="#">Html</a> |
| IEEE Transactions on Mobile Computing        | vol. 8, no. 7  | <a href="#">PDF</a> | <a href="#">Html</a> |
| IEEE Transactions on Multimedia              | vol. 11, no. 4 | <a href="#">PDF</a> | <a href="#">Html</a> |
| IEEE Sensors Journal                         | vol. 9, no. 7  |                     | <a href="#">Html</a> |
| IEEE Transactions on Wireless Communications | vol. 8, no. 5  | <a href="#">PDF</a> | <a href="#">Html</a> |
| Computing in Science & Engineering Magazine  | vol. 11, no. 3 | <a href="#">PDF</a> | <a href="#">Html</a> |
| IEEE MultiMedia                              | vol. 16, no. 1 | <a href="#">PDF</a> | <a href="#">Html</a> |

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#### 4. TC News

This month we are pleased to bring to you exclusive reports from two of the IEEE Signal Processing Society's Technical Committees:

- **Multimedia Signal Processing (MMSP) Technical Committee**

The Multimedia Signal Processing Technical Committee promotes the advancement of multimedia signal processing technology with special emphasis on the interaction, coordination, synchronization, and joint processing of multimedia and multi-modality signals. It drives two main events, the MMSP workshop and the ICME conference. Learn more from this [in-depth report](#).

- **Design and Implementation of Signal Processing Systems (DISPS) Technical Committee**

The Design and Implementation of Signal Processing Systems Technical Committee promotes activities in several areas including design, development and implementation of signal processing systems, design of algorithms with implementation in mind, and design of software tools and methodologies to support the design of signal processing systems. Learn more from this [in-depth report](#).

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#### 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 [2008 and 2009 Distinguished Lecturers](#), and bookmark [this link](#) for upcoming SPS Distinguished Lectures near you.

| Chapter      | Dates             | SPS Distinguished Lectures   |
|--------------|-------------------|--|
| Central Iowa | 7-October-2009    | by <b>Prof. Petar M. Djuric</b> (SUNY Stony Brook). Details to be announced. Contact Chapter Chair Yao Ma at [mayao AT iastate.edu] for more information.              |
| Denver, CO   | 25-September-2009 | <b>Prof. Petar M. Djuric</b> (SUNY Stony Brook): "The particle filtering methodology in signal processing". See the <a href="#">announcement</a> for more information. |

|                            |                   |   |
|----------------------------|-------------------|---|
| <b>Philadelphia</b>        | 15-June-2009      | <b>Prof. Sergios Theodoridis</b> (University of Athens, Greece): "Adaptive Learning in a World of Projections". Contact Chapter Chair Gail Rosen at [gair AT ece.drexel.edu] for more information.  |
| <b>Santa Clara Valley</b>  | 22-June-2009      | <b>Prof. Sergios Theodoridis</b> (University of Athens, Greece): "Adaptive Learning in a World of Projections". See <a href="#">chapter web site</a> for details.   |
| <b>Santa Clara Valley</b>  | 21-September-2009 | by <b>Dr. Amy Reibman</b> (AT&T Labs-Research). Details to be announced. See <a href="#">chapter web site</a> for updates.  |
| <b>Santa Clara Valley</b>  | 12-October-2009   | by <b>Prof. Lang Tong</b> (Cornell University). Details to be announced. See <a href="#">chapter web site</a> for updates.  |
| <b>Southern Minnesota</b>  | 5-October-2009    | <b>Prof. Petar M. Djuric</b> (SUNY Stony Brook): "The particle filtering methodology in signal processing". Contact Chapter Chair Scott Dahl at [ssdahl AT chartermi.net] for more information.   |
|                            |                   |   |
| <b>Chapter</b>             | <b>Dates</b>      | <b>Other Upcoming Events</b>  |
| <b>Coastal Los Angeles</b> | 23-June-2009      | <b>Dr. Bernie Sklar</b> (Communications Engineering Services): "What Every Comm Engineer Should Know About Digital Communications." See <a href="#">announcement</a> .  |
| <b>Greece</b>              | 17-October-2009   | <b>Greek Signal Processing Jam!</b> Full day event features SPS Distinguished Lecturers Profs. Renato De Mori, Sergios Theodoridis and Nikos Sidiropoulos, and three other speakers. See the <a href="#">announcement</a> for more information. |
| <b>Santa Clara Valley</b>  | 21-September-2009 | <b>Prof. Sergio Bampi</b> (Universidade Federal do Rio Grande do Sul - UFRGS, Brazil): "Advancements in on-chip H.264/AVC Video Compression." See <a href="#">chapter web site</a> for more information.  |
| <b>Santa Clara Valley</b>  | 9-November-2009   | <b>Dr. Parastoo Nikaeen</b> (Netlogic Microsystems): "Digital Compensation of Dynamic Acquisition Errors at the Front-End of High-Performance A/D Converters." See <a href="#">chapter web site</a> 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. Technical Trends and Standards

