

### **Greetings!**

Welcome to the October issue of the APSIPA newsletter. First, I am sorry to deliver the following sad news. Prof. Sadaoki Furui, our APSIPA founding President and a dear colleague of ours, passed away on July 31, 2022. To remember his life, we published a memorial article in our newsletter. His colleagues, Prof. Haizhou Li and Prof. Tatsuya Kawahara, collaborated with Prof. Anthony Kuh to dedicate this article. Moreover, at the APSIPA ASC 2022, we will have a special memorial event to celebrate his life, achievements, and contributions to APSIPA. Also, our society awarded the Sadaoki Furui prize paper award to Bin Wang et al.. The nomination committee included Prof. Koichi Fujiwara, Prof. Anthony Kuh, and Prof. Kai-Kuang Ma.

The following is an overview of the board of directors election. Prof. Woon-Seng Gan has been elected as the next APSIPA President-Elect, and Prof. Mingyi He, Prof. Weisi Lin and Prof. Yih-Fang Huang were elected as

the next VP-IREP, VP-P and VP-TA. Congratulations on being elected President-Elect and VPs for 2023-2024. We all look forward to working with you. Prof. Hitoshi Kiya and Prof. Bonnie Law, thank you for running these elections.

The APSIPA T-SIP journal invited special papers. The final topic, speech and audio processing and application technology, is due by October 31st. We look forward to your participation.

The 14th APSIPA ASC 2022 will be held in Chiang Mai, Thailand this year from 7 - 10 Nov. 2022. APSIPA ASC 2022 will be held in person with many of the main events also held in hybrid mode.

Sanghoon Lee



More information is available at http://www.apsipa2022.org/.

Please enjoy reading this issue!

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It is with great sadness that we note that our founding President of APSIPA, Professor Sadaoki Furui passed away on July 31, 2022. He was an inspiration and guiding mentor to all of us. We not only note his pioneering research and education in the speech and signal processing areas, but he was a great academic and administrative leader. He was very kind and helpful to all of us and especially worked hard to help young faculty and researchers. Below are some reflections from many of his colleagues and friends from the APSIPA community. I would like to thank Professors Haizhou Li and Tatsuya Kawahara for helping with this memorial article.

Anthony Kuh, APSIPA President



Prof. Sadaoki Furui Memorial Article

It was during ICASSP-2007 in Honolulu that I invited Sadaoki and others to meet at a dinner to start the organization later called APSIPA. He agreed to take the lead to form the organization and continued to nurture it to the current success. Sadaoki is an honorable man and a trusted friend. He is a kind person who always eager to help, and so energetic that he would travel tirelessly around the world. He walked pretty fast and was hard to catch up with. His nickname is Karaoke-Sadaoki. We played tennis together as a team and beat others. I miss you, Sadaoki!

K. J. Ray Liu, APSIPA Founding Member, APSIPA Advisory Board Member, & President IEEE



I remembered vividly the first time of meeting Sadaoki at the International Conference Hall of Hokkaido University at the first APSIPA BoG meeting in the afternoon of October 4 (Sunday), 2009. I was impressed by his determination and vision in leading the young organization at that time. I met Sadaoki in every APSIPA ASC meeting from 2009 to 2019. Sadaoki contributed to APSIPA whatever he could in the last 13 years. Sadaoki was always kind, gentle, encouraging, and considerate. My involvement and commitment to APSIPA come largely from my deep respect for him as a person and his leadership and scholarship. We have been lucky to work with him for more than one decade and will continue to build APSIPA in memory of him.

C.-C. Jay Kuo, APSIPA Past President (2013-2014) & APSIPA Advisory Board Member

I cannot believe that Furui-sensei has left us. I had the opportunity to co-chair IEEE ICASSP 2022 together with him. I was grateful that he was with us online during 22-27 May when we had the conference in Singapore. After the closing ceremony, he wrote me a note to express his joy being part of the conference. I have been fortunate to have worked with Furui-sensei in various professional activities. He was one of the colleagues who introduced me to APSIPA. I admire his wisdom and courage. I remember Furui-sensei as a pioneer in speech science, an inspiring mentor, a passionate colleague, and a dear friend.

#### Haizhou Li, APSIPA Past President (2015-2016) & APSIPA Advisory Board Member

It is really sad that the Permanent Honorary President of APSIPA, Prof. Sadaoki Furui, passed away on 31 July 2022, who is a World recognized leader in speech signal processing, particularly with great contributions in speech analysis, speech recognition, speaker recognition, etc. It is equally important that he was one of the founders and the 1st President of APSIPA. Among his various great contributions in NTT, ICICE, IEEE SP Society, IEEE, and the professional society as a whole, I want to mention two things relating to his contribution/leadership. He helped and was always willing to help young professionals to achieve high and have the right recognition. Say for example, he had encouraged and helped many deserving colleagues to become IEEE fellows. Without his support some of colleagues may not be able to achieve such a distinguished recognition, because of a different cultural background. He further demonstrated his full support to APSIPA by giving a donation of US\$25,000 to APSIPA, and subsequently APSIPA established the APSIPA Sadaoki Prize Paper Award in 2016, which is a major award of the APSIPA Transactions since then. Prof. Furui is really our leader, teacher and mentor who is always in our mind, with the greatest respect and as a figure to be learnt.

Wan-Chi Siu, APSIPA Past President (2017-2018) & APSIPA Advisory Board Member



My relationship with APSIPA started from the 1st Steering Committee Meeting held at Tokyo Institute of Technology, Japan in December 2007, where several important items and the framework necessary for the founding of the association, such as the name, APSIPA, and the bylaws, were decided in one day under the strong leadership of Prof. Furui. I clearly remember that all participants trusted him completely, and everyone enjoyed working together with him to successfully found the new association. That was one of the most inspiring meetings of my life. Prof. Furui was always an inspirational leader and tirelessly volunteered for APSIPA and our global signal processing community.

Many of his warm words have come back to me. In particular, when I visited his home in Tokyo to give him a certificate plate as a permanent honorary president of APSIPA in September, 2020, I spoke with him and his wife about various things including future APSIPA activities. I also received a lot of suggestions from him during APSIPA ASC 2021 held in Tokyo. That was the last time I met him in person.

