Greetings!

Welcome to the December issue of the APSIPA Newsletter.

In this issue, we have invited the technical committee chair of Multimedia Security and Forensics (MSF), Professor Isao Echizen (National Institute of Informatics, Japan), to be our guest editor. MSF Technical Committee was set up in December 2018 to address issues related to multimedia security and forensics. Prof Isao will tell us more about this TC and its activities.

As you may recall, there are altogether seven TCs in APSIPA (http://www.apsipa.org/TC/index.html). To help members know more about these TCs and their activities, we have invited the TC chairs to be our guest editors in this year's Newsletters. We hope that after these few issues, members can understand more about these TCs and would actively participate in their activities. On behalf of the Newsletters editorial team, we thank all of TC chairs and TC members for their support to APSIPA Newsletters.

Last but not the least, enjoy reading this issue! Wish all of you a Merry Christmas and Happy New Year!

Isao Echizen and Bonnie Law

Guest editor and EiC of APSIPA

In this issue

Multimedia Security and Forensics (MSF)

Technical Committee (TC)

Prof. Isao Echizen

National Institute of Informatics (NII), Japan
http://research.nii.ac.jp/~iechizen/official/index-e.html

Introduction of MSF TC Members

The growing presence of high-performance cameras and microphones throughout the everyday environment has enabled the remote acquisition of personal identity information such as the face, speech, and gait and even fingerprints and iris that can be easily shared in cyberspace. This capability poses a threat in that it provides other means of "spoofing" biometric authentication systems and even humans in order to commit fraud. One of our Technical Committee's effort is dealing with this threat.

The Multimedia Security and Forensics (MSF) Technical Committee (TC) has been operating since December 2018 as one of the technical committees of the Asia-Pacific Signal Processing Association (APSIPA). The purpose of the TC is to promote the advancement of research on multimedia security and forensics and the exchange of information in the Asia-Pacific region. The fields of interest are as follows.

- Anonymization and Multimedia Privacy
- Applied Cryptography
- Attacks and Countermeasures
- Biometrics
- Cybersecurity
- Media Clones
- Multimedia Forensics
- Multimedia Content Hash
- Multimedia Systems Security
- Surveillance
- Watermarking and Data Hiding

The MSF TC has over 20 members from China, Japan, UK, USA, Singapore, Malaysia, Taiwan, Australia, and India, as listed below. I would like to thank the members for their valuable contributions as well as the other technical committees for their support.

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Vice-Chair: Xiangui Kang, Sun Yat-sen University (China)
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You can find more information about the MSF TC at http://www.apsipa.org/TC/MSF.html.

Organizing Special Sessions for APSIPA ASC 2019

For APSIPA ASC 2019, we had five special sessions with 31contributed papers, the second largest number of accepted papers for a TC thanks to the diligent efforts by its members. Among the five sessions, four (described below) were organized by the members of MSF TC. I would like to thank the organizers for their efforts to organize these special sessions.

- ### Signal Processing for Big Data and Its Security (Yuhong Liu)

  In recent years, big data has attracted increasing attention in both academia and industry. With the rapid development of ubiquitous computing, big data are being generated in every aspect of our digital life. For example, various sensing data collected by Internet-of-Things sensors, multimedia and social media data generated and shared by human users, and computer network traffic data have become essential sources of today's big data. While the emerging new systems and algorithms have significantly improved our capabilities to handle big data more effectively and efficiently, it also raises new security challenges. There is an urgent need to develop state-of-the-art techniques that not only ensure the effectiveness and efficiency of handling big data but also protect emerging systems and networks against malicious attacks and misbehaviors. This special session mainly focused on leveraging signal processing and security technologies (e.g., machine learning, deep learning, and blockchain) to address the above challenges and ensure the security of big data related systems and networks.

- ### Recent Advances in Biometric Security (Kouichi Ito, Tetsushi Ohki)

  Biometrics uses biological or behavioral characteristics to authenticate a person and has attracted much attention as a new authentication approach against traditional ones such as using a key or password. Biometric technologies provide better security and greater convenience than traditional authentication technologies. This special session focused on recent advances in biometric technologies. The areas involved included general biometrics such as face recognition and iris recognition, security such as template protection, etc.