### Information Forensics and Security: Research Trends At a Glance from ICASSP 2009

The Information Forensics and Security (IFS) Technical Track in ICASSP 2009 included three lecture sessions and two poster sessions. These papers addressed a variety of aspects of information forensics and security, from theoretical analysis to real-world applications, from digital rights management to human identification, and from traditional digital media to new data types such as electronic ink. Learn more from this [exclusive in-depth report](#) on research trends in IFS revealed from this year's ICASSP.

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## 7. SP Education and Resources



## Banff International Research Station - Now Accepting Proposals for 2011

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, statistical, and computing sciences, and with related disciplines and industrial sectors. The BIRS Station is located on the site of the world-renowned Banff Centre in Alberta, Canada. It provides a secluded environment, complemented with 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 2011, and is now accepting proposals for its 2011 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 **September 28, 2009**. Full information, guidelines, and online submission forms are available at the website <http://www.birs.ca/proposals/>.

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 September 28, 2009, is strongly encouraged.

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## 8. New Ph.D. Thesis

**Giacomo Cancelli** (University of Siena, Italy):

**"New Techniques for Steganography and Steganalysis in the Pixel Domain,"** May 2009.

Advised by Prof. Mauro Barni.

The thesis takes into account steganography and steganalysis in the pixel domain. Several existing steganographic and steganalysis methods ensure good results in controlled scenarios, but they usually do not extend these good performance to practical cases. And in order to obtain undetectability the steganographic methods have been mainly concerned with the minimization of embedding changes, but this methodology is not the only possible strategy. The contribution of this thesis is three-fold and focuses on analyzing the above framework. From a steganalysis point of view, we introduce a new steganalysis method called Amplitude of Local Extrema (ALE), which outperforms previously proposed pixel domain methods. As a second contribution, we introduce a comparative methodology for the comparison of different steganalyzers and we apply it to compare ALE with the state-of-art steganalyzers. The third contribution of the thesis addresses steganography, through introducing a new embedding domain and a corresponding method, called MPSteg-color, which outperforms classical embedding methods in terms of undetectability.

Click [here](#) to access the thesis by the author.

### 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 <alessandro.piva AT 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

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

*Fundamentals of Radar Signal Processing*,  
by Mark Richards, McGraw-Hill, 2005.

*QRD-RLS Adaptive Filtering*,  
Edited by Jose Antonio Apolinario Jr., Springer, 2009.

*Bayesian Signal Processing: Classical, Modern and Particle Filtering Methods*,  
By James V. Candy, John Wiley/IEEE Press, 2009.

*Mobile Multimedia Broadcasting Standards: Technology and Practice*,  
Edited by Fa-Long Luo, Springer, 2008.

*Pattern Recognition*, 4th Edition,  
by Sergios Theodoridis and Konstantinos Koutroumbas, Elsevier, 2009.

*Handbook of Biosensors and Biochips*,  
Edited by R.S. Marks, D.C. Cullen, I. Karube, C.R. Lowe, and H.H. Weetall, Wiley, 2007.

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## 10. Research Opportunities

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

- Graduate Research Assistants and Postdoc Positions in Signal/Information/Multimedia Processing, Ryerson University, Canada
- Post-Doc Position on Psychovisual Video Coding at Simon Fraser University, Canada
- PhD Studentship in Trinity College, Dublin, Ireland
- Two-Year Post-Doc position at NICTA Canberra Research Laboratory, Australia
- PhD Scholarship on Neuroimaging based Brain Network Comparison at The University of Groningen, The Netherlands

### Job Posting Portals

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

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

[http://engineering.academickeys.com/seeker\\_job.php](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 in English. 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/g/>); the IEEE Signal Processing Magazine also provides opportunities for paid advertisement.