As you may know, he published a book in 2021, titled University and Society in the Era of Artificial Intelligence. This book imparts much of his wisdom and insight. He had a strong desire for permanent world peace, and he believed that our international contributions through research and educational activities could contribute to world peace beyond differences in languages, histories, traditions, and economic environments.

Let us think of ways to continue his legacy and advance forward together.

Furui-sensei, please rest in peace.

Hitoshi Kiya, APSIPA Immediate Past President (2019-2020)

My early interactions with Sadaoki were through the IEEE Signal Processing Society's multimedia signal processing activities and the effort in organizing ICASSP 2007 Hawaii. Sadaoki was initially on the organizing team. Our team was led by Ray Liu and included several colleagues who later served on the APSIPA Board: Tony Kuh and Yih-Fang Huang as Technical Chairs and myself as Finance Chair. We noted that very few ICASSP plenary speakers had been from Asia. When brainstorming names who are known for both technical accomplishment and strong communications, many of us were enthusiastic to have Sadaoki as one of the plenary speakers. As a result, he stepped down from the team and joked about "being kicked out". Sadaoki's plenary talk discussed the decades' of progress as well as many challenges and opportunities of speech signal processing and was very well received.

It was during a dinner brainstorming led by Ray and Sadaoki in that ICASSP week that planted the seed of exploring an organization to help bring together signal processing researchers, professionals, and students in Asia-Pacific regions. Later that year in December 2007, Sadaoki hosted engaging day-long discussions in Tokyo, which led to the establishment of APSIPA.

Sadaoki: please rest in peace. We'll continue your legacy and endeavor to bring colleagues together across nations' boundaries!

#### Min Wu, APSIPA past BoG member & President-Elect IEEE Signal Processing Society

Prof Furui -- or rather, Sadaoki, as he always insisted I call him -- taught me, helped me and inspired me in many ways. He was generous with his time, always willing to help others, and had a strong entrepreneurial spirit, not only leading APSIPA through its initial steps, but also helping former students start companies, or organizing reconciliation meetings to help heal the wounds left by World War II. Whether he was chairing a meeting, hosting a dinner, or enjoying a drink with a group of colleagues, he knew how to make everybody comfortable, even the most junior person in the room. Early in my career, he invited me to his lab at Tokyo Tech, and a sabbatical spent there over time led to many later research collaborations in Japan. Last June, as we said goodbye and shared a lunch and a long conversation, he was still full of ideas, engaged and active, still helping others as best he could. Sadaoki: I will miss those conversations, your kindness and your joie de vivre. RIP.

#### Antonio Ortega, APSIPA BoG member and APSIPA past VP

I am sad to hear the news.

Before APSIPA was established in 2008, I had chances to meet him in conferences/symposiums and it was long period since we knew each other. With his suggestion, the first APSIPA Annual Summit and Conference was held in Sapporo on October, 2009. It was an exciting and valuable event for me. The Email on November 2020 was the last mail and it was mentioned about his book of Toyota Technological Institute at Chicago (TTIC). He was always the excellent leader to me. I pray that his soul may rest in peace.

Yoshikazu Miyanaga, APSIPA past VP

Sadaoki's passing is a great loss to me and to our community. When I first met Sadaoki at ICASSP, I was new to the field of speech processing and he was already a leading figure in the field. I remember I was somewhat intimidated when I first met him in person. However, he was really friendly and approachable. That was over 30 years ago.

Sadaoki has been a role model for me and for our community. His research articles and books have guided my work for many years. He is also a great personal friend. I miss him so much.

#### Li Deng, past APSIPA past VP

I am deeply saddened to have to write this note. Professor Furui Sadaoki was a real gentleman and a distinguished scholar being extremely renowned both in Japan and internationally particularly in the speech area where he made significant contribution to its advancement. He was so humble, approachable and was always ready to help the needy. Furui was such a passionate and charismatic leader particularly in his capacity as one of the very important leaders in APSIPA both during his tenure as the First President of APSIPA and relentlessly after he relinquished his presidentship. He will be dearly missed by the international community, and may our thoughts go with his loved ones through this difficult time.

#### Susanto Rahardja, APSIPA past VP

It was with great sadness when I learned that Professor Sadaoki Furui passed away on July 31, 2022. I can still remember the happy time during his recent visit in December 2019 to Tsinghua University and d-Ear Technologies as if it were yesterday. I got to know Prof. Furui more than 20 years ago. In my memory, Prof. Furui is a knowledgeable and respectable professor, an accommodating and warm-hearted senior, and an active and humorous friend.

In addition to his world-widely recognized profession in speech signal processing, what impressed me most is his inspirational leadership in APSIPA formation and activities, valuable guidance in organizing APSIPA ASC 2011/2019 in China, and great help to many of us in speech processing research.

He will be remembered!

#### Thomas Fang Zheng, APSIPA past VP

#### People go, yet memories stay:

In a few lines, it is an honor yet really hard to write about Professor Sadaoki as a man, a talented researcher, an example, and a kind friend. To me, Professor Sadaoki was a guiding light. He set the example of what good research is. He always did his best to be patient with everyone seeking advice or help from him. He tried to carve out some quality time with anyone who did not even know him to pour his comprehensive knowledge into advice without any benefit to him. The first time I met Professor Sadaoki was in early 2000 at a conference when I stepped up to him and asked him to read one of my papers and give me his thought about whether it was up to be published in a good journal! Without any hesitation, he said yes. I expected he would say that as he did not want to turn me down because he was so busy. A few days later, he returned and told me the paper was excellent and could be readily accepted for publication. From that time, I realized that he was a true gentleman! It was my great honor when he hosted me at the Tokyo Institute of Technology in 2008 and gifted me his valuable book "Digital Speech Processing, Synthesis, and Recognition," where he signed the book's first page as in the figure! I have been looking to meet him during APSIPA 2022, but unfortunately, I have lost that wish. Sadaoki passed away, yet his memories never faded.