- ### Recent Advances in Fingerprinting and Data Hiding (Minoru Kuribayashi, David Megias Jiménez)

  This special session combined advanced research themes in fingerprinting as well as fundamental techniques and algorithms including data hiding schemes. It provided an international forum for researchers and academicians to present their latest results in the fields of fundamental tools and applications for multimedia security (fingerprinting, traitor tracing, authentication, cryptography, digital signature, digital watermarking, steganography, etc.).

- ### Deep Generative Models for Media Clones and Its Detection (Fuming Fang, Zhenzhong Kuang, Xin Wang)

  Fake images, fake voices, and fake news/reviews generated by computers have been demonstrated to be able to fool both human and authentication systems. The up-to-date media clone techniques for generating such fake media information may bring new risks to our modern life. How to detect fake media information has thus become an urgent issue. Another important issue is using deep generative models to anonymize real information because it may prevent real information from being used to train fake data generative models. We therefore face the challenge of developing methods for generating and detecting fake images, fake voices, and fake news/reviews.

- ### Information Security for Digital Content (Xiangui Kang, KokSheik Wong, Linna Zhou)

  While many traditional approaches to providing information security have been investigated, machine learning, the driving force of the current wave of AI research, provides powerful solutions to many real-world technical and scientific challenges. This special session gathered papers that focus on traditional hand-crafted techniques, as well as AI and machine learning based techniques for information processing and forensics. The topics of interest include steganography, steganalysis, anonymity, privacy, multimedia identification, and forensics. The papers covered the theoretical aspects of the field as well as the industrial and commercial applications of techniques and algorithms developed in this area.

Organizing Special Issue for APSIPA Transactions on Signal and Information Processing

Prof. KokSheik Wong, Prof. Xiangui Kang, Prof. Hitoshi Kiya, and Prof. Jiwu Huang, members of the MSF TC, organized a special issue on "Security and forensics in compression technology" for the APSIPA Transactions on Signal and Information Processing that was published in January 2019. The aim was to provide a global and comprehensive overview of the current state of the art and to present updated results in research frontiers, algorithm development, the application of these algorithms to security, privacy, forensics, multimedia signal processing in the compressed / encrypted / compressed-and-encrypted domains, and a unified framework for compression and security technologies..

Latest Articles from APSIPA Transactions on Signal and Information Processing (ATSIP)

- **A signal adaptive diffusion filter for video coding: improved parameter seelection**
  - Jennifer Rasch, Jonathan Pfaff, Michael Schafer, Anastasia Henkel, Heiko Schwarz, Detlev Marpe, Thomas Wiegand
  - DOI: https://doi.org/10.1017/ATSIP.2019.22
  - Published online: 22 November 2019, e29

- **A comprehensive video codec comparison**
  - Thorsten Laude, Yeremia Gunawan Adhisantoso, Jan Voges, Macro Munderloh, Jörn Ostermann
  - DOI: https://doi.org/10.1017/ATSIP.2019.23
  - Published online: 20 November 2019, e30

- **Extended multiple feature-based classifications for adaptive loop filtering**
  - Johannes Erfurt, Wang-Q Lim, Heiko Schwarz, Detlev Marpe, Thomas Wiegand
  - DOI: https://doi.org/10.1017/ATSIP.2019.19
  - Published online: 14 November 2019, e28

- **A comprehensive study of the rate-distortion performance in MPEG point cloud compression**
  - Evangelos Alexiou, Irene Viola, Thomas M. Borges, Tiago A. Fonseca, Ricardo L. de Queiroz, Touradj Ebrahimi
  - DOI: https://doi.org/10.1017/ATSIP.2019.20
  - Published online: 12 November 2019, e27

- **Large-scale Landsat image classification based on deep learning methods**
  - Xuemei Zhao, Lianru Gao, Zhengchao Chen, Bing Zhang, Wenzhi Liao
  - DOI: https://doi.org/10.1017/ATSIP.2019.18
  - Published online: 6 November 2019, e26

Most Read Articles from ATSIP

https://www.cambridge.org/core/journals/apsipa-transactions-on-signal-and-information-processing/most-read

- **An overview of channel coding for 5G NR cellular communications**
  - Jung Hyun Bae, Ahmed Abotabl, Hsien-Ping Lin, Kee-Bong Song, Jungwon Lee
  - DOI: https://doi.org/10.1017/ATSIP.2019.10
  - Published online: 24 June 2019, e17

- **A tutorial survey of architectures, algorithms and applications for deep learning**
  - Li Deng
  - DOI: https://doi.org/10.1017/atsip.2013.9
  - Published online: 22 January 2014, e2

