April 2012
Issue 1

APSIPA NEWSLETTER

Asia-Pacific Signal and Information Processing Association Newsletter

President's Message:

The Asia-Pacific region is not only the fastest growing economic region in the world, but also the fastest growing region in terms of technology, if measured by research publications submitted/accepted to international conferences. There are some organizations such as the IEEE and EURASIP that foster global and/or regional interaction and collaboration on research and education in signal and information processing. However, there was no such organization serving the Asia-Pacific region. Each region has its own characteristics and technology bases, therefore a regional organization can provide a unique service to its scientific community while providing a collective identity and representation to the world community.

With these ideas in mind, APSIPA (Asia-Pacific Signal and Information Processing Association) was established on October 5, 2009, and officially registered in Hong Kong. The inaugural conference, "2009 APSIPA Annual Summit and Conference (APSIPA ASC 2009)," was successfully held in Sapporo, Japan, with more than 250 attendees from 17 countries including Europe. The second conference, "APSIPA ASC 2010" was held in Singapore with more than 400 attendees from 18 countries, and the third conference, "APSIPA ASC 2011" was held in Xi'an, China, which was also a great success.

APSIPA is a non-profit organization covering all aspects of signals and information including processing, recognition, classification, communications, networking, computing, system design, security, implementation, and technology with applications to scientific, engineering, health, and social areas.

APSIPA has the following objectives:

- Providing education, research and development exchange platforms for both academia and industry
- Organizing common-interest activities for researchers and practitioners
- Facilitating collaboration with region-specific focuses and promoting leadership for worldwide events
- Disseminating research results and educational material via publications, presentations, and electronic media
- Offering personal and professional career opportunities with development information and networking

APSIPA has recently launched a new e-only, open-access journal "APSIPA Transactions on Signal and Information Processing" published from Cambridge University Press. APSIPA has also started Distinguished Lecturer Program with 10 selected Distinguished Lecturers.

APSIPA ASC 2012 will be held from December 3rd to 6th, 2012, in Hollywood, CA, USA. We look forward to working with many more active faculties, researchers, engineers and students in the area of signal and information processing in the Asia-Pacific region.

Sadaoki Furui

Inside this issue:

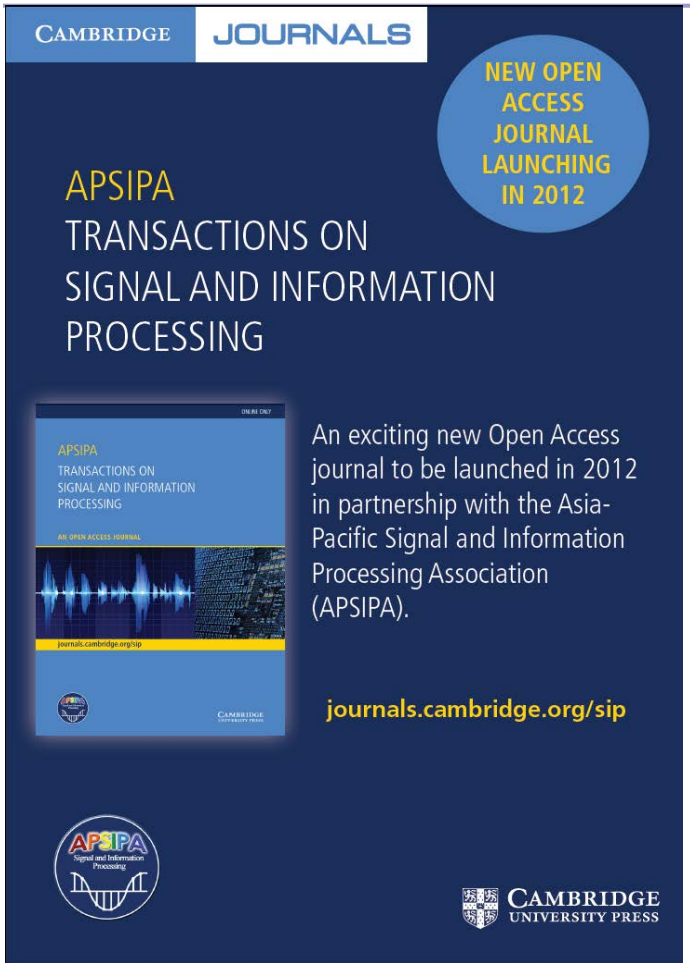
APSIPA Transactions on Signal and Information Processing

APSIPA Transactions on Signal and Information Processing is a new Open Access, e-only journal launching in Spring 2012 in partnership between the Asia-Pacific Signal and Information Processing Association (APSIPA) and Cambridge University Press.