#### Waleed Abdulla, APSIPA BoG member and APSIPA past VP

I first met and talked to Prof. Sadaoki Furui at an international conference related to information processing held in Thailand around 15 years ago. In my first impression, he was a nice and humble gentleman who could talk in variety of topics. Later, I just learned he was an important person in Japan who received many international and national awards including Purple Ribbon Medal from the Japanese Emperor (2006). Since he also has been well known among friends and students in Thailand, he was always surrounded by many people when he visited Thailand. It was difficult to get a chance to chat with him. My colleagues and I have got several chances to invite him to Thailand as keynote speaker, and I utilized those chances to learn many matters including research and academic works from him. When I visited Tokyo, I certainly requested appointments with him even for as a brief period as half an hour. During those meetings, I could have updated progresses he assigned me as homework. When he established the APSIPA (Asia Pacific Signal and Information Processing Association) in 2008, he kindly invited me to Tokyo Institute of Technology (Tokyo Tech) for the first meeting where I could have met many excellent international friends and have been involved in APSIPA society since then. When he served as the president of Toyota Technological Institute at Chicago, after retirement from Tokyo Tech, I visited him at the Institute and learned how to efficiently manage researchers and universities in the US. I think I have learned countless great things from him and intended to follow his philosophy.

Prof. Sadaoki Furui, you will be in my memory forever.

#### Kosin Chamnongthai, APSIPA VP Conferences

Professor Sadaoki Furui was the founding president of APSIPA and an outstanding SIP (signal and information processing) scientist. He devoted himself to SIP education, scientific research and communication. He was dedicated, realistic and pragmatic, and made outstanding contributions to the development of the association. SIP colleagues from Northwestern Polytechnical University were very honored that he received the honorary title as a consultant professor of NPU in 2011. His death was a great loss to the world SIP community and APSIPA. I expect that all our members should turn grief into strength, learn and carry forward his noble character and academic ethics, and make unremitting efforts to promote our APSIPA into a top world-class association.

#### Mingyi He, APSIPA VP Institutional Relations and Education Program

I consider it a privilege to have known Professor Sadaoki Furui for the last fifteen years. I was first introduced to Furui sensei by Professor Ray Liu in 2007 at ICASSP in Honolulu. At the time, Ray and Furui sensei were working to establish a professional organization to serve the interests of researchers in the general fields of signal and information processing in the Asia-Pacific region, and they invited me to get involved. Furui sensei was a world-renowned scholar and an accomplished researcher in speech processing. He had a long career with many outstanding accomplishments. I am sure most people in this community are aware of this fact. Most importantly, Furui sen sei was a fine gentleman, gracious and thoughtful. He was always interested in helping and nurturing younger researchers and friends. He treated people with respect and kindness. I know many people have been edified by who he was and what he did. He made APSIPA a lively professional community, conducive for research collaboration and cross fertilization among different fields of studies. Though he has sadly passed, his presence will be very much missed, and his legacy will live on. May he rest in peace.

#### **Yih-Fang Huang, APSIPA VP Technical Activities**

Prof. Furui was with NTT Labs. 1970-1997. When I joined NTT Labs. in 1996, he was already a well-known figure. When he received IEEE James L. Flanagan Speech and Audio Processing Award in 2010, I invited him to IEEE Tokyo Section commemorative lecture. Its admission was up to 80 people, but eventually gathered 92 participants, which indicated its exceptionally high level of attention. His lecture was not only about his past gems of achievements but also about his visionary perspectives on future innovations on speech recognition. Following his view, the hype of deep neural network emerged. At the friendly get-together after the lecture, I questioned him how to be that productive under a big pressure. His question was simple: "I never feel pressure in any situation". Those memorable words still remain in my memory to this day.

#### Seishi Takamura, APSIPA VP Industrial Relationships and Development

I first met Professor Furui in a class as a graduate student at the Tokyo Institute of Technology. At that time, I did not know that he was a great researcher. The next time I met Prof. Furui was on my way to ICASSP in Salt Lake City after I finished my degree. I remember seeing Prof. Furui in the transit lounge (San Francisco or LA, I think) and chatting with him over ice cream.

After several years, Prof. Furui became a colleague in the signal processing community. Then, Prof. Furui suddenly invited me to join the Board of Governors of APSIPA. I will never forget the debt of gratitude I owed him for inviting me to join this wonderful community. Although our research fields differed, Prof. Furui always cared for me. I have been extremely depressed to see him go. Furui-sensei, please rest in peace.

#### Toshihisa Tanaka, APSIPA VP Member Relations and Development

The first time I met Prof. Sadaoki Furui was at the 3<sup>rd</sup> APSIPA Committee Meeting, held in Hong Kong on 13 December 2008. This was an important meeting, because APSIPA was established seven months after the meeting. The chairman of the meeting was Prof. Furui. After the meeting, I met Prof. Furui at every APSIPA ASC, and the last time I met him was at APSIPA ASC 2019, in Lanzhou, China. After that, we could only meet online because of the pandemic. In my heart, Prof. Furui has always been a great leader, leading APSIPA to grow and develop continuously. He was very helpful and has helped me throughout my career. Prof. Furui will always be in my heart and memory.

#### Kenneth Lam, APSIPA BoG member and past APSIPA VP

On a personal note, I feel a connection with Prof. Furui in receiving two awards related to him. One is the Academic Encouragement Award from the Acoustical Society of Japan, with the name of Prof. Furui, who was president at the time, on the award certificate. The other is the Sadaoki Furui Prize Paper Award from the APSIPA. The first time I talked with Prof. Furui was at an international conference held in Italy. Since there were only a few Japanese participants, we were able to have dinner together on the last day and hear many stories from Prof. Furui. Later, I became involved in APSIPA board activities and had more opportunities to talk with Prof. Furui. In particular, Prof. Furui's views on university administration have given me great guidance in my current faculty administration. I sincerely pray for the repose of Prof. Furui's soul.