- **Use cases and challenges in telecom big data analytics**
  - Chung-Min Chen
  - DOI: https://doi.org/10.1017/atsip.2016.20
  - Published online: 12 December 2016, e19

Most Cited Articles from ATSIP

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- **A tutorial survey of architectures, algorithms and applications for deep learning**
  - Li Deng
  - DOI: https://doi.org/10.1017/atsip.2013.9
  - Published online: 22 January 2014, e2

- **An overview on video forensics**
  - Simone Milani, Marco Fontani, Paolo Bestagini, Mauro Barni, Alessandro Piva, Marco Tagliasacchi, Stefano Tubaro
  - DOI: https://doi.org/10.1017/ATSIP.2012.2
  - Published online: 28 August 2012, e2

- **Recent advances on active noise control: open issues and innovative applications**
  - Yoshinobu Kajikawa, Woon-Seng Gan, Sen M. Kuo
  - DOI: https://doi.org/10.1017/ATSIP.2012.4
  - Published online: 28 August 2012, e3

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Membership Benefits:

- Links to highly qualified people within the organization to develop research, technology, teaching, and career
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- Reduced subscription fee for APSIPA journals
- Access to information about the international activities in signal and information processing such as conferences, continuing education, short courses, seminars, distinguished lecture series, student internships, scholarships, job listings, publication venues, and mentorships

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- Full Membership: Full members are individuals interested in being part of the APSIPA mission to excel signal and information processing field. They are eligible to vote, hold positions in APSIPA association, and contribute to serve as editorial board and program committee members in APSIPA journals and conferences
- **Life Membership**: Full members may choose to subscribe as life members pending on paying the discount fee of life membership. Early-bird registration fee is available for life members at all times when registering for APSIPA ASC

Type of membership	Fees in US$	Fees in HK$
Student Membership	10 (per annual)	78 (per annual)
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Life Membership	300 (a one-off fee)	2340 (a one-off fee)

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12ᵗʰ Asia Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC)

DECEMBER 7-10, 2020, AUCKLAND, NEW ZEALAND
WWW.APSIPA2020.ORG

Timeline/Important Dates

March 1, 2020	April 1, 2020	April 8, 2020	July 1, 2020	September 1, 2020	October 1, 2020	October 1, 2020	December 7 – 10, 2020
Submission of Proposals for Special Sessions, Forum, Panel & Tutorial Sessions	Notification of Acceptance for Special Sessions, Forum, Panel & Tutorial Sessions	Online Submission Website Ready for Full, Short and Special Sessions Papers Upload	All Papers Submission	Notification of All Papers Acceptance	Submission of Camera-Ready Papers	Early Bird Authors Registration	Tutorials, Summit and Conference Dates

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APSIPA ASC 2020 (www.apsipa2020.org) is the 12ᵗʰ annual conference organised by Asia-Pacific Signal and Information Processing Association (APSIPA), which will be held on December 7 – 10, 2020, Auckland, New Zealand. Founded in 2009, APSIPA organisation (www.apsipa.org) aims to promote research and education in signal processing, information technology, and communications. The annual conferences have been held previously in Lanzhou, China (2019),Hawaii, USA (2018), Kuala Lumpur, Malaysia (2017), Jeju, Korea (2016), Hong Kong, China(2015), Siem Reap, Cambodia (2014), Kaohsiung, China (2013), Los Angeles, USA (2012), Xi'an, China (2011), Singapore (2010), and Sapporo, Japan (2009). APSIPA is interested in all aspects of signal and information processing theories, algorithms, securities, implementations, and applications. Call for Special Sessions – APSIPA ASC 2020 program augments the main program with selected special sessions. Please refer to the conference web page for information about the proposals and submissions of the special sessions. Call for Tutorials – Organising tutorials at APSIPA ASC 2020 is one of APSIPA organisation strategies to proliferate and ease learning in core subjects and new topics in evolving research branches. Therefore, the tutorials should be addressed to attract a wide audience. Applicants interested in presenting tutorials may discuss their proposals with one of the tutorial chairs for more information. Call for Exhibitors and Sponsors – APSIPA ASC 2020 organisers encourage exhibitors, publishers, and companies to showcase their products during the conference period. Please refer to the conference web page for full information. All accepted papers are expected to be included in IEEE Xplore and indexed by EI, like all previous years.