The journal will serve as an international forum for signal and information processing researchers across a broad spectrum of research, ranging from traditional modalities of signal processing to emerging areas where either (i) processing reaches higher semantic levels (e.g., from speech recognition to multimodal human behavior recognition) or (ii) processing is meant to extract information from datasets that are not traditionally considered signals (e.g., mining of Internet or sensor information).

Submit your paper now and benefit from a special introductory rate on Open Access fees - just $600 USD/£400 GBP for all papers accepted before December 2012. For more information, please see the following link:
http://mc.manuscriptcentral.com/apsipa
The Editors are especially interested in research where contributions are made both to signal and information processing methods and to specific systems and application domains. A broad range of methods and applications will be considered.

Contact: If you have any questions about the journal, please direct them to the Editor-in-Chief, Prof. Antonio Ortega, University of Southern California, antonio.ortega@sipi.usc.edu. An interview with Professor Ortega regarding this journal can be accessed from [Link-1] ; [Link-2 for China]



Interview with Professor C.-C. Jay Kuo on APSIPA Social Network

By Summer He

Summer: Hello, Everyone. Welcome to APSIPA social network. Today, I've got a chance to talk with professor Kuo. He is from University of Southern California. He is the next APSIPA president. Professor Kuo, can I ask you some questions?

Professor Kuo: Yes, welcome.

Summer: Actually, we have built the APSIPA social network. Can you tell me your motivation to build up APSIPA social network?

Professor Kuo: The social network is a recent tool and many young generation students are interested. They have Facebook, Google+, or Linkedin accounts. It is a community website with a built-in infrastructure. APSIPA is also a community, yet we meet basically annually in the APSIPA summit conference. We really need to have more opportunities for people to interact. The APSIPA social network provides such a mechanism. People can share information, ideas and so on through the APSIPA social network. Another thing is that we want to use the social net to provide a lot of valuable information, such as research directions, keynotes, distinguished lectures, job opportunities, and company information. All these kinds of information are useful to students. Then, student can enjoy and re-visit the APSIPA social network often. Another item is people's resumes. For example, students can post their resumes, and LinkedIn is a very nature place for this purpose. It will provide a platform so that the company only needs to visit one website and see many students' resumes. Thus, if you are ready to graduate, you can use this platform to let people know your expertise and so on. It is another way to promote yourself. So, there are many purposes. If we do it right, it will be an influential tool.

The interview can be watched online at http://www.apsipa.org/social.htm

Summer: It is a great idea, especially for students. So can you tell me about the APSIPA current situation?

Professor Kuo: We just started it, around the end of last year. We are getting more contents. Another thing is to invite people to join the APSIPA social net. I am inclined, at least at the first stage, to make it free. That is, people can join the APSIPA social net through invitation without paying an APSIPA membership fee. But, eventually, I hope that the student want to be a society member of APSIPA for more benefits. We need to find a good balance so that people can enjoy the resource with a minimum cost.

Summer: Do you have any plan for the APSIPA future?

Professor Kuo: Since we are building the contents for the APSIPA social net, we need to have more good material, for example, distinguished lectures, power-point files, video clips, and web-seminars (or webinars). I also want the company to play a role. For example, we have recruiting video from companies and the student can learn these companies. On the other hand, we would like to divide students group into regions, such as China, US regions, and so on. Different regions have different student groups. Some companies may want to look for students in particular region. A Chinese company may look for students in China, and they can access to that database for students' resumes. There

are several ideas we are still cooking. We need to have more some solid core information first, and then we can invite people to join and people may stay and interact through the APSIPA social net. They are still a long way to go, yet the goal is a good one and, if we do it right and work hard, we can achieve something very important.