Yoshinobu Kajikawa, APSIPA BoG member and past APSIPA VP

I am deeply saddened by the loss of Professor Sadaoki Furui. Prof. Furui joined the National Institute of Informatics (NII), to which I belong, in 2020 as the Executive Director of Research. Prof. Furui has not only given much encouragement to the NII researchers but has also provided valuable advice from a broad perspective to the management of NII. In particular, I remember that Prof. Furui always said that transparency is the most critical aspect of the personnel system. His beliefs and teachings will be passed onto many researchers. May his soul rest in peace.

#### Isao Echizen, APSIPA BoG member

I would like to pay my tribute to the respectable scholar, Prof. Sadaoki Furui. I am honored to have him as my friend and also life mentor. With his well-known contributions to speech analysis, speech recognition, speaker identification, and founding president of APSIPA, he was generous and willing to support the younger researchers, and gave everyone a lot of opportunities and engagement to learn from him. With his passing, he is leaving behind a legacy of kindness, generosity and great contribution to the entire society.

#### Jing-Ming Guo, APSIPA BoG member

Prof. Furui was a key person in APSIPA. He has a clear vision of bringing in colleagues in the Asia-Pacific area. I was lucky to be the secretary of APSIPA and worked under his leadership. He provides excellent leadership and is always kind and patient. Being a secretary for the first time, he shows great support and tolerates mistakes I make. His kindness and wonderful personality will remain in our hearts!

#### Bonnie Ngai Fong Law, APSIPA BoG member

The opportunity to learn from Sadaoki Furui Sensei in APSIPA ASC 2017 at Kuala Lumpur was a great honor. Having known that Furui Sensei was an advisor to the Japanese royal family on AI, he shared that he was nervous as "simple is hard". Sensei was humble and mentioned that it is "hard" to explain complicated things in "simple" manners. Sensei also shared his opinions on the importance of fundamentals in AI research. Our community has lost a great leader and teacher. Sensei, we will move on with your spirit always being with us. May you Rest in Peace!

#### Chris Lee, APSIPA BoG member

Professor Furui was a great leader in our academic society but not only of that; for me, he was a great mentor as well. During my first participation in the IEICE monthly speech study group, I saw his beautiful presentation of his Delta-Ceptrum work. Since then, he has been a perfect role-model for my own research. My first conference organizing experience, a publishing committee chair of an IEEE workshop was realized by his invitation. When I started a new PhD program in our university, he, as an experienced VP of his university, gave me invaluable advice. Losing my mentor brings me great pain. Even if only a fraction of what he did for me, I will strive to better help others in appreciation and remembrance of Professor Furui.

#### Kazuya Takeda, APSIPA BoG member

Professor Sadaoki Furui shall always be remembered for his astounding accomplishments in research and education while being humble, kind, and respectful at the same time. He contributes to his field of research; this is demonstrated through his determination to travel across the globe to share his experience and knowledge at conferences and seminars. His passion, kind-heartedness, and immense contribution to research and education for the younger generation will be very much missed by the signal processing community, especially APSIPA. Thank you for everything, Professor Furui.

#### KokSheik Wong, APSIPA BoG member

It was with great sadness that I learned of the passing of Professor Furui in the summer of 2022. Professor Furui has been a leader and role model for several decades in the international speech and language research community. My first encounter with Professor Furui's excellent research work was when I was a student, and since then, I have always marvelled at the ingenuity of his approaches and the clarity of his writings and presentations. After I became a faculty member at The Chinese University of Hong Kong, he was among the earliest External Examiners whom I have invited to Hong Kong to evaluate the thesis research of my PhD students. I have also appreciated his strong dedication to our research community, in guiding and serving our many professional societies and conferences as top leader. In celebration of his award of The Okawa Prize, I had the great pleasure of accepting his kind invitation to deliver an invited talk at The Okawa Prize 2012 Commemorative Symposium in Japan. Over there, I also had the opportunity to appreciate his significant contributions (outside of speech and language research) to his home institution, Tokyo Institute of Technology, especially in the Academy for Global Leadership. Thereafter, he made even greater direct impact as President of Toyota Technological Institute at Chicago. Professor Furui will always be remembered as friendly and soft-spoken, but a giant of a scholar.

#### Helen Meng: former APSIPA ASC keynote speaker

I have the greatest privilege and honor to work under the guidance of Professor Furui in several big projects, such as the organizing APSIPA 2017 in Kuala Lumpur, Malaysia and the recent ICASSP 2022 in Singapore. I still remembered vividly Professor Furui sent the organizing committee a congratulatory message after the closing of ICASSP 22 at the end of May, and we are all looking forward to meet up with him in person in upcoming APSIPA meetings. So, it is with great sadness when we received the news of his passing in late July.

Professor Furui was a great mentor to me through our many interactions in conference bidding and organization, and advising us on various technical and difficult matters in organizing conferences. What impressed me most was his humility and he always showed his gentle side and care in guiding younger generation, even he had already achieved so much. He is always an exemplary researcher and teacher to us!

He will be greatly missed by our APSIPA community, but his great legacy will live on for many years to come!

#### **Woon-Seng Gan, APSIPA VP Publications**

Prof. Sadaoki Furui has been our spiritual mentor. I started my study on speech processing by reading his textbook, and when I made presentations at academic events, I was looking forward to (or worried about) his comments. I have been closely working with him on the project of the Corpus of Spontaneous Japanese (CSJ) around 2000. It is still the largest speech database, which shows his long-term insight. This April, he asked me via e-mail about the speech recognition performance on the CSJ, which was my last communication with him. We met him in person at APSIPA ASC 2021 in Tokyo. As always, he was so cheerful and inspiring that I forgot he had been fighting against cancer for years. He showed a role model on how to live as a good scientist till the end. He also cared very much about APSIPA, which is the heritage we should expand for the future.

#### Tatsuya Kawahara, APSIPA President-Elect

#### **Election Results**

APSIPA relies on the services and contribution from the APSIPA Board of Governors as well as support from all APSIPA members. Elections for the following President and Vice Presidents of the APSIPA BoG have been conducted in 2022. We are pleased to share with you the following election results.



