CONFERENCE BROCHURE

September 25-28, 2023
Shanghai, China

SPAWC

The 2023 IEEE 24th International Workshop on Signal Processing Advances in Wireless Communications

CONTENTS

Welcome to SPAWC 2023

For its 24th edition, the IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC) 2023 will be held in Shanghai, China. Shanghai is located on the southern estuary of the Yangtze River, with the Huangpu River flowing through it. Shanghai has a humid subtropical climate, with an average annual temperature around 15-16°C. The most pleasant seasons are generally spring, although changeable and often rainy, and autumn, which is usually sunny and dry. So come and enjoy SPAWC 2023 in autumn of Shanghai.

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➢ Hotel Reservation

Hotel Name	Address	Tel
上海衡山北郊宾馆 Gucun Park Hotel	上海市宝山区沪太路 4788 号 No. 4788 Hutai Road, Baoshan District, Shanghai	021-56040088
上海宝山顾村公园亚朵 S 酒店 Atour S Hotel (Shanghai Baoshan Gucun Park)	上海市宝山区菊泉街 676 号 No. 676 Juquan Street, Baoshan District, Shanghai	021-56765089
上海金仓永华大酒店 Golden Rich Hotel	上海市宝山区水产路 2659 号 No. 2659 Shuichan Road, Baoshan District, Shanghai	021-36114580
桔子水晶上海大学大场酒店 Crystal Orange Hotel (Shanghai University, Dachang)	上海市宝山区场中路 4098 弄 37 号 No. 37, Lane 4098, Changzhong Road, Baoshan District, Shanghai	021-67281588
上海共康美仑酒店 Shanghai Gongkang Meilun Hotel	上海市宝山区共康路 555 号 No. 555 Gongkang Road, Baoshan District, Shanghai	021-56408555
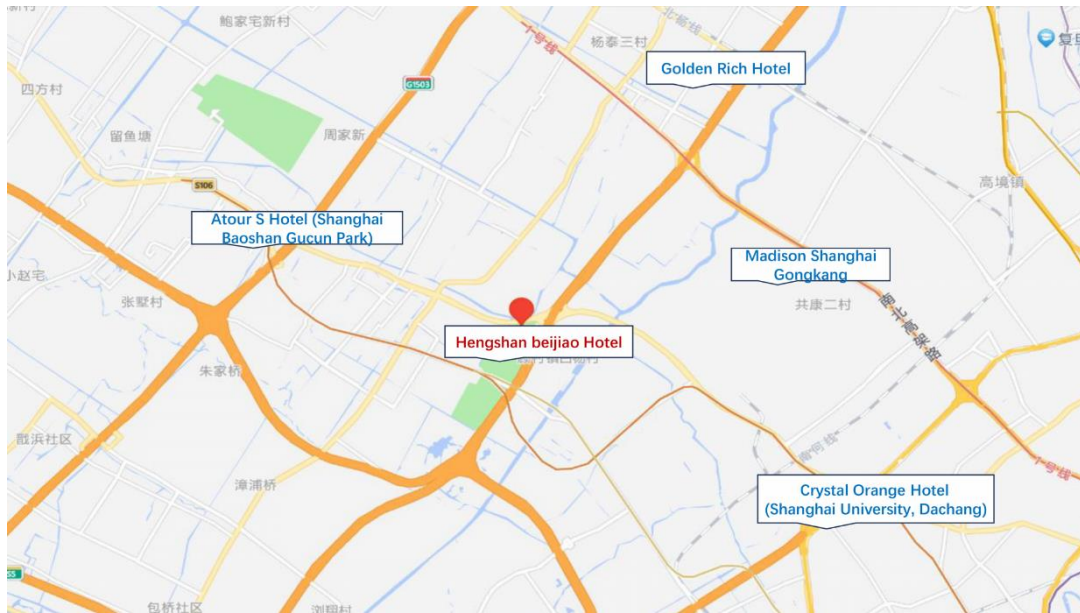
Map of Hotels Related

➤ Check-in

25th 10:00-18:00   Lobby of Gucun Park Hotel

➤ Dining Arrangements

25th 18:00-20:00	Welcome Reception	Langting Restaurant- Gucun Park Hotel
26th 12:30-13:30	Lunch Buffet	Lily Hall- Gucun Park Hotel
26th 18:00-20:00	Dinner Buffet	Lily Hall- Gucun Park Hotel
27th 12:30-13:30	Lunch Buffet	Langting Restaurant- Gucun Park Hotel
27th 17:30-21:00	Banquet	Crystal Princess
		(Departure: 17:30 at the gate of the hotel by bus)
28th 12:45-13:30	Lunch Buffet	Langting Restaurant- Gucun Park Hotel

➤ Venue

Hotel: Gucun Park Hotel （上海衡山北郊宾馆）

Address: No. 4788 Hutai Road, Baoshan District, Shanghai（上海市宝山区沪太路 4788 号）

Official Website: 上海衡山北郊宾馆官方网站 (gucunparkhotel.com)
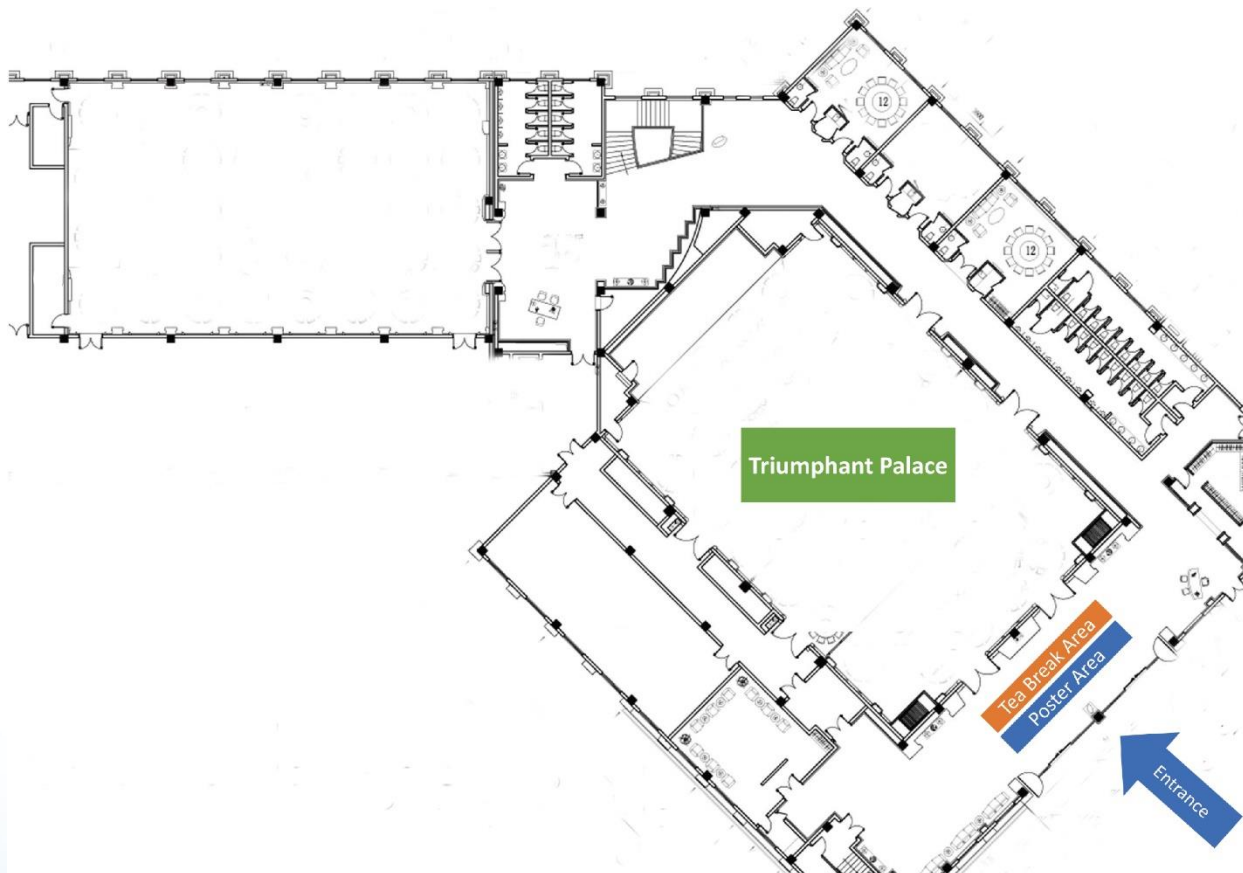
➢ Live Broadcast