Summer: Yeah, it's true that APSIPA social network is playing a very important role in connecting the industry and the academic. So, professor, in your opinion, what kind of topic is the most challenging and potential one in image and information processing region?

Professor Kuo: In the last 40 years, signal processing researchers have focused on the processing of signal waveforms such as speech samples and image/video pixels and so on. Another example is image/video quality metric. We often compute the averaged pixel differences (i.e. the so-called mean square error), or the peak-signal-to-noise ratio (PSNR). This type of computation is good for computers, but not suitable for human perception. When we talk about audio, speech, image, video, the content is really for human to enjoy, recognize and so on. I feel that it is very important to have the human factor in speech, image/video processing. That is very relevant to the name of APSIPA. APSIPA means the Asia-Pacific Signal and Information Processing Association. The two keywords here are "Signal" and "Information". Information is something that can be appreciated and understood by human being. Somehow, we need to go beyond the pixel level to reach the information unit. I expect a major breakthrough in the coming decade in bridging the semantic gap between signals and information. Speech processing has pointed out such a trend. We have the speech waveform and features obtained by the hidden Markov model (HMM) and the Gaussian mixture model (GMM), etc. Then, people can extract phonemes which serve as an information unit. Then, you can apply machine learning to relate phonemes and words. I feel that image/video processing may follow the same paradigm. You start from pixels and then move up to a higher level information unit, which could be segments. Then, you can learn the composition of these segments thing to form useful visual concepts for human to understand or appreciate. Human interprets semantic meaning

while machines process pixels or values. Somehow, we need to figure out a way to narrow down this gap, the semantic gap.

Summer: The last question is from the students. They want to know what kind of qualities you think are most important for students in signal and image processing region. They think learning capacity, social and community skills or innovation skills.

Professor Kuo: It depends on the nature of the student career plan. One very important thing is the sense of responsibility. That is, they can finish the work. I heard from company friends that the major difference between a good and a mediocre engineer is that a good engineer can finish the job completely. There is a lot of dirty work at the end of a product. But no matter what, you need to finish and wrap it up. In academia, we do not train student this way. We ask for innovation; namely, trying something new yet with a small prototype or simulation. So, there is a gap between academic and industrial cultures. For people who choose engineering as their ultimate professions, we should teach students about the thoroughness in finishing a system. Of course, for some other people, they may want to do research-oriented work in research lab or research-oriented groups. Then, innovation work is also very important. In that sense, students need to be more open-minded. They need to learn new things. You know, if they don't get updated their knowledge may become obsolete after a couples of years of their graduation.

Summer: Yeah, I cannot agree more with you! Thank you professor!

Professor Kuo: Welcome!

APSIPA Distinguished Lecturer Announcement

The Asia-Pacific Signal and Information Processing Association (APSIPA) is glad to announce its selection of the inaugural Distinguished Lecturers (2012-2013).

APSIPA launched the Distinguished Lecturer (DL) program in 2011 to serve its communities by organizing lectures given by distinguished experts. The DL program is an educational program that promotes the research and development of signal and information processing in Asia Pacific region. Particular attention is given to the specific needs of academia, and professionals in industry and government in developing countries.

APSIPA distinguished lecturer is an ambassador of APSIPA to promote APSIPA's image and reach out to new membership. A distinguished lecturer is also a volunteer who is willing to serve the APSIPA.

The appointment of distinguished lecturer is an honor to recognize the technical achievement, expertise and leadership of an individual.

APSIPA President, Professor Sadaoki Furui, appointed a review committee (2011-2013) that consists of Waleed Abdulla, Jay Kuo, Haizhou Li, Mark Liao, and Yoshikazu Miyanaga, chaired by Haizhou Li. The review committee concluded the selection for the term of 2012-2013 on 31 January 2012. We are glad to announce the appointment of the following 10 well qualified Distinguished Lecturers in alphabetical order.