**President Elect**Prof. Woon-Seng Gan
Nanyang Technological University, Singapore.



**Vice President – Institutional Relations and Education Program**Prof. Mingyi He
Northwestern Polytechnical University, China.



Vice President – Technical Activities
Prof. Yih-Fang Huang
University of Notre Dam, USA.



Vice President – Publications
Prof. Weisi Lin
Nanyang Technological University, Singapore.

### APSIPA Sadaoki Furui Prize Paper Award

Professor Sadaoki Furui was the APSIPA founding president (2009 to 2012). In 2015, Professor Furui kindly donated a sum of US\$25,000 to APSIPA. The donation is used to promote and recognize high quality papers published in the APSIPA Transactions on Signal and Information Processing, through establishing a "best paper award", named APSIPA Sadaoki Furui Prize Paper Award. We are pleased to announce that the 6th APSIPA Sadaoki Furui Prize Paper Award was given to:

#### Bin Wang, Angela Wang, Fenxiao Chen, Yuncheng Wang, C.-C. Jay Kuo

University of Southern California, Los Angeles, CA 90089, USA

"Evaluating word embedding models: methods and experimental results"

Published online by Cambridge University Press: 08 July 2019

 $\frac{https://www.cambridge.org/core/journals/apsipa-transactions-on-signal-and-information-processing/article/evaluating-word-embedding-models-methods-and-experimental-results/EDF43F837150B94E71DBB36B28B85E79$ 

The winner will be receiving the award during the ASC 2022. At the same time, we are also working with the APSIPA ASC 2022 organizing committee to invite this year paper award winners to present their paper during the ASC in ChiangMai.

Congratulations to the recipients!!



## **APSIPA ASC 2022**

NOVEMBER 7 - 10, 2022, CHIANG MAI, THAILAND WWW.APSIPA2022.ORG

# ASIA-PACIFIC SIGNAL AND INFORMATION PROCESSING ASSOCIATION ANNUAL SUMMIT AND CONFERENCE 2022

#### **Important Dates**

June 30, 2022

Submission of

Proposals for Special Sessions June 30, 2022

Submission of

Proposals for Forum, Panel & Tutorial Sessions July 31, 2022

Submission of

Regular Papers

July 31, 2022

Submission of

Special Session Papers

July 1 to September 15, August 31, 2022 2022

Submission of Notification of Research Papers Acceptance

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Submission of Camera-Ready Papers

September

15, 2022

September November 15, 2022 7-10, 2022

Author (Early- Tutorials, Bird) Registration Summit and Deadline Conference

APSIPA ASC 2022 (www.apsipa2022.org) is the 14th annual conference organized by Asia-Pacific Signal and Information Processing Association (APSIPA), which will be held on November 7-10, 2022 in Chiang Mai, Thailand. Founded in 2009, APSIPA organization (www.apsipa.org) aims to promote research and education in signal processing, information technology, and The annual conferences have been held communications. previously in Tokyo, Japan (2021), Auckland, New Zealand (2020), Lanzhou, China (2019), Hawaii, USA (2018), Kuala Lumpur, Malaysia (2017), Jeju, Korea (2016), Hong Kong, SAR China (2015), Siem Reap, Cambodia (2014), Kaohsiung, Taiwan (2013), Los Angeles, USA (2012), Xi' an, China (2011), Singapore (2010), and Sapporo, Japan (2009). APSIPA is interested in all aspects of applications. Please refer to the conference web page for full information. All accepted papers are expected to be included in IEEE Xplore (IEEE Xplore Catalog Numbers:-CFP2214U-ART (Xplore Compliant), CFP2214U-USB (USB), and Online ISSN:- 2640-0103) 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
- Deep Learning: Algorithm, Implementations, and Applications
- Signal and Information Processing in Education
- Medical Signal Acquisition, Analysis and Processing
- Internet of Things Technology
- Data Analytics and Machine Learning
- Human Biometrics and Security Systems
- Signal and Information Processing for Smart Systems

#### **Organizing Committee**

#### Honorary Co-Chairs

Sadaoki Furui, K. J. Ray Liu, C.-C. Jay Kuo, Haizhou Li, Wan-Chi Siu, Hitoshi Kiya

#### o Advisory Committee Co-Chairs

Niwet Nantajit, Pongrak Sribanditmongkol, Vutipong Areekul

#### o General Co-Chairs

Nipon Theera-Umpon, Kosin Chamnongthai, Toshihisa Tanaka, Anthony Kuh, Kenneth Kin-Man Lam

#### o TPC Co-Chairs

Sansanee Auephanwiriyakul, Masahiro Okuda, Shinji Watanabe, Zhiyi Yu, Yan Chen, Yu Tsao, Koichi Fujiwara, Chia-Hung Yeh, Xiangui Kang, Po-Chiang Lin, Jen-Tzung Chien

#### Special Session Co-Chairs

Kampol Woradit, Shogo Muramatsu, Keun Ho Ryu

#### Tutorial Co-Chairs

KokSheik Wong, Pomchai Phukpattaranont, Patiwet Wuttisamwattana

#### o Industrial Forum Co-Chairs

Takamura Seishi, Christ Lee, Mingyi He

#### Plenary Co-Chairs

Hideyuki Sawada, Kasemsak Uthaichana

#### o Publicity Co-Chairs

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### **APSIPA ASC 2022 Special Sessions**

APSIPA ASC 2022 features special session tracks for emerging research topics that will run throughout the conference in parallel to other tracks. Special sessions provide the opportunity for a more in-depth look at the subject matter presented. APSIPA ASC 2022 strongly encourages the organization of special sessions to complement regular programs and to help bring together leading researchers and engineers from around the world to present state-of-the-art research works. Special Session proposals may cover topics that relate to regular technical program tracks of APSIPA ASC 2022 but are not limited to those. Proposals will be reviewed by the special session committee based on their relevance, innovation, content, and quality. All papers submitted to the special sessions will go through the same review process as regular papers. The special session organizers and all invited speakers will be required to register for the conference.