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### Contributors of articles in this issue:

Ali H. Sayed (VP-Publications), Jarmo Takala (DISPS TC), Anthony Vetro (MMSP TC), and H. Vicky Zhao (E-News Correspondent).

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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.

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### Submission Instructions - Contribution for the next issue is due July 20, 2009

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 **July 20, 2009** 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.

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### 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)*

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

*Online submission and production system*

Li Deng, *SPM Editor-in-Chief*, Microsoft Research, Redmond, WA, USA (deng AT microsoft.com)

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

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## In-Depth E-News Article

### Introducing Overview Articles in Signal Processing Transactions

by Ali H. Sayed (SPS Vice President-Publications)



The IEEE Signal Processing Society is introducing a new feature which originated from a suggestion made by my colleague Athina Petropulu and a couple of Associate Editors. The publication of overview articles in the Transactions will be a service to our readers and appeal to the broad signal processing audience.

#### What are Overview Articles?

Overview articles are intended to be of solid technical depth with lasting value and provide advanced readers with a thorough overview of a field of interest. They are technically more comprehensive than tutorials, which are intended for readers with a basic knowledge in a given field. Tutorials are currently published in the *IEEE Signal Processing Magazine*. Overview articles are similar in depth to articles published in the *Proceedings of the IEEE*. They are expected to be longer in length than regular articles in the transactions

and their length can be as much as double the length of a regular submission.

### **Which Transactions will include Overview Articles?**

Overview articles will be published in the following Transactions:

- IEEE Transactions on Audio, Speech, and Language Processing
- IEEE Transactions on Information Forensics and Security
- IEEE Transactions in Image Processing
- IEEE Transactions on Signal Processing

### **What is the Frequency?**

Each of these journals will publish no more than one Overview Article per quarter or four per year.

### **What is the Process for Submitting an Overview Article?**

Authors interested in submitting overview articles are required to consult first with the Editor-in-Chief of their transactions of choice before submitting a white paper proposal. The white paper should be submitted to the EIC. White papers are limited to 2-pages and should motivate the topic, justify the proposal, and include a list of relevant bibliography including any available tutorial or overview articles related to the subject matter. The author(s) should also attach IEEE-style bios.

### **How are Overview Articles Handled?**

The white paper proposal is forwarded by the EIC to the Overview Editorial Board. The Board's responsibility is to provide feedback on the article's topic with regard to its timeliness and relevance.

Based on the feedback received from the Overview Editorial Board, the author(s) may be instructed by the EIC how to submit a full-fledged manuscript through Manuscript Central. The EIC may also determine that the overview article is more suitable to some other transactions.

All overview articles will be subjected to the same rigorous review process as all other regular submissions. It is our expectation that the time from submission to publication of accepted overview articles will not exceed one year.

### **Members of the Overview Editorial Board**

The initial members of the Overview Editorial Board are: M. Amin, A. Bovik, R. Calderbank, S-F. Chang, R. De Mori, E. Delp, B. Girod, A. Jain, T. Kalker, W. Kellerman, G. Rigoll, L-S. Lee, B. Manjunath, H. Messer, H. Vince Poor, and A. Willsky. We thank them for their willingness to serve in this capacity.

More information about Overview Articles can be found at [this link](#). We look forward to receiving your white paper proposals.

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## **Activity Updates from Multimedia Signal Processing (MMSP)**

### **Technical Committee**

by Anthony Vetro (MMSP TC Chair)



The Multimedia Signal Processing (MMSP) Technical Committee (TC) promotes the advancement of multimedia signal processing technology with special emphasis on the interaction, coordination, synchronization, and joint processing of multimedia and multi-modality signals.

A key activity of the TC is organizing the annual MMSP Workshop. The eleventh edition of this workshop will be held in Rio de Janeiro, Brazil from October 5-7, 2009. A thematic emphasis for MMSP'09 is on topics

related to multimedia processing and interaction for immersive telecommunications and collaboration. Keynote speakers include: Prof. Joseph Paradiso (MIT), who will speak on "Linking Virtual and Real Worlds Through Ubiquitous Sensor Networks", Prof. Fred Juang, (Georgia Tech), who will present "Interactive Acoustics: A Frontier in Signal Processing for Immersive Communication" and Prof. Inald L. Lagendijk (Delft University), who will give a talk entitled "Secure Signal Processing: Merging the Worlds of Signal Processing and Cryptography". The technical program is being finalized now and we look forward to your participation in this event. Please visit <http://mmsp09.org/> for further details.