1. Abeer Alwan, UCLA, USA.
2. Mrityunjoy Chakraborty, Indian Institute of Tech., India.
3. Jen-Tzung Chien, National Cheng Kung University, Taiwan.
4. Li Deng, Microsoft Research, USA.
5. Hsueh-Ming Hang, National Chiao-Tung University, Taiwan.
6. Kyoung Mu Lee, Seoul National University, Korea .
7. Weisi Lin, Nanyang Technological University, Singapore .
8. Helen Meng, The Chinese University of Hong Kong, Hong Kong SAR, China.
9. Xiaokang Yang, Shanghai Jiao Tong University, China .
10. Thomas Fang Zheng, Tsinghua University, China.

You may visit APSIPA official website to know more about the program and the details of proposed lectures. If you are interested in hosting an APSIPA Distinguished Lecture in 2012-2013, you may contact the above appointed DLs directly, or contact the DL coordinator, Haizhou Li at hli@i2r.a-star.edu.sg.

We wish all distinguished lecturers a great success!

Creating Personal Audio Using Active Sound Control and Parametric Loudspeaker

Woon-Seng Gan, Nanyang Technological University, Singapore.
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With the growth of personal consumer electronic gadgets, such as smart phones, tablets, handheld gaming devices, and portable media players, consumers are increasingly concerned of privacy for the user and the need to reduce annoyance for other people nearby. Headphones have commonly been used to provide personal audio (PA) but with some inherent problems of comfort in prolong listening, in-the-head perception, front-back confusion, etc. Therefore, if we are able to reproduce a highly directional sound field, via an array of loudspeakers [1] or special directional loudspeakers [2], to the user without disturbing others nearby, we can significantly reduce the noise pollution created by today's portable devices without the inherent problems of headphones.

Digital signal processing can play a significant role in rendering PA through array of loudspeakers or directional loudspeakers and thus, controlling the sound level in the environment. Several interesting applications, such as delivering private messages from mobile devices, where only the listeners can hear and those standing beside will not be able to hear it. This PA feature can also be extended to larger display systems, such as billboards and digital signage found in shopping malls, libraries, museums, and public venues to provide directory and special information to the passerby standing at a particular location, without adding to the already noisy environment. Personal audio entertainment can also be useful in automobile and airplane to reproduce customized audio channels in adjacent seats; and home entertainment system can be made more intelligent by tracking listeners' position and creating the best audio playback spot for listeners.

Traditional approaches in active sound control (ASC) [1] have been successfully deployed in many consumer active noise control headsets and used in automotive to reduce the amount of engine noise to passenger and driver. These ASC techniques also confine the sound level control to a tight area around the human ear. More generally, active sound control can also be used to regulate signal towards a command signal and create a desired signal through an array of loudspeakers. This system often has a fundamental trade-off between performance and array effort, where the latter affects the electrical power requirement and alters the robustness in driver response. Advanced signal processing strategies coupled with principles of psychoacoustic will provide a good compromise between these competing requirements.

An alternate approach to generate PA is to use a new type of directional loudspeakers, known as the parametric loudspeaker [2] that generates a tight column of audio signal focusing at the listener. The main principle of this approach is to rely on the phenomenon of nonlinear acoustics that can self-demodulate the audible signal carried by an amplitude-modulated ultrasonic carrier. However, a new class of signal processing techniques must be developed to pre-process, modulate, and amplify the signal before sending to the ultrasonic emitters. Furthermore, conventional beamforming and beamsteering algorithms must be substantially modified for an electronic-steerable parametric loudspeaker. A diagram below shows a pair of parametric loudspeakers being mounted in a gaming booth that provides directional stereo sound beaming to the gamer standing in a sweet spot.

A pair of parametric loudspeakers installed in a gaming booth. Picture extracted from [2].

We are starting to see some interesting new PA applications, whereby signal processing based system plays an important part to confine sound to a spatial zone. We expect to see more work and new prototypes being demonstrated in the near future that can be translated into useful commercial applications.

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[2] *W.S.Gan, E. L. Tan, Sen M Kuo, "Audio Projection: Directional sound and its application in immersive communication,"* IEEE Signal Processing Magazine, Vol 28, No 1, Jan 2011, pp 43-57.

We're on the Web!
http://www.apsipa.org

Prof. C.-C. Jay Kuo shades light on his highly cited paper in texture analysis

By Summer He

Summer He: Hello everyone, today I'm very much honored to have invited Professor C.-C. Jay Kuo from University of Southern California to talk about one of his papers. This one has been very highly referenced, with more than 1000 citations.