The technical program includes, but not limited to, the following areas

- Signal Processing Systems: Design and Implementation
- Signal and Information Processing Theory and Methods
- Speech, Language, and Audio
- Biomedical Signal Processing and Systems
- Image, Video, and Multimedia
- Multimedia Security and Forensics
- Wireless Communications and Networking
- Signal and Information Processing in Education
- Medical Signal Acquisition, Analysis and Processing
- Internet of Things Technology
- Data Analytics and Machine Learning
- Deep Learning: Algorithms, Implementations, and applications
- Human Biometrics and Security Systems
- Renewable Energy, Sustainability and the Environment
- AI and Smart Grids
- AI and Power Systems
- Wireless Power Transfer
- Autonomous Intelligent Self-Driving Cars
- Smart Materials and Sensors
- Signals and Control Systems

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Summary of Links

- APSIPA ASC 2020: http://www.apsipa2020.org

- APSIPA Transaction on Signal and Information Processing: http://journals.cambridge.org/sip

- Paper Submission to APSIPA Transaction on Signal and Information Processing: http://mc.manuscriptcentral.com/apsipa

- APSIPA Industrial Activities: http://www.apsipa.org/industrial.htm

- APSIPA Friend's Lab: http://www.apsipa.org/friendlab/FriendLabs.htm.

- APSIPA Membership Registration/Renewal: http://www.apsipa.org/reg.asp

- APSIPA Magazine: http://www.apsipa.org/doc/magazine/apsipa_magazine2018.pdf

- APSIPA Photo Gallery: http://www.apsipa.org/photo/photo.htm

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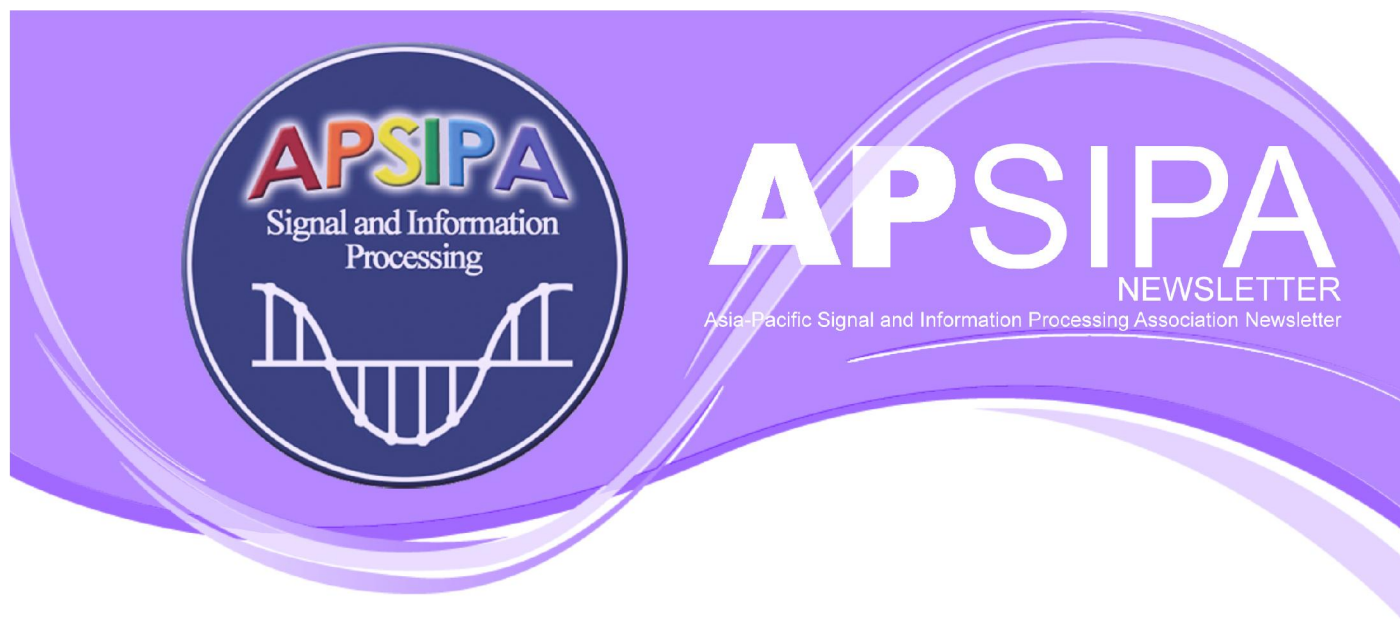The Hong Kong Polytechnic University,
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