The conference will be held online and offline simultaneously, the offline venue is in Gucun Park Hotel, Shanghai, the online meeting is open to registered representatives through live broadcast, the instructions for participation are as follows:

1. Watch the live broadcast: www.aconf.org/live/192519

2. Enter the URL in your browser or scan the QR code with your smart phone to enter the live room.

3. Enter the participant code

4. How to obtain the participant code
Before the conference, the participant code will be sent by email to the email address you submitted during registration, and the short message will be sent to the mobile phone number you submitted during registration.

➢ Contacts

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Registration and Paper
+1 9798466800   spawc2023@cmsworkshops.com

Conference Service
Zou Xin   +86 18627754021   zouxin@chytey.com

Conference Agenda

Date	Time	Event	Place
September 25	10:00-18:00	Registration	Lobby
	18:00-20:00	Welcome Reception	Langting Restaurant
September 26	08:45-09:00	Welcome Address	Triumphant Palace
	09:00-10:00	Keynotes 1: Wing-Kin Ma	Triumphant Palace
	10:00-10:30	Thematic Talks 1	Triumphant Palace
	10:30-12:00	Regular Session 1- 3 Special Session 1- 2	Public Area
	12:00-12:30	Thematic Talks 2	Triumphant Palace
	12:30-13:30	Lunch Buffet	Lily Hall
	14:00-15:00	Keynotes 2: Wen Tong	Triumphant Palace
	15:00-16:30	Regular Session 4- 5 Special Session 3- 4	Public Area
	16:30-17:30	Thematic Talks 3- 4	Triumphant Palace
	18:00-20:00	Dinner Buffet	Lily Hall
September 27	09:00-10:00	Keynotes 3: Gerhard Bauch	Triumphant Palace
	10:00-11:30	Regular Session 6- 7 Special Session 5- 7	Public Area
	11:30-12:30	Thematic Talks 5- 6	Triumphant Palace
	12:30-13:30	Lunch Buffet	Langting Restaurant
	13:30-14:30	Keynotes 4: Geoffrey Ye Li	Triumphant Palace
	14:30-16:00	Regular Session 8- 10 Special Session 8- 9	Public Area
	16:00-17:00	Thematic Talks 7-8	Triumphant Palace
	17:30-21:00	Banquet	Crystal Princess
September 28	08:30-09:30	Keynotes 5: Dirk Slock	Triumphant Palace
	09:30-11:00	Regular Session 11- 13 Special Session 10	Public Area
	11:00-11:30	Thematic Talks 9	Triumphant Palace
	11:30-12:45	Panel	Triumphant Palace
	12:45-13:30	Lunch Buffet	Langting Restaurant
	14:00-15:00	Keynotes 6: Falko Dressler	Online

Scan the mini program code with Wechat to view conference agenda on the phone

➢ **Keynotes**

Keynote 1

Time & Place: September 26th 09:00-10:00, Triumphant Palace
Title: Spatial Sigma-Delta Modulation for Massive MIMO Downlink

Dr. Wing-Kin Ma
Chinese University of Hong Kong (CUHK), Hong Kong

Biography

Wing-Kin Ma is currently a Professor with the Department of Electronic Engineering, Chinese University of Hong Kong (CUHK), Hong Kong. His research interests include signal processing, optimization, related topics in machine learning and data science, and communications. Some of his recent research includes symbol-level precoding and coarsely quantized MIMO transceiver designs.Dr. Ma has rich editorial experience, previously serving as editors of a number of important signal processing journals and in various capacities. He is now the Editor-in-Chief of IEEE Transactions on Signal Processing. He was a Tutorial Speaker at EUSIPCO 2011 and ICASSP 2014. He was the recipient of the CUHK Research Excellence Award 2013–2014, the 2015 IEEE Signal Processing Magazine Best Paper Award, the 2016 IEEE Signal Processing Letters Best Paper Award, and the 2018 IEEE Signal Processing Society (SPS) Best Paper Award. He was a TC member of two SPS technical committees, an IEEE SPS Distinguished Lecturer (2018—2019), and the SPS Regional Director-at-Large (2000—2021, Region 10).

Abstract

Consider using a massive number of antennas at the base station to enhance system capabilities like spatial selectivity and spatial multiplexing gains. This sounds promising, but it comes with a price: significantly increased hardware cost and energy consumption over the RF front end. Recently there has been much interest in considering low-resolution ADCs/DACs for massive MIMO systems. The significant quantization effects, however, rise as the challenge. In this talk we will talk about a recently emerged alternative called spatial Sigma-Delta modulation. Sigma-Delta modulation is a classic signal processing concept that has been widely used in temporal ADCs/DACs. We will examine how Sigma-Delta modulation can be applied in space to mitigate quantization error effects in massive MIMO downlink, and how it brings a new perspective to MIMO precoding designs. If time permits, we will also cover another important topic, namely, symbol-level precoding, which provides a powerful solution to MIMO precoding designs under Sigma-Delta modulation.

Live & Video

Keynote 2

Time & Place: September 26th 14:00-15:00, Triumphant Palace
Title: GPT Based Multi-User Communications

Dr. Wen Tong
CTO, Wireless Network, Huawei Technologies Co., Ltd.