Summer He: Professor Kuo, we are very interested in your paper titled "Texture analysis and classification with tree-structured wavelet transform". Can you please give us a brief introduction to this paper?

Professor Kuo: Texture analysis has been a problem of study for over 40 years. In the 1960s, there was already a large collection of aerial images taken from airplanes for the purposes of remote sensing. They looked at the ground, and different types of terrain would appear as different kinds of textures. City regions, suburban regions, the countryside, different kind of farms, and different kind of forests – they all appeared as unique textures. How to automatically perform texture analysis and segmentation on these images became an important image processing problem. People tried hard to solve this throughout the 1960s and 1980s, but didn't get very successful results. We started to look at the problem in the late 80s, around the time when a new mathematical tool became popular: the wavelet transform. At that time we thought maybe we could combine wavelet analyses with image processing and apply it to the texture problem.

Summer He: What was your proposed approach?

Professor Kuo: Texture images are different from traditional images, because they have lots of emphasis on middle frequency components. Most images contain primarily low frequencies, which turn out to be not very important for texture analysis. There are even different kinds of middle frequencies, with different orientations and different frequency bands. Wavelets provide a good tool for that. When people started to apply the wavelet transform to image analysis, they looked at pyramid analysis or pyramid decomposition, but tended to put more emphasis on low frequencies and did further decomposition on the low frequency band. Here, we tried to do something different called the tree-structured wavelet transform. This means that we initially looked at four frequency bands (low-low, low-high, high-low and high-high), looked at which band has the strongest energy or more activity, and did further decomposition on that frequency band. We called this the tree-structured wavelet transform, or the wavelet texture transform, which gave you the information about those middle frequencies, the identifying features of each texture.

Summer He: This paper has attracted so much attention from people of this field. Can you tell me what you think is the distinguished achievement of your approach?

Professor Kuo: I think probably one of the main reasons why people paid attention to this work was that the performance is excellent. Previously, most people used smaller image datasets, with five to ten textures. In this paper, we tested thirty textures, which at that time was considered very large. Of course these days you may work with hundreds of thousands of textures, but in the early 1990s, 30 textures was a lot. And performance we can got was almost 100%, which was very amazing to most people. I think that is really one of the key reasons, but good performance comes from good tools. Researchers looked at new tools and felt the value of this wavelet transform, so a particular wavelet transform was applied to texture analysis.

The interview can be watched online at:
https://www.youtube.com/watch?v=KpnEQKj21P0
and for people in China at:
http://v.youku.com/v_show/id_XMzc4NDgwMTg0.html

Summer He: That's amazing. Professor, do you have any secrets for successfully publishing a highly cited paper?

Professor Kuo: I think one is timing. You need to find the right time and do some kind of pioneering research. In this particular example, wavelet analysis had just been introduced in late 1980s. With a new tool, you can have more impact, so I think the right timing at an early stage of a research problem will give you more opportunities. The second thing is to be very thorough in your research. The first author on this paper, Tianhorng Chang, was willing to spend a lot of time on the problem - he scanned a lot of textures from the book, created more textures, and collected those textures so that we could do large scale testing. We need to always try to push the envelope and do very thorough research.

Summer He: Last question: can you please give us some suggestions for doing research and publishing a paper?

Professor Kuo: I think in order to do good research you need have a very strong motivation. You have to be very curious about things and have the self-motivation to do the research. If you only try to follow instructions do things as usual, the quality of research won't be very good. So again, it's out of curiosity that you want to do well; even better than what your advisor asks you to do. So you set a high standard, and you push and you try your best to reach that. Then there is a chance you can do very high quality research.

Summer He: Is there anything else you would like to share here?