No.	Spe-	Name	Organizer	Contact
	cial			
	ses-			
	sion			
	No.			
1	SS01	Reconfigurable Computing and Per-	Junyong Deng,	djy@xupt.edu.cn
		formance Evaluation	Xiaoyan Xie	
2	SS02	Deep Learning Systems and Appli-	Jia-Ching	jcw@csie.ncu.edu.tw
		cations for Cloud, Fog, and Edge	Wang, Pao-Chi	
		Computing	Chang	
3	SS03	Security Techniques of Speaker	Xiao-Lei Zhang	xiaolei.zhang@nwpu.edu.cn,
		Recognition		huoshan6@126.com
4	SS04	Advanced Signal Processing and	Shoji Makino,	s.makino@waseda.jp,
		Machine Learning for Audio and	Hiroshi	hiroshi_saruwatari@ipc.i.u-
		Speech Applications	Saruwatari	tokyo.ac.jp
5	SS05	Advanced Image and Video Pro-	Chul Lee	chullee@dongguk.edu
		cessing using Deep Learning		
6	SS06	Adversarial Attacks and Defense	Minoru Ku-	kminoru@okayama-u.ac.jp, me-
		(Please visit the website:	ribayashi, Me-	hul.raval@ahduni.edu.in, mo-
		https://sites.google.com/ahduni.edu.	hul S. Raval,	hendra.roy@sot.pdpu.ac.in
		in/2022-apsipa-ss-aad)	Mohendra Roy	
7	SS07	Latest Wireless Technologies for	Osamu Takyu	takyu@shinshu-u.ac.jp, fu-
		Sensing and Communications	•	jii@awcc.uec.ac.jp, moka-
				da@is.naist.jp,
				hayashi.kazunori.4w@kyoto-
				u.ac.jp, si-
				bi@mail.doshisha.ac.jp

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cessing for Wireless Communications    Communication						
tions    Tansfer Learning for Real World   Ming Wu, Xiaoxu Li, Zhanyu Ma, Chuang Zhang,   Mobutaka Ono, Keisuke Imoto, and Scene Analysis   SS13   Advanced Topics on Sound Event and Scene Analysis   SS14   Emerging Signal Processing Technology for Medical Applications   Mobutaka Ono, Matter State Signal   SS15   Advanced Sensing Technologies using Wireless Signal   SS16   Emerging Technologies using Wireless Signal   SS17   SS18   Metaverse: Future of Internet   Sushank   SS18   Metaverse: Future of Internet   Sushank   SS20   Recent Advances and Applications in Encrypted Image Domain   SS21   SS22   SS22   SS22   SS22   Selected Papers from APSIPA   Nguyen Linh   Impact on the mology on the More of the mologies of the matsu   Munical Matter States of the mologies on the mologies of the	9	SS09				
10   SS10   Real-world sensing technologies of human function   Toshihisa Tanaka   Toshihisa Tanaka   Ming Wu, Xiaoxu Li, Zhanyu Ma, Chuang Zhang,   Ming Wu, Xiaoxu Li, Zhanyu Ma, Chuang Zhang,   Zhangchuang@bupt.edu.en   Zh				wansantisuk		
10 SS10   Real-world sensing technologies of human function   Toshihisa Tanaka   Transfer Learning for Real World   Ming Wu, Xiaoxu Li, Zhanyu Ma, Chuang Zhang,   Wumie@meiji.ac.jp, anaka@sip.tuat.ac.jp   Wing@bupt.edu.cn   Transfer Learning for Real World   Ming Wu, Xiaoxu Li, Zhanyu Ma, Chuang Zhang,   Wing@bupt.edu.cn   Transfer Learning for Real World   Ming Wu, Xiaoxu Li, Zhanyu Ma, Chuang Zhang,   Wing@bupt.edu.cn   Transfer Learning for Real World   Ming Wu, Xiaoxu Li, Zhanyu Ma, Chuang Zhang,   Wing@bupt.edu.cn   Transfer Learning for Real World   Ming Wu, Xiaoxu Li, Zhanyu Ma, Chuang Zhang,   Wing@bupt.edu.cn   Transfer Learning for Real World   Ming Wu, Xiaoxu Li, Zhanyu Ma, Chuang Zhang,   Wing@bupt.edu.cn   Transfer Learning for Real World   Ming Wu, Xiaoxu Li, Zhanyu Mu, Chuang Zhang,   Wing@bupt.edu.cn   Transfer Learning for Real World   Ming Wu, Xiaoxu Li, Zhanyu Wu, Tanaka@isp.tuat.ac.jp   Toshihisa Tanaka   Ming Wu, Xiaoxu Li, Zhanyu Wu, Tanaka@isp.tuat.ac.jp   Wingmang.tuang@bupt.edu.cn   Transfer Learning for Real World   Ming Wu, Xiaoxu Li, Zhanyu Wu, Tanaka@isp.tuat.ac.jp   Toshihisa Tanaka   Ming Wu, Xiaoxu Li, Zhanyu Wu, Tanaka@isp.tuat.ac.jp   Toshihisa Tanaka   Ming Wu, Xiaoxu Li, Zhanyu Wu, Tanaka@isp.tuat.ac.jp   Toshihisa Tanaka   Ming Wu, Xiaoxu Li, Zhanyu Wu, Tanaka@isp.tuat.ac.jp   Toshihisa Tanaka   Ming Wu, Xiaoxu Li, Zhanyu Wu, Tanaka@isp.tuat.ac.jp   Toshihisa Tanaka   Ming Wu, Xiaoxu Li, Zhanyu Wu, Tanaka@isp.tuat.ac.jp   Toshihisa Tanaka   Ming Wu, Xiaoxu Li, Zhanyu Wu, Tanakapala.			tions			
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11   SS11   Transfer Learning for Real World   Li, Zhanyu Ma, Chuang Zhang,   wuming@bupt.edu.cn   zhangchuang@bupt.edu.cn   zhangchuang.edu.edu.cn   zhangchuang.edu.edu.en   zhangchuang@bupt.edu.en   zhangchuang.edu.edu.en   zhangchuang.edu.edu.en   zhangchuang.edu.edu.en   zhangchuang.edu.edu.en   zhangchuang.edu.edu.en   zhangchuang.edu.edu.en   zhangchang.edu.edu.en   zhangchangchang.edu.edu.en   zhangchangchang.edu.edu.en   zhangchang.edu.edu.en   zhangchang.edu.edu.	10	3510				
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12 SS12 Advanced signal detection and inspection technology   SS13 Advanced Topics on Sound Event and Scene Analysis   Nobutaka Ono, Keisuke Imoto, and Tatsuya Komatsu.tatsuya@linecorp.com matsu   Yuttapong Jiraksopakun   Pong.jir@mail.kmutt.ac.th   SS14 Emerging Signal Processing Technology for Medical Applications   Shisheng Guo, Dongheng Zhang   Supavadee Aramyith   Supavadee.aa@chula.ac.th, supavadee.aa@gmail.com   SS16 Emerging Techniques in Multimedia Data Analytics and Codings   Supavadee Aramyith   Supavadee.aa@gmail.com   Krisanasarn   Sushank   Sus					2mmgenuang@eupweuwen	
SS13						
13   SS13   Advanced Topics on Sound Event and Scene Analysis   Nobutaka Ono, Keisuke Imoto, and Tatsuya Komatsu. tatsuya@linecorp.com matsu.     14   SS14   Emerging Signal Processing Technology for Medical Applications   Yuttapong Jipang Jipang   Yuttapong Jipang Jipang   SS15   Advanced Sensing Technologies using Wireless Signal   SS16   Emerging Techniques in Multimedia Data Analytics and Codings   Supavadee Aramivith   Supavadee.aaa@gmail.com   SS17   Emerging and Smart Image Processing   Network Sushank   SS18   Metaverse: Future of Internet   Sushank   Sushank   SS18   Metaverse: Future of Internet   Sushank   Sushank   SS19   Towards real-world human-centric acoustic signal processing   Cheng Hou, Yu Tsao   Yuttapong Jipang Supavadee.aa@chula.ac.th, supavadee.aaa@gmail.com   Supavadee.aaa@gmail.com   Fei Chen, Jen Cheng Hou, Yu Tsao   Yutsao@citi.sinica.edu.tw   Jing-Ming Guo   Simying.ong@um.edu.my, wong.koksheik@monash.edu   SS21   Recent Advances and Applications   Simying Ong, Simying.ong@um.edu.my, wong.koksheik@monash.edu   SS22   Recent Advances in Biometrics and Security   Shi Ohki   Ohki@inf.shizuoka.ac.jp   Ohki@inf.shizuoka.ac.jp   Ohki@inf.shizuoka.ac.jp   Ohki@inf.shizuoka.ac.jp   Iinhtrung@vnu.edu.vn	12	SS12			surachetka@nu.ac.th	
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14   SS14   Emerging Signal Processing Technology for Medical Applications   SS15   Advanced Sensing Technologies using Wireless Signal   SS16   Emerging Techniques in Multimedia Data Analytics and Codings   Supavadee Aramvith   Supavadee.aa@gmail.com   SS17   Emerging and Smart Image Processing   SS18   Metaverse: Future of Internet   Sushank   Supavadee.aa@gmail.com   Krisana Chinnasarn   SS18   Metaverse: Future of Internet   Sushank   Supavadee.aa@gmail.com   SS19   Towards real-world human-centric acoustic signal processing   Fei Chen, Jen-Cheng Hou, Yu Tsao   Jing-Ming Guo				_	maisu.tatsuya@imecorp.com	
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SS21   Recent Advances and Applications in Encrypted Image Domain   Simying Ong, KokSheik Wong   SS22   Recent Advances in Biometrics and Security   Security   Simying Ong, KokSheik Wong   Simying.ong@um.edu.my, wong.koksheik@monash.edu   ito@aoki.ecei.tohoku.ac.jp, ohki@inf.shizuoka.ac.jp, ohki@inf.shizuoka.ac.jp   Iinhtrung@vnu.edu.vn						
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If you have any questions regarding the special session, please send E-mail to the Special Session Co-chair at kampol.w@cmu.ac.th.