Biography

Dr. Wen Tong is the CTO, Huawei Wireless and a Huawei Fellow. He is the head of Huawei wireless research, and the Huawei 5G chief scientist and led Huawei's 10-year-long 5G wireless technologies research and development.

Prior to joining Huawei in 2009, Dr. Tong was the Nortel Fellow and head of the Network Technology Labs at Nortel. He joined the Wireless Technology Labs at Bell Northern Research in 1995 in Canada.

Dr. Tong is the industry recognized leader in invention of advanced wireless technologies, Dr. Tong was elected as a Huawei Fellow and an IEEE Fellow. He was the recipient of IEEE Communications Society Industry Innovation Award in 2014, and IEEE Communications Society Distinguished Industry Leader Award for "pioneering technical contributions and leadership in the mobile communications industry and innovation in 5G mobile communications technology" in 2018. He is also the recipient of R.A. Fessenden Medal. For the past three decades, he had pioneered fundamental technologies from 1G to 6G wireless with more than 530 awarded US patents.

Dr. Tong is a Fellow of Canadian Academy of Engineering, and he serves as Board of Director of Wi-Fi Alliance.

Abstract

The new GPT (Generative pre-trained transformers) based communications paradigm is discussed, we further present the distributed GPT for wireless communications such as smartphone, robot and IoT devices. The GPT based the communications can enable the communications of "intelligence" rather than the information bits. Such a generalized framework can be more efficiently integrated into a physical world continuum platform, such as 6G ISAC (integrated sensing and communications). We exam the very large transformer as arithmetic information entropy from the Kolmogorov sense. Finally, in this talk, we also extend such a communications model into multi-user cases.

Live & Video

Keynote 3

Time & Place: September 27th 09:00-10:00, Triumphant Palace

Title: Relevant Information Maximizing Quantization with Application in Low Resolution Message Passing Decoding

Dr. Gerhard Bauch
TU Hamburg

Biography

Gerhard Bauch received the Dipl.-Ing. and Dr.-Ing. degree in Electrical Engineering from Munich University of Technology (TUM) in 1995 and 2001, respectively, and the Diplom-Volkswirt (master in economics) degree from FernUniversitaet Hagen in 2001.

In 1996, he was with the German Aerospace Center (DLR), Oberpfaffenhofen, Germany. From 1996-2001 he was member of scientific staff at Munich University of Technology (TUM). In 1998 and 1999 he was also visiting researcher at AT&T Labs Research, Florham Park, NJ, USA. In 2002 he joined DOCOMO Euro-Labs, Munich, Germany, where he had been managing the Advanced Radio Transmission Group. In 2007 he was additionally appointed Research Fellow of DOCOMO Euro-Labs. He was a full professor at the Universität der Bundeswehr Munich from 2009-2012. Since October 2012 he is head of the Institute of Communications at Hamburg University of Technology.

He is a fellow of the IEEE and member of the board of governors of the IEEE Vehicular Technology Society, chair of the IEEE Communications Society German Chapter, member of the board of directors of the German Information Technology Society and member of the review board of the German Research Foundation.

Abstract

Receiver sided signal processing particularly in high data rate and high performance applications causes bottleneck situations in terms of energy consumption, throughput, delay and chip area. Coarse quantization and low complexity operations are essential in order to address those issues. A popular recent trend is designing entire receiver chains, or some of their crucial building blocks from an information theoretical perspective. The framework of the Information Bottleneck Method provides a theoretical foundation as well as optimization tools for maximization of an appropriately defined relevant information that flows through the processing stages. We will discuss the principle of the Information Bottleneck Method and its applications to coarsely quantized signal processing with a focus on message passing decoding.

Live & Video

Keynote 4
Time & Place: September 27th 13:30-14:30, Triumphant Palace
Title: Deep Learning for Future Wireless Communications

Dr. Geoffrey Ye Li
Imperial College London, UK

Biography

Dr. Geoffrey Ye Li is currently a Chair Professor at Imperial College London, UK. Before joining Imperial in 2020, he was a Professor at Georgia Institute of Technology, USA, for 20 years and a Principal Technical Staff Member with AT&T Labs – Research (previous Bell Labs) in New Jersey, USA, for five years. He pioneered orthogonal frequency division multiplexing (OFDM) for wireless communications, established a framework on resource cooperation in wireless networks, and introduced deep learning (DL) for communications.

Dr. Geoffrey Ye Li was awarded IEEE Fellow and IET Fellow for his contributions to signal processing for wireless communications. He won 2024 IEEE Eric E. Sumner Award and several prestigious awards from IEEE Signal Processing, Vehicular Technology, and Communications Societies, including 2019 IEEE ComSoc Edwin Howard Armstrong Achievement Award.

Abstract

Deep learning (DL) has great potentials to break the bottleneck of the conventional communication systems. In this talk, we will present recent work in DL in future wireless communications, including physical layer processing and resource allocation, DL-enabled semantic communications, impact of wireless communications on federated learning.

DL can improve the performance of each individual (traditional) block in a conventional communication system or jointly optimize the whole transceiver. We can categorize the applications of DL in physical layer processing into with and without block processing structures. For DL based communication systems with block structures, we present joint channel estimation and signal detection based on a fully connected deep neural network, model-drive DL for signal detection. For those without block structures, we provide our recent endeavors in developing end-to-end learning communication systems.

Judicious resource (spectrum, power, etc.) allocation can significantly improve efficiency of wireless networks. The traditional wisdom is to explicitly formulate resource allocation as an optimization problem and then exploit mathematical programming to solve it to a certain level of optimality. Deep learning represents a promising alternative due to its remarkable power to leverage data for problem solving and can help solve optimization problems for resource allocation or can be directly used for resource allocation. As an example, we will briefly discuss how to use deep reinforcement learning for wireless resource allocation in vehicular networks.

At the end of this talk, we will also briefly discuss semantic communications and impact of wireless communications on federated learning.