The TC is also actively supporting the IEEE International Conference on Multimedia & Expo (ICME), which is sponsored by four IEEE Societies including Signal Processing Society. This event was recently moved from Cancun, Mexico to New York City due to the H1N1 flu pandemic and will feature a full range of keynotes, tutorials, workshops and technical presentations on multimedia. Please visit the [conference webpage](#) for further details.

A roster of the current MMSP TC members can be found at the [TC website](#). Contact TC Chair Anthony Vetro <avetro AT merl.com> for more information about the TC activities and opportunities to be involved in.

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## Technical Committee Updates:

### Design and Implementation of Signal Processing Systems (DISPS)

by Jarmo Takala (DISPS TC Liaison to E-News)



The history of the Design and Implementation of Signal Processing Systems (DISPS) Technical Committee can be traced back to 1983, when the Very Large Scale Integration (VLSI) Technical Committee was created. The name of the TC was updated to its current name in 1995. The DISPS TC promotes and supports activities of the Signal Processing Society in the several areas, including:

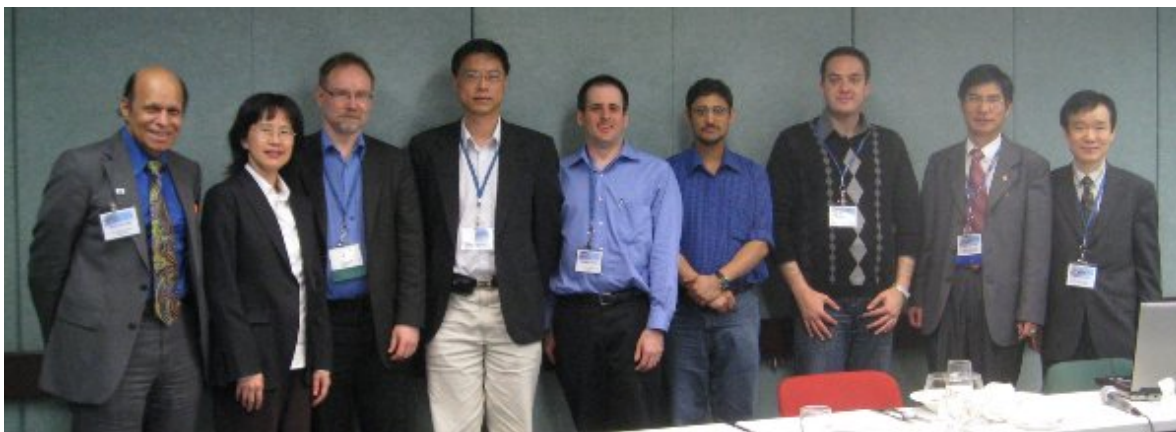
- design, development and implementation of signal processing systems;
- design of algorithms with implementation in mind, and
- design of software tools and methodologies to support the design of signal processing systems.

Currently, the TC has 28 members, and four new members were elected: Yen-Kuang Chen (Intel), Tokunbo Ogunfunmi (Santa Clara University), Vijay Sundararajan (Texas Instruments), and Zhiyuan Yan (Lehigh University). Retiring members are invited to the DISPS Advisory Committee, and this year Advisory Committee included three new members: Magdy A. Bayoumi (University of Louisiana), Chaitali Chakrabarti (Arizona State University), and Konstantinos Konstatinides (HP, Palo Alto, CA).

Shuvra S. Bhattacharyya (University of Maryland, College Park) is the current Chair of the DISPS Technical Committee, and Wonyong Sung (Seoul National University, Korea) was elected in March 2009 as the TC Chair Elect. An active DISPS TC member, Brian L. Evans (University of Texas at Austin), was elevated to IEEE Fellow Class of 2009.

The DISPS TC sponsors the Workshop on Signal Processing Systems (SiPS), which was organized for first time in 1984 as the Workshop on VLSI Signal Processing. The Workshop has been organized annually since 1992. The successful [SiPS 2008](#) was held in Washington, DC, in October 2008. The [SiPS 2009](#) will be held at Tampere, Finland in October 7-9, and SiPS 2010 is scheduled to be held in the San Francisco Bay Area. The DISPS TC recently organized the Implementation of Signal Processing Systems Track at ICASSP 2009, held in April 2009 in Taipei, Taiwan. The track consisted of 23 papers in one lecture session and two poster sessions. The recent TC meeting was held during the ICASSP 2009 (see picture below) and a major agenda item was to discuss plans and proposals for SiPS 2010.