Professor Kuo: Yes, I want to mention a few things about the first author, my Ph.D. student Tianhorng Chang. He was the

Paper:

T. Chang and C.-C. Jay Kuo, "Texture analysis and classification with tree-structured wavelet transform," IEEE Trans. on Image Processing, vol. 2, no. 4, pp. 429-441, 1993.

third student who joined my research group at the University of Southern California. At the time of this publication, he had already finished this work and passed his qualify exam. So he actually had only one more year to wrap up his thesis, but unfortunately, he got a cancer. He spent one year in the hospital to receive treatment, but unfortunately still passed away and didn't get the Ph.D. degree. This was a very unique experience in my life – he was the only such student I had and I liked him very much. I felt he had dramatic potential energy and the desire to do good research, yet he wasn't able to fully utilize it. But I think his work is actually one of the things he left in the world for people to remember him by. For many students, I also encourage them to do one or two pieces of good work that may give your life some meaning, and allow you to be remembered by other people.

Summer He: I'm very sorry to hear that. Thank you again for sharing so much. Those thoughts are very valuable.

Professor Kuo: Thank you.

Glimpse from History of Computing

CHARLES BABBAGE'S RECORDING CAR

Garry J. Tee,
Department of Mathematics, The University of Auckland

Charles Babbage, born in South London in 1791, was elected as FRS in 1816 for his mathematical researches. He became much concerned about the numerous errors in published tables, especially navigation tables; and he invented his Difference Engines, consisting of several adding machines connected together, to compute and print tables accurately. He built a small demonstration model (now called No.0) in 1822, and then got support from the British Government for building the full Difference Engine No.1; but work on that ground to a halt in 1833. He then designed his Analytical Engine as a much more versatile calculator; and by 1836 he realized that he had designed not just a more powerful machine for performing arithmetic but a quite general manipulator of symbols.

Babbage carried out important work in an astonishing variety of fields, including mathematics, insurance, engineering design, philosophy, natural theology, geology and cryptography. He was a major pioneer in political economy, having much influence upon Mill and upon Marx. His many inventions included cow-catchers on trains, diving equipment, signalling lighthouses and heliographs, coloured lighting for theatres, tree-ring dating and games-playing machines. From 1848 to 1852 he used his experience on the Analytical Engine to design Difference Engine No.2, which was simpler, cheaper and more powerful than No.1. He offered the design to the British Government, but Disraeli rejected the offer, and Difference Engine No.2 was finally built by the Science Museum in London in 1991-1992. From 1856 onwards Babbage attempted to build simplified versions of his Analytical Engine - but he kept redesigning them and scrapping his incomplete Engines to re-start on his new improved designs. Consequently he never succeeded in completing any of his calculating engines, and when he died in 1871 he was mostly dismissed as an eminent mathematician in his young days, who had gone off the rails with a bee in his bonnet about his gigantic calculating engines. In recent decades, Babbage has become revered as a brilliantly original scientific thinker and inventor [Hyman 1982], and his collected writings have now been published [Babbage 1989].

Rob Merrifield gave an interesting account [Merrifield 1993] of the astonishingly advanced recording car which Charles Babbage invented and operated in 1838-1839, in order to produce objective measurements of the performance of railway trains. In 1864

Charles Babbage

Babbage published his fascinating memoir **Passages from the life of a Philosopher** which contains the fullest account of his ideas about his calculating engines which he ever published. Chapter 25, on *Railways*, is one of the most interesting chapters, and Babbage's account of his recording car [Babbage 1864, pp.320-321].

Since 1981 I have found very many relics of Charles Babbage in New Zealand and Australia [Tee 1983, 1984], and at MIT on 1983 January 4 I was interviewed about those discoveries. An unedited videotape version is now available in the IEEE archives online, at [Link1], [Link2] and [Link3].

You may refer to [Babbage 1864, pp.320-321] or the following online link for more information:. [Link]

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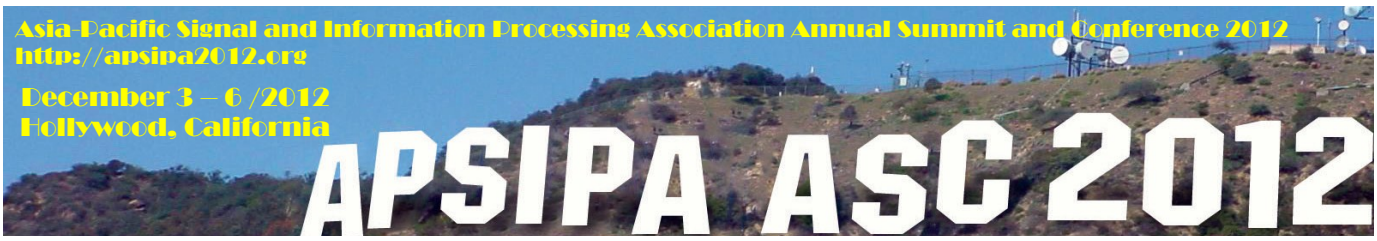