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Keynote 5

Time & Place: September 28th 08:30-09:30, Triumphant Palace

Title: When Bayes meets Kullback-Leibler: A Tale of Message Passing and Alternating Optimization

Dr. Dirk Slock
EURECOM

Biography

Dirk T.M. Slock received an EE degree from Ghent University, Belgium in 1982. In 1984 he was awarded a Fulbright scholarship for Stanford University, USA, where he received the MSEE, MS in Statistics, and PhD in EE in 1986, 1989 and 1989 resp. In 1989-91, he was a member of the research staff at the Philips Research Laboratory Belgium. In 1991, he joined EURECOM where he is now professor. He invented semi-blind channel estimation, the chip equalizer-correlator receiver used by 3G HSDPA mobile terminals, spatial multiplexing cyclic delay diversity (MIMO-CDD) now part of LTE, and his work led to the Single Antenna Interference Cancellation (SAIC) integrated in the GSM standard in 2006. In 1992 he received one best journal paper award from IEEE-SP and one from EURASIP. He is the coauthor of two IEEE Globecom'98, one IEEE SIU'04, one IEEE SPAWC'05, one IEEE WPNC'16 and one IEEE SPAWC'18 best student paper award, and a honorary mention (finalist in best student paper contest) at IEEE SSP'05, IWAENC'06, IEEE Asilomar'06 and IEEE ICASSP'17. He was an associate editor for the IEEE-SP Transactions in 1994-96 and the IEEE Signal Processing Letters in 2009-10. He was the General Chair of the IEEE-SP SPAWC'06 and IWAENC'14 workshops, and EUSIPCO'15. He cofounded the start-ups SigTone in 2000 (music signal processing products) and Nestwave in 2014 (Ultra Low-Power Indoor and Outdoor Mobile Positioning). He is a Fellow of IEEE and EURASIP. In 2018 he received the URSI France medal.

Abstract

In the domains of communications and compressed sensing, the demand for effective approximate Bayesian estimation techniques is paramount. Sparse channel modeling extends traditional model selection, enabling optimized models based on available training data. Compressed sensing techniques extend Linear Minimum Mean Squared Error (LMMSE) estimation by a hierarchical Bayesian formulation. In multi-user detection or blind channel estimation, going beyond LMMSE and Gaussian models represents a leap.

One of the approaches in the realm of approximate Bayesian estimation is Variational Bayes (VB), a relatively straightforward method. An even more refined technique for approximate Bayesian estimation is Expectation Propagation (EP). Both VB and EP share the underlying concept of minimizing the Kullback-Leibler Divergence (KLD), albeit with different sequencing of the true and approximating probability density functions. However, EP is a heuristic approach to minimizing a more desirable KLD, which is called the Bethe Free Energy (BFE).

Live & Video

Keynote 6

Time & Place: September 28th 14:00-15:00, online
Title: Resilience Through Cross-Technology Communication

Dr. Falko Dressler
TU Berlin

Biography

Falko Dressler is full professor and Chair for Telecommunication Networks at the School of Electrical Engineering and Computer Science, TU Berlin. He received his M.Sc. and Ph.D. degrees from the Dept. of Computer Science, University of Erlangen in 1998 and 2003, respectively. Dr. Dressler has been associate editor-in-chief for IEEE Trans. on Mobile Computing and Elsevier Computer Communications as well as an editor for journals such as IEEE/ACM Trans. on Networking, IEEE Trans. on Network Science and Engineering, Elsevier Ad Hoc Networks, and Elsevier Nano Communication Networks. He has been chairing conferences such as IEEE INFOCOM, ACM MobiSys, ACM MobiHoc, IEEE VNC, IEEE GLOBECOM. He authored the textbooks Self-Organization in Sensor and Actor Networks published by Wiley & Sons and Vehicular Networking published by Cambridge University Press. He has been an IEEE Distinguished Lecturer as well as an ACM Distinguished Speaker. Dr. Dressler is an IEEE Fellow as well as an ACM Distinguished Member. He is a member of the German National Academy of Science and Engineering (acatech). He has been serving on the IEEE COMSOC Conference Council and the ACM SIGMOBILE Executive Committee. His research objectives include adaptive wireless networking (sub-6GHz, mmWave, visible light, molecular communication) and wireless-based sensing with applications in ad hoc and sensor networks, the Internet of Things, and Cyber-Physical Systems.

Abstract

Co-existence of radio communication technologies has always been one of the key challenges in wireless communications. This particularly holds for listen-before-talk / carrier sensing based protocols. Coding, frequency hopping, and dynamic channel assignment techniques have been developed as mitigation strategies. Recently, co-existence has been studied as an opportunity rather than just an annoying nuisance. Cross-technology communication (CTC) is the key to solve performance issues in co-existence scenarios through collaboration and coordination among co-located networks. After some first approaches forming narrowband IoT waveforms using WiFi chip, meanwhile the spectrum of demonstrated cross-technology communication is huge. For example, commercial WiFi chips can be used to emulate ZigBee, Bluetooth, LTE, LoRa, and more. Such CTC obviously also helps enhancing the resilience of larger scale communication platforms. Offloading, for example, LTE or LoRa traffic on WiFi or vice versa, helps to strengthen the reliability of the communication system as a whole. In this talk, we explore the basic concepts of cross-technology communication and study challenges and opportunities of CTC.

Live & Video

Thematic Talks

Thematic Talk 1

Time & Place: September 26th 10:00-10:30, Triumphant Palace

Title: The Merging between AI and Wireless Communication

Dr. Shuguang Cui
Future Network of Intelligence Institute (FNii) at CUHK, Shenzhen

Biography

Shuguang Cui received his Ph.D in Electrical Engineering from Stanford University, California, USA, in 2005. Afterwards, he has been working as assistant, associate, full, Chair Professor in Electrical and Computer Engineering at the Univ. of Arizona, Texas A&M University, UC Davis, and CUHK at Shenzhen respectively. He has also served as the Executive Dean for the School of Science and Engineering and is currently the Director for Future Network of Intelligence Institute (FNii) at CUHK, Shenzhen, and the Executive Vice Director at Shenzhen Research Institute of Big Data. His current research interests focus on data driven large-scale system control and resource management, large data set analysis, IoT system design, energy harvesting based communication system design, and cognitive network optimization. He was selected as the Thomson Reuters Highly Cited Researcher and listed in the Worlds' Most Influential Scientific Minds by ScienceWatch in 2014. He was the recipient of the IEEE Signal Processing Society 2012 Best Paper Award. He has served as the general co-chair and TPC co-chairs for many IEEE conferences. He has also been serving as the area editor for IEEE Signal Processing Magazine, and associate editors for IEEE Transactions on Big Data, IEEE Transactions on Signal Processing, IEEE JSAC Series on Green Communications and Networking, and IEEE Transactions on Wireless Communications. He has been the elected member for IEEE Signal Processing Society SPCOM Technical Committee (2009~2014) and the elected Chair for IEEE ComSoc Wireless Technical Committee (2017~2018).

Abstract

AI and communication network happily meet in this era. On one hand, AI could enable various new network optimization and control features, which were not feasible with traditional network control approaches. Many people believe AI will be the core or brain of next generation networks. On the other hand, the future AI systems will become more complex, and inevitably distributed. To boost the performance of such distributed AI systems, the network connection among the scattered intelligent elements must be optimized. Understanding such two-way dynamics between AI and networks will be a key step towards future information systems. In this talk, we will explore the principles regulating the synergy between AI and wireless communication, and share some recent progresses in this exciting area.