For more information, please visit the DISPS TC's [new webpage](#) introduced in April 2009.

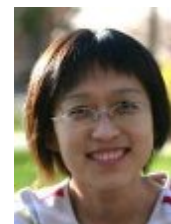


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## Research Trends At a Glance:

### Information Forensics and Security Work at ICASSP 2009

by H. Vicky Zhao (E-News Correspondent)



In ICASSP 2009, the Information Forensics and Security (IFS) Technical Track received 86 paper submissions, among which 39 were accepted. The IFS Technical Track in ICASSP 2009 included three lecture sessions and two poster sessions, and covered a wide range of topics in information forensics and security, including theoretical analysis of fundamental security problems, information protection in emerging applications, and signal processing for surveillance and forensic applications.

Information hiding remains an active research topic featured in the ICASSP's IFS Track: there were ten papers on digital watermarking, four papers on steganography and steganalysis, and four papers on traitor-tracing multimedia fingerprinting. These papers analyzed the fundamental capability of information hiding technologies, investigated potential attacks on data hiding for security applications, and introduced new techniques to improve the performance of information hiding. Also explored were new applications, for example, covert communications over queuing channels, and for new host data types, such as data hiding for electronic ink in tablet PC applications.

For forensics applications that do not rely on proactive support such as data hiding based approach, there were seven papers on passive-blind forensics (also known as nonintrusive forensics) in ICASSP 2009. Some of these papers focused on identification of the source of the digital media in question, including its origin (for example, computer graphics versus real images) and the hardware that was used to process it (such as digital camera, scanner or printer). Another research direction was tampering detection, where unique characteristics of different media types and of multimedia applications were explored to verify the authenticity of digital media documents. Examples include spectral distance and phase of electric network frequency for audio signals, empirical frequency response for images, and distributed source coding based approach for networked multimedia applications.

Data confidentiality is a critical requirement in many security applications, and there were four papers in ICASSP 2009 addressing various issues related to this area, including secret sharing for color images and secure processing of multimedia documents. Two papers addressed such application scenarios that require privacy protection without sacrificing other functionalities of multimedia systems, by studying the impact of security on other multimedia signal processing modules and by developing mechanisms for accurate matching and retrieval of digital media in the encrypted domain.

There are growing interests in accurately identifying media documents that contain identical content except some minor differences caused by such common processing as compression and resampling, and at the same time distinguishing between media documents of different content. Two papers in ICASSP 2009 explored human perceptual systems and designed content hashing technologies for robust, accurate, and efficient identification of audios and videos, respectively.

Biometrics for human identification is a crucial component in many security applications. Four ICASSP papers studied advanced signal processing techniques for enhancing biometric performance. They considered different psychological and behavioral characteristics, including electroencephalogram (EEG) recordings of brain waves, humming, gait patterns, and fingerprints.

In this year's ICASSP, there have also been extensive studies on techniques for automated analysis of surveillance videos and remote sensing data. For example, behavior analysis of moving objects by grouping motion trajectories, sweethearting identification from surveillance video to catch fraud at retail check-out counters, and wildfire detection using least-mean-square based active learning. Another interesting work presented in ICASSP was on automatic reconstruction of shredded documents based on polynomial approximation and dynamic programming in forensic document examination.

To summarize, there were interesting papers in ICASSP 2009 addressing a variety of aspects of information forensics and security, from theoretical analysis to real-world applications, from digital rights management to human identification, and from traditional digital media to new data types such as electronic ink. Information forensics and security is an interdisciplinary research area covering a wide range of disciplines, including digital signal processing, multimedia, communications, biomedical signal processing, statistics, and many others. Although IFS has received a lot of attention from both academia and industries over the past years, it is still a young, emerging, and diverse field with many unsolved problems and uncharted territories. We anticipate that IFS will remain an active research area in the coming years, and will play a crucial role in future development of information technologies.

About the Author: H. Vicky Zhao is with the ECE Department at University of Alberta, Canada.

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