Special Session co-chairs: Kampol Woradit, Kosin Chamnongthai, Nipon Theera-Umpon, Shogo Muramatsu and Keun Ho Ryu.

### Call for papers of Themed Series in APSIPA T-SIP

#### Title: Emerging AI Technologies for Smart Infrastructure

Rapid urbanization presents new challenges to existing physical and digital infrastructure. New infrastructure development is needed in response to rapid population growth and intense economic activities. The emerging research on smart cities offers part of the solution to the challenges, and facilitates the collection of environmental data through the Internet of Things (IoT). Billions of sensors and devices are deployed to collect, process and transmit data and receive feedback after analysis. However, transmitting an enormous amount of data, perceiving complex environment, and making smart decisions in a timely manner is a very demanding task. Recent advances in AI technologies can significantly contribute and provide cost-effective solutions to the smart infrastructure of modern metropolitans.

Since smart infrastructure is a system that can monitor, communicate, analyze and act based on data collected by sensors, challenges exist in many aspects. At present, intelligent sensors are still a dynamic, open and evolving concept. Though the new generation communication technique is developing leaps and bounds, more efficient approaches are in need to make the paradigm faster, greener, and safer. Besides, breakthroughs in various analytic solutions powered by AI are expected to inject vitality into innovations and applications in smart infrastructure. This themed series aims to provide a venue for researchers and practitioners in related fields, to communicate and share ideas and achievements of enabling AI technologies for smart infrastructure. Research topics of interest include but are not limited to:

- Smart sensors
- Smart communication
- Smart analytics
- Applications for smart infrastructure

If you are interested in paper submission, please refer to:

https://nowpublishers.com/Journal/AuthorInstructions/SIP.

**Submission Window**: February 1, 2022 to August 31, 2022 **Publication Window**: March 1, 2022 to September 30, 2022

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### Call for papers of Themed Series in APSIPA T-SIP

#### Title: Learning, Security, AIoT for Emerging Communication/Networking Systems

Differential service needs have been the driving force for emerging communication/networking systems to serve as an innovative platform for digital convergence of information, control and management, based on cutting-edge technologies such as 5G/B5G-driven AI and IoT (5G-AIoT), powered by software defined networking (SDN), network functions virtualization (NFV) and multi-access edge computing (MEC). In particular, security and mobile edge intelligence are the main challenges to pursue smart-and-safe 5G-AIoT application scenarios. By connecting everyone to everything, the smart-and-safe 5G-AIoT technology is expected to bring about a new technological and industrial revolution, such as low-latency from-core-to-edge intelligence for connected vehicles/drones and tactile internet. As billions of devices use the 5G/B5G radio access network (RAN), it will increase the risk of RAN resources overloaded by some attacks, such as DDoS. In addition, network slicing is a fundamental architecture component of the 5G/B5G. Network slicing also brings up a number of security issues from slice isolation to concurrent multiple access to slices by a single user. For smart applications of internet of things (IoT), edge intelligence is important and can be achieved via machine learning such as collaborative or cooperative leaning, where the former aims for a common goal, and the latter for individual goals.

This themed series aims to provide a venue for researchers and practitioners in related fields, to communicate and share ideas and achievements of enabling smart-and-safe 5G-AIoT. Research topics of interest include but are not limited to:

- Emerging 5G/B5G technologies
- Security Issues
- Edge Intelligence and Learning
- Applications for IoT

If you are interested in paper submission, please refer to:

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**Submission Window**: April 1, 2022 to August 31, 2022 **Publication Window**: June 1, 2022 to October 30, 2022

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Seksan Mathulaprangsan, Kasetsart University

### Call for papers of Themed Series in APSIPA T-SIP

#### Title: Advanced Acoustic, Sound and Audio Processing Techniques and Their Applications

With recent advances in sensing, computing, and communication capabilities, vast amounts of acoustic, sound, and audio (ASA) data can be easily accessed. With such a large and wide variety of data, it is possible to build systems for various applications based on state-of-the-art artificial intelligence (AI) algorithms. Although many AI-based systems with novel data and system architectures have been developed, there is still room for further performance improvements and directions for further exploration. This themed series aims to promote further research on pattern recognition, information retrieval, and front-end processing (enhancement, separation, and noise cancellation) of ASA signals. We welcome submissions on emerging topics, novel algorithms, and advanced architecture and feature processing of ASA data. We also encourage submissions discussing practical issues of ASA data recording/capturing and system designs and potential solutions. Research topics of interest include but are not limited to:

- Biological and Biomedical Acoustic Signal Processing
- O Advanced Signal Processing and Machine Learning for Audio and Speech Applications
- O Recent Advances in Active Control of Sound
- Advanced Topics on Sound Event and Scene Analysis

If you are interested in paper submission, please refer to:

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Any further questions, please contact: yu.tsao@citi.sinica.edu.tw

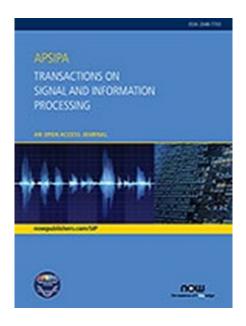
Submission Window: July 1, 2022 to October 31, 2022

Publication Window: September 1, 2022 to December 31, 2022

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### **APSIPA Transactions on Signal and Information Processing**



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ATSIP serves 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 or (ii) processing is meant to extract information from datasets that are not traditionally considered signals.

The scope for the APSIPA Transactions on Signal and Information Processing includes

- 1. Image, Video and Multimedia
- 2. Speech, Language and Audio
- 3. Biomedical Signals and Information
- 4. Signal/Information Processing Methods and Systems
- 5. Communications and Networking

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Asia-Pacific of Signal and Information Processing Association (APSIPA) is an international association that promotes the advancement of signal and information processing research and development. This includes fostering international research exchange and nurturing young students and researchers to excel in our field. Signal and information processing is a core subject that finds its niche in many disciplines so advancements in SIP will benefit all these fields. The membership fees are greatly reduced to make APSIPA services available to as many people as possible and accordingly contribute widely to proliferate knowledge, which is one of the APSIPA missions.

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#### Aims:

APSIPA is an association, which promotes research and education on signal and information processing, and publishing Open Access Books is an effective way to achieve our goals. The advantages of Open Access Book are the increased visibility, low production fees, and a faster production process. APSIPA will support all production fees and share the revenue with the authors. Also, APSIPA Editorial Board will support the peer review process and manage the production process with the publishers.

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We invite prospective authors to submit the title, authors, book types (textbook, research monograph, handbook, multi-author edited book, etc.), contents, and a sample chapter. Also, please provide a one-page description of the aim and importance of the book. Please provide these materials in a free format to the <a href="Editor-in-Chief">Editor-in-Chief</a>, Prof. Nam Ik Cho, via email to <a href="micho@snu.ac.kr">nicho@snu.ac.kr</a>. When the proposal is accepted, the manuscript for the peer review needs to be submitted within eight months from the acceptance notification. Please visit <a href="michogen:here">here</a> for details of the book production process and revenue sharing with APSIPA.

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- APSIPA ASC 2022: <a href="http://www.apsipa2022.org/">http://www.apsipa2022.org/</a>
- APSIPA Transaction on Signal and Information Processing: <a href="http://journals.cambridge.org/sip">http://journals.cambridge.org/sip</a>
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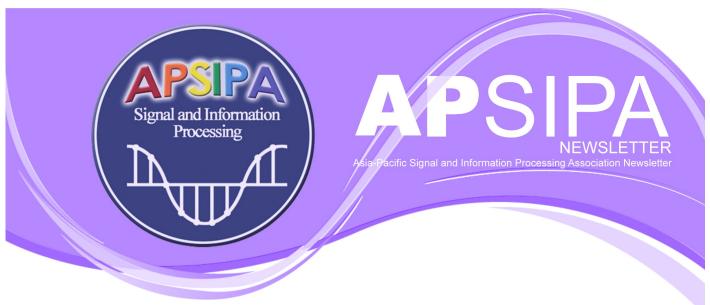
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