Live & Video

Thematic Talk 2

Time & Place: September 26th 12:00-12:30, Triumphant Palace

Title: Multi-User Distributed Computing and the Deep Connections with Coding Theory, Compressed Sensing, and Tessellation

Dr. Petros Elia
Department of Communication Systems at EURECOM in Sophia Antipolis, France

Biography

Petros Elia received the B.Sc. degree from the Illinois Institute of Technology, and the M.Sc. and Ph.D. degrees in electrical engineering from the University of Southern California (USC), Los Angeles, in 2001 and 2006 respectively. He is now a professor with the Department of Communication Systems at EURECOM in Sophia Antipolis, France. His latest research deals with the intersection of coded caching and feedback-aided communications in multiuser settings. He has also worked in the area of complexity-constrained communications, MIMO, queueing theory and cross-layer design, coding theory, information theoretic limits in cooperative communications, and surveillance networks. He is a Fulbright scholar, the co-recipient of the NEWCOM++ distinguished achievement award 2008-2011 for a sequence of publications on the topic of complexity in wireless communications, the recipient of the ERC Consolidator Grant 2017-2022 on cache-aided wireless communications, and the recipient of the ERC-PoC 2022-2024.

Abstract

In this work, we investigate the problem of multi-user distributed computing, where various servers help compute the desired linearly separable (but generally non-linear) functions of various users. We explore the classical problem of the tradeoff between computation and communication cost, and we establish novel relationships with coding theory and compressed sensing and tessellation theory.

Live & Video

Thematic Talk 3

Time & Place: September 26th 16:30-17:00, Triumphant Palace
Title: Signal and Array Processing with an Electromagnetic Array Manifold

Dr. Robert Heath
Department of ECE at North Carolina State University

Biography

Robert W. Heath Jr. is the Lampe Distinguished Professor in the Department of ECE at North Carolina State University. He is the recipient or co-recipient of several awards including the 2019 IEEE Kiyo Tomiyasu Award, the 2020 IEEE Signal Processing Society Donald G. Fink Overview Paper Award, the 2020 North Carolina State University Innovator of the Year Award and the 2021 IEEE Vehicular Technology Society James Evans Avant Garde Award. He authored "Introduction to Wireless Digital Communication" (Prentice Hall in 2017) and "Digital Wireless Communication: Physical Layer Exploration Lab Using the NI USRP" (National Technology and Science Press in 2012). He co-authored "Millimeter Wave Wireless Communications" (Prentice Hall in 2014) and "Foundations of MIMO Communications" (Cambridge 2019). He was a member-at-large of the IEEE Communications Society Board-of-Governors (2020-2022) and a member-at-large on the IEEE Signal Processing Society Board-of-Governors (2016-2018). He was EIC of IEEE Signal Processing Magazine from 2018-2020. He is a licensed Amateur Radio Operator, a registered Professional Engineer in Texas, a Private Pilot, a Fellow of the National Academy of Inventors, and a Fellow of the IEEE.

Abstract

The array manifold is a fundamental tool in wireless communication that characterizes how arrays respond to different excitations. In this presentation, we present an electromagnetic-based array manifold that represents antennas as groups of Hertzian dipoles. We show how this characterization leverages the array current distribution to account for polarization, mutual coupling, and even near-field effects. We compare our proposed manifold with traditional models, such as the isotropic and embedded manifolds, and highlight situations in which our approach achieves significant benefits. We conclude by showing applications of the proposed manifold to beam pattern synthesis. We find that the electromagnetic manifold can be used to beamform with arbitrary antennas and array configurations. This is joint work with Dr. M. Rodrigo Castellanos.

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Thematic Talk 4

Time & Place: September 26th 17:00-17:30, Triumphant Palace

Title: Federated Edge Learning: Communication-Efficient Designs and Applications in Wireless Networks

Dr. Meixia Tao
Shanghai Jiao Tong University, China

Biography

Meixia Tao (F'19) is a Professor with the Department of Electronic Engineering, Shanghai Jiao Tong University, China. She received the B.S. degree in electronic engineering from Fudan University, Shanghai, China, in 1999, and the Ph.D. degree in electrical and electronic engineering from Hong Kong University of Science and Technology in 2003. Her current research interests include wireless edge learning, coded caching, reconfigurable intelligence surfaces, and semantic communications. She receives the 2019 IEEE Marconi Prize Paper Award, the 2013 IEEE Heinrich Hertz Award for Best Communications Letters, the IEEE/CIC International Conference on Communications in China (ICCC) 2015 Best Paper Award, and the International Conference on Wireless Communications and Signal Processing (WCSP) 2012 and 2022 Best Paper Awards. She also receives the 2009 IEEE ComSoc Asia-Pacific Outstanding Young Researcher award. Dr. Tao is an Associate Editor of the IEEE Transactions on Information Theory and an Editor-at-Large of the IEEE Open Journal of the Communications Society. She served as a member of the Executive Editorial Committee of the IEEE Transactions on Wireless Communications during 2015-2019.

Abstract

Traditional artificial intelligence (AI) applications deployed in cloud data centers require extensive data acquisition, transmission, and processing, causing significant challenges in latency, energy, and privacy. FEderated Edge Learning (FEEL) emerges as a disruptive learning framework to address these issues by leveraging the sensing, computation, and communication capabilities at the network edge. FEEL allows collaborative training of global AI models across geographically distributed edge devices without accessing local private datasets by exchanging only model parameters. FEEL facilitates many emerging intelligent edge services promised by 6G, such as autonomous driving, and immersive communications. Despite its advantages, FEEL faces several key challenges, such as limited on-device computation capacities, heterogenous data distribution, and scarce radio resources. This talk will present our recent research progress towards communication-efficient and high-performance FEEL, covering topics like fundamental limits of communication efficiency, over-the-air model aggregation, federated multi-task learning, and federated knowledge distillation. Applications of FEEL for the design and optimization of wireless communication networks, including wireless D2D network power control and cell-free massive MIMO precoding, will also be discussed.

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Thematic Talk 5

Time & Place: September 27th 11:30-12:00, Triumphant Palace
Title: Orthogonal Signal-Division Multiplexing (OSDM) for Underwater Acoustic Communications

Dr. Jing Han
Northwestern Polytechnical University, China

Biography

Jing Han received the B.Sc. degree in electrical engineering, the M.Sc. and Ph.D. degrees in signal and information processing from Northwestern Polytechnical University, Xi'an, China, in 2000, 2003 and 2008, respectively. He is now a Professor at the School of Marine Science and Technology, Northwestern Polytechnical University. From June 2015 till June 2016, he was a visiting researcher at the Faculty of Electrical Engineering, Mathematics and Computer Science at the Delft University of Technology, The Netherlands. His research interests include wireless communications, statistical signal processing, and particularly their applications to underwater acoustic systems. He is an Associate Editor of the EURASIP Signal Processing.

Abstract

Underwater acoustic (UWA) channels are considered as one of the most challenging communication media in use. To achieve reliable transmission with high bandwidth efficiency over UWA channels, two low-complexity techniques, namely, orthogonal frequency-division multiplexing (OFDM) and single-carrier frequency domain equalization (SC-FDE), have received much attention in recent years. Both schemes are based on block-wise frequency-domain processing, which allows for mitigating the channel frequency selectivity more efficiently. However, it is well known that OFDM systems suffer from a large peak-to-average power ratio (PAPR) and a high sensitivity to Doppler effects. On the other hand, the SC-FDE system offers lower PAPR and better Doppler tolerance, yet at the expense of an inflexible bandwidth and energy management. As another promising alternative, orthogonal signal-division multiplexing (OSDM) is a new modulation scheme which provides a generalized framework to unify OFDM and SC-FDE. In this talk, we will focus on comparing the characteristics between OSDM and other existing modulation schemes, and introduce recent advances of its application in UWA communications.

Live & Video

Thematic Talk 6

Time & Place: September 27th 12:00-12:30, Triumphant Palace

Title: Integrated Sensing and Communication Systems: Performance Analysis and Key Techniques

Dr. Mugen Peng

Beijing University of Posts & Telecommunication (BUPT), China

Biography

Mugen Peng is a professor in Beijing University of Posts & Telecommunication (BUPT), He serves as the Dean of the School of Information and Communication Engineering, and the Deputy Director of the State Key Laboratory of Networking and Switching Technology. His current research topics include wireless communication theory, network intelligence and non-terrestrial networks. Prof. Peng is serving or has been served on the Editorial/Associate Editorial Board of the IEEE Commun. Mag., IEEE IoT Journal, IEEE TVT, IEEE Network, and several other journals. He received the 2018 Heinrich Hertz Prize Paper Award, 2014 IEEE ComSoc AP Outstanding Young Researcher Award, and Best Paper Award in the IEEE ICC 2022, JCN 2016, IEEE WCNC 2015, IEEE GameNets 2014, IEEE CIT 2014, ICCTA 2011, IC-BNMT 2010, and IET CCWMC 2009.

Abstract

The emergence of 6G intelligent services with multi-dimensional and stringent performance requirements necessitates the integration of sensing and communication (ISAC). Compared to dedicated communication or sensing solutions, ISAC is promising to achieve advantages in terms of cost, power consumption, and hardware size, while fostering potential mutual gains. However, the studies on communication and sensing have historically been conducted independently and their interactions remain unclear. This report introduces and analyzes the performance of ISAC systems in aspects of various waveforms and frequencies. Specifically, the pilot-assisted communication and delay-Doppler channel calibration is developed and explained theoretically, separately leading to expanded ISAC performance limits for orthogonal frequency division multiplexing (OFDM) and orthogonal time-frequency apace (OTFS). The trade-off and performance limits of ISAC for multiple frequencies are given individually, characterized by various critical technologies in the WIFI band, millimeter wave band, and terahertz band. Meanwhile, the key techniques in ISAC systems are presented as well.

Live & Video

Thematic Talk 7

Time & Place: September 27th 16:00-16:30, Triumphant Palace
Title: Facilitating AI-based CSI Feedback Deployment in Massive MIMO Systems with Learngene

Dr. Shi Jin
Southeast University, China

Biography

Shi Jin received the B.S. degree in communications engineering from Guilin University of Electronic Technology, Guilin, China, in 1996, the M.S. degree from Nanjing University of Posts and Telecommunications, Nanjing, China, in 2003, and the Ph.D. degree in information and communications engineering from Southeast University, Nanjing, in 2007. From June 2007 to October 2009, he was a Research Fellow at the Adastral Park Research Campus, University College London, London, U.K. He is currently affiliated with the faculty of the National Mobile Communications Research Laboratory, Southeast University. He serves as an Area Editor for the IEEE Transactions on Communications and IET Electronics Letters. He was previously an Associate Editor for the IEEE Transactions on Wireless Communications, IEEE Communications Letters, and IET Communications. Dr. Jin and his co-authors were awarded the 2011 IEEE Communications Society Stephen O. Rice Prize Paper Award in the field of communication theory, a 2022 Best Paper Award, and a 2010 Young Author Best Paper Award by the IEEE Signal Processing Society.

Abstract

Transfer learning presents a promising approach for enabling intelligent channel state information (CSI) feedback to adapt to dynamic scenarios in practical deployments. However, implementing this approach requires a pre-trained model, which must be trained with massive CSI samples and supported by a public neural network (NN) architecture. A more practical solution is to distribute the pre-trained model to the base station (BS) instead of directly providing CSI datasets. Nevertheless, the varying architectures across BS manufacturers pose a challenge that prevents this distribution. In this talk, we introduce a novel resource distribution framework called "CSI meta-knowledge support". This framework facilitates the economical and effective distribution and utilization of CSI meta-knowledge among different BS manufacturers, achieving a better tradeoff between utility, privacy, and communication. The proposed scheme leverages Learngene to transfer and utilize CSI meta-knowledge in heterogeneous NN architectures. We design a Learngene unit that carries sufficient meta-knowledge, serving as a CSI learning ware provided by the platform. This enables manufacturers to incorporate the platform-provided meta-knowledge while meeting their design criteria and BS requirements, allowing them to expand into their proprietary models. In the experimental results, our method demonstrates an approximate 4 dB performance improvement, a 3/4 reduction in the required training sample amount, and faster convergence compared to the baseline approach.

Live & Video

Thematic Talk 8

Time & Place: September 27th 16:30-17:00, Triumphant Palace

Title: Cellular-IoT Evolution and Key Performance Challenge

Dr. Hong Zheng
Eigencomm

Biography

Hong Zheng is the vice president of R&D, at Eigencomm. She is leading Eigencomm LTE Cat.1 and 5G redcap research and development. Prior to joining Eigencomm, Hong was the senior director of System design and Protocol Stack team at Marvell and worked on TD-SCDMA and LTE modem projects. She has 10+ years of design experience in cellular terminal solutions covering the technologies from legacy 2G/3G to current 4G and 5G.

Abstract

Cellular-IoT is 3gpp-based ecosystem and has been widely adopted in the world. In the speech, we will introduce the Cellular- IoT technology roadmap from 2G to 5G, the expansion in various industry fields and future evolution. We will also talk about key performance challenges for C-IoT chipset design in terms of ultra-high integration, ultra-small size and ultra-low power consumption.

We will compare the main technical characteristics of the three main C-IOT techniques: NB-IoT, Cat.1bis and 5G Redcap, explain the advantage and constraints for each one, describe the typical use cases, and analyze the industry trends in the future.

We will also talk about two critical performance challenges for C-IoT chipset design - high integration and low cost, and how to achieve these goals by multiple approaches - SoC, IPD, hardware accelerators and advanced RF &Analog design.

Live & Video

Thematic Talk 9

Time & Place: September 28th 11:00-11:30, Triumphant Palace
Title: Challenges of Wireless Communications

Dr. Hong Zhou
Institute of Strategic Research, Huawei, China

Biography

Hong Zhou is the President of the Institute of Strategic Research, Huawei, and the Director of the National Key Laboratory of Wireless Broadband Communication Systems. Dr. Zhou joined Huawei in 1997 and has served as Chief of the Shanghai Research Center, Vice President of the Wireless Network Product Line, President of the Central Hardware Engineering Institute, and President of the European Research Institute. In these roles, Dr. Zhou has been responsible for research, standardization, industrialization, and technical cooperation activities of the related business.

Abstract

In recent years, 5G has made great progress in improving network capacity and user experience, and enabling industry digitalization to improve service quality and network efficiency. At the same time, we also face some important challenges: First, how to help operators improve their profitability; Second, how to reduce energy cost of wireless systems; Third, how to improve user experience at the cell edge. Therefore, on the basis of re-thinking about the assumptions and usage scenarios with the Shannon's era, we envision new discoveries, new understandings and new usage scenarios in the post-Shannon era. We propose to solve the above practical problems by using the world's a-prior knowledge, by using new modes and beams of electromagnetic fields, and by developing narrow beam technology in urban environments. Finally, we raise some questions about some of the current hot technology trends, hoping that the academic community will actively think about the implementability of novel technologies within the business vision.

Live & Video

➤ **Panel**

Moderator

Time & Place: September 28th 11:30-12:45, Triumphant Palace
Title: mmWave Evolution for 5G-Advanced

Mr. Zhenfei Tang
Senior Expert at Huawei Wireless

Biography

Zhenfei Tang is the senior expert of the 5G evolution research in Huawei. He led 5G evolution research and managed a series of national projects from Huawei. He has been engaged in the research for 3G, 4G and 5G wireless communications systems and was the major representative of Huawei in 3GPP and in China IMT-Advanced since he joined Huawei Technologies Co., Ltd in 2005. Mr. Tang has more than 100 granted patents in the area of wireless communications and contributed more than 500 papers to international standards and conferences. He received his M.S. degree from Beijing University of Posts and Telecommunications in 2004.

Motivation and Background

The 5G began with the first version of Rel-15 in 2018 and has achieved great technical success through three releases of evolution. Since Rel-18 in 2022, the 5G has leapt into the 5G-Advanced era which will be commercialized around 2025 and beyond. mmWave natively support large bandwidth and low latency which may enable quite a lot of new service, such as AR/VR, metaverse, URLLC, and will provide large value to the whole indursty. Therefore mmWave evolution for 5G-Advanced is essential important. we still face lots of challenges for mmWave large scale deployment, such as outdoor and indoor coverage, seamless mobility, network and device energy efficiency and etc. It will be very timely to investigate how 5G mmWave evolves towards 2025 and beyond from technology points of view, taking into accounts the main use cases, key challenges and potential technology trends.

In this panel, we will bring together leading experts from the mobile industry. The panel can serve as a good opportunity to share the experts' views about mmWave technology for 5G-Advanced and can provide a bridge between industry and academia.

Live & Video

Participant

Dr. Gen Cao
Principal Researcher of China Unicom

Biography

Gen Cao is the Principal Researcher of China Unicom Research Institute. He is leading the 3GPP RAN standardization research of China Unicom and He has been actively engaged in the new technology research and commercial deployment for 4G and 5G wireless communications systems. He is serving as one Vice Chair of 3GPP RAN3 working group since August 2021. He received his B.S. and Ph.D. degree from Beijing University of Posts and Telecommunications in 2007 and 2012, respectively.

Participant

Dr. Hao Xu
Head of Qualcomm Research China

Biography

Hao Xu is currently the head of Qualcomm Research China. Since 2003, Dr. Hao Xu has been working at Qualcomm R&D, where his main research focus is on wireless communications system design. He has led various research, prototyping, and 3GPP standardization topics from 3G to 5G wireless technologies. Since 2017, he has also been leading research in robotics and artificial intelligence, with focus on computer vision applications for robotics and on-device AI algorithm study. Prior to Qualcomm, he worked at Bell Lab's Wireless Communication Research Lab from 2000 to 2003, where the first MIMO system (BLAST) was invented. In 2003, he received the Bell-Labs President Gold Metal Award. Dr. Hao Xu received his B.S and M.S. from Moscow Power Engineering Institute and Technical University, Russia, in 1994 and 1996, respectively. He received his Ph.D. from Virginia Tech in 2000. During his Ph.D. research, he pioneered the millimeter-wave propagation research at 38 GHz and 60 GHz with Dr. T. Rappaport. In 1999, he received the IEEE Communications Society Steve Rice Award with Dr. G. Durgin and Dr. T. Rappaport. He has numerous journal publications and patents and had served a few years as an Associate Editor for IEEE Transactions on Wireless Communications. In addition, Dr. Hao Xu has been recognized as the Person of the Year "Golden Trend Award" by Huanqiu in 2019 and the Top 10 5G Leading Figures by Communications World in 2018.

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Participant

Mr. Shaobo Wang
Chief Expert of Wireless Communication Air Interface System at Huawei Wireless

Biography

Shaobo Wang is the Chief Expert of wireless communication air interface system, Wireless Network, Huawei. He joined Huawei after graduating from Zhejiang University in 2000. From 2000 to 2008, he was responsible for the design of baseband receiver algorithms for the 3G UTMS system. From 2008, he led the R&D work of physical-layer and low-MAC algorithms in GSM, UMTS, LTE, and 5G NR systems, laying a foundation for the competitiveness of Huawei's network products. Since 2017, he is the chief engineer leading 5G Advanced Technology Research. He has served and will serve as general and/or program co-chair of many international conferences/workshops.

Participant

Mr. Oliver Sun
Assistant general manager at Mediatek

Biography

Oliver Sun is currently the assistant general manager of communication system design headquarter at Mediatek, Inc., leading advanced wireless research and standardization, commercial system design, proof of concept prototyping and strategic technology roadmap. He received his Master degree in communication engineering from National Taiwan University in 2001. Oliver had received top innovation and contributor awards in MediaTek. He contributed cellular system algorithm and architecture design and led the teams to develop leading modem generations for MediaTek from 2G to 5G. Starting from 2019, Oliver started driving standard research in 3GPP, technical ECO system partnership, disruptive technology roadmap pipeline and advanced R&D for 6G innovations.

➤ Regular Session

Regular Session 1: MIMO Systems I

Time: Tuesday, 26 September, 10:30-12:00
Place: Public Area
Session Chair: Ang Li

Contents

1007: Exploiting Constructive Power Amplifier Nonlinearities through Symbol-Level Precoding
Guorui Wei, Ang Li, Xi'an Jiaotong University, China; Christos Masouros, University College London, China

1040: Linear One-Bit Precoding in Massive MIMO: Asymptotic SEP Analysis and Optimization
Zheyu Wu, Junjie Ma, Ya-Feng Liu, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, China; A. Lee Swindlehurst, University of California, United States of America

1073: Designing Group-Level Multi-User Precoding in Multi-Subcarrier Networks: IS Eesm the solution?
Xin Guan, Qingjiang Shi, Tongji University, China

1080: Learning by Over-the-Air Training: Distributed Precoding for Cell-Free Massive MIMO
Weijie Dai, Junkai Liu, Rui Wang, Yi Jiang, Fudan University, China

1087: Interference Exploitation MU-MISO Precoding under Per-Antenna Power Constraint
Yunsi Wen, Haonan Wang, Ang Li, Xuewen Liao, Xi'an Jiaotong University, China; Christos Masouros, University College London, United Kingdom of Great Britain and Northern Ireland

1214: CSI Type-II Codebook of Codebooks
Ryan Dreifuerst, Robert Heath, North Carolina State University, United States of America

Regular Session 2: Machine Learning for Wireless Communications and Networking I

Time: Tuesday, 26 September, 10:30-12:00
Place: Public Area
Session Chair: Dejan Vukobratovic

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1103: Enhancing CNN-Based Channel Estimation Using Transfer Learning in Ofdm Systems
Lingrui Zhu, Carsten Bockelmann, Armin Dekorsy, University of Bremen, Germany; Thorsten Schier, Salah Eddine Hajri, Technologies Sweden AB, Sweden

1160: Receiver-Agnostic Radio Frequency Fingerprint Identification via Feature Disentanglement
Hongli Liu, Shaoxian Zhu, Liu Yang, Qiang Li, Jingran Lin, School of Information and Communication Engineering, University of Electronic Science and Technology of China, China

1168: Radio Frequency Fingerprints Identification based on GAN Networks
Weilin Zhu, Ziyang Wang, Peng Cheng Laboratory, China; Jiaying Li, Hong Kong University of Science and Technology (Guangzhou), China; Qiang Li, Jingran Lin, University of Electronic Science and Technology of China, China; Sissi Xiaoxiao Wu, Shenzhen University, China

1232: Channel Estimation Based on Contrastive Feature Learning with Few Labeled Samples
Yihan Xu, Lixiang Lian, School of Information Science and Technology, ShanghaiTech University, China

1253: Spectrum Transformer: Wideband Spectrum Sensing using Multi-Head Self-Attention
Weishan Zhang, Yue Wang, Xiang Chen, Zhi Tian, George Mason University, United States of America

1255: Few-Shot Modulation Recognition with Feature Transformation and Meta-Learning
Wendi Xiao, Yuan Zeng, Yi Gong, Southern University of Science and Technology, China

1256: A Weighted Autoencoder-Based Approach to Downlink NOMA Constellation Design
Vukan Ninkovic, Dejan Vukobratovic, Faculty of Technical Sciences, University of Novi Sad, Serbia; Adriano Pastore, Carles Anton-Haro, Centre Tecnologic de Telecomunicacions de Catalunya (CTTC/iCERCA), Spain

Regular Session 3: Integrated Communications and Sensing

Time: Tuesday, 26 September, 10:30-12:00
Place: Public Area
Session Chair: Jianping Zheng

Contents

1055: Joint Precoding and Artificial Noise Design for Secure Transmission in ISAC system
Ruiwei Yang, Huiqin Du, Jinan University, China

1063: Two-Stage On-Grid Radar Parameter Estimation in OTFS based Dual-Function Radar-Communications
Xinyu Gong, Jianping Zheng, Xidian University, China

1199: Spatial Beamforming Design for ISAC Systems Under Per Antenna Power Constraint
Kaixin Li, Tian Lin, Qiucen Wu, Yu Zhu, Fudan University, China

1235: Beamforming Design for IRS-Assisted Integrated Sensing and Communication Systems in Clutter Environments
Chikun Liao, Feng Wang, Guangdong University of Technology, China

Regular Session 4: Resource Allocation

Time: Tuesday, 26 September, 15:00-16:30
Place: Public Area
Session Chair: Kaiming Shen

Contents

1012: Rate-Compatible Puncturing and Shortening of Short PAC Codes for 6G URLLC
Xianwen Zhang, Ming Jiang, Mingyang Zhu, Chunming Zhao, Southeast university, China; Lijie Hu, China Mobile Research Institute, China

1017: Max-and-Min Fractional Programming for Communications and Sensing
Yannan Chen, Kaiming Shen, Chinese University of Hong Kong, Shenzhen, China; Licheng Zhao, Shenzhen Research Institute of Big Data, China

1079: An Efficient Decomposition Algorithm for Large-Scale Network Slicing
Wei-Kun Chen, Beijing Institute of Technology, China; Ya-Feng Liu, Rui-Jin Zhang, Yu-Hong Dai, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, China; Zhi-Quan Luo, Shenzhen Research Institute of Big Data and The Chinese University of Hong Kong, China

1101: Non-Orthogonal Multiplexing in the FBL Regime Enhances Physical Layer Security with Deception
Bin Han, Hans Dieter Schotten, Rheinland-Pfälzische Technische Universität Kaiserslautern-Landau, Germany; Yao Zhu, Anke Schmeink, Rheinisch-Westfälische Technische Hochschule Aachen, Germany

1142: Qmix-Based Cross-Domain Transmission Routing for Time-Sensitive and Deterministic Networks
Wenxuan Wang, Wenyong Wang, University of Electronic Science and Technology of China, China; Bochun Wu, Fudan University, China; Sai Zou, Guizhou University, China; Haisheng Yu, Macau University of Science and Technology, China; Wei Ni, CSIRO, Australia; Ji Zhang, China Telecom Co. LTD, China

1252: Optimization of Hierarchical-Qam Based Downlink Multiple Access with Statistical CSI
Jinkang Zhu, Ming Zhao, University of Science & Technology of China, China; Shengli Zhou, University of Connecticut, United States of America

1258: Robust and Reliable Stochastic Resource Allocation via Tail Waterfilling
Gokberk Yaylali, Dionysios Kalogerias, Yale University, United States of America

1265: Distributed Computing of Functions of Structured Sources with Helper Side Information
Derya Malak, EURECOM, France

1146: RF-Based Simultaneous Localization and Source Seeking for Multi-Robot Systems
Ke Xu, Rui Zhang, He (Henry) Chen, The Chinese University of Hong Kong, Hong Kong

Regular Session 5: Reconfigurable Intelligent Surfaces

Time: Tuesday, 26 September, 15:00-16:30
Place: Public Area
Session Chair: Cong Sun

Contents

1006: Sum Rate Maximization with Discrete Phase Shift for Reconfigurable Intelligent Surface Aided Broadcast Channel

Kaimin