Call for Papers

APSIPA ASC 2012 will be the fourth annual conference organized by Asia-Pacific Signal and Information Processing Association (APSIPA). Founded in 2009, APSIPA aims to promote research and education on signal processing, information technology and communications. The annual conference was previously held in Japan (2009), Singapore (2010) and China (2011). The field of interest of APSIPA concerns all aspects of signals and information including processing, recognition, classification, communications, networking, computing, system design, security, implementation, and technology with applications to scientific, engineering, and social areas. **Accepted papers in regular sessions and accepted papers in special sessions will be published in APSIPA ASC 2012 proceedings which will be indexed by EI Compendex.**

The regular technical program tracks and topics of interest include (but not limited to):

1 Biomedical Signal Processing and Systems (BioSPS)

1.1 Biomedical Imaging
1.2 Modeling and Processing of Physiological Signals (EKG, MEG, EKG, EMG, etc)
1.3 Biologically-inspired Signal Processing
1.4 Medical Informatics and Healthcare Systems
1.5 Genomic and Proteomic Signal Processing

2 Signal Processing and Systems (SPS)

2.1 Nanoelectronics and Gigascale Systems
2.2 VLSI Systems and Applications
2.3 Embedded Systems
2.4 Video Processing and Coding
2.5 Signal Processing Systems for Data Communication

3 Image, Video, and Multimedia (IVM)

3.1 Image/video Coding
3.2 3D image/video Processing
3.3 Image/video Segmentation and Recognition
3.4 Multimedia Indexing, Search and Retrieval
3.5 Image/video Forensics, Security and Human Biometrics
3.6 Graphics and Animation
3.7 Multimedia Systems and Applications

4 Speech, Language, and Audio (SLA)

4.1 Speech Processing: Analysis, Coding, Synthesis, Recognition and Understanding
4.2 Natural Language Processing: Translation, Information Retrieval, Dialogue
4.3 Audio Processing: Coding, Source Separation, Echo Cancellation, Noise Suppression
4.4 Music Processing

5 Signal and Information Processing Theory and Methods (SIPTM)

5.1 Signal Representation, Transforms and Fast Algorithms
5.2 Time Frequency and Time Scale Signal Analysis
5.3 Digital Filters and Filter Banks
5.4 DSP Architecture
5.5 Statistical Signal Processing
5.6 Adaptive Systems and Active Noise Control
5.7 Sparse Signal Processing
5.8 Signal Processing for Communications
5.9 Signal Processing for Energy Systems
5.10 Signal Processing for Emerging Applications

6 Wireless Communications and Networking (WCN)

6.1 Wireless Communications: Physical Layer
6.2 Wireless Communications and Networking: Ad-hoc and Sensor Networks, MAC, Wireless Routing and Cross-layer Design
6.3 Wireless Networking: Access Network and Core Network
6.4 Security and Cryptography
6.5 Devices and Hardware

Submission of Papers

Prospective authors are invited to submit either full papers, up to 10 pages in length, or short papers up to 4 pages in length, where full papers will be for the single-track oral presentation and short papers will be mostly for poster presentation. The conference proceedings of the main conference will be published, available and maintained at the APSIPA website. **The proceedings will be indexed by EI Compendex.**

Submission of Proposals for Special Sessions, Forum, Panel & Tutorial Sessions **May 10, 2012**
Submission of Full and Short Papers **June 10, 2012**
Submission of Papers in Special Sessions **July 10, 2012**
Notification of Papers Acceptance **Aug. 30, 2012**
Submission of Camera Ready Papers **Sep. 30, 2012**
Author Registration Deadline **Sep. 30, 2012**
Tutorial Session Date **Dec. 3, 2012**
Summit and Conference Dates **Dec. 4-6, 2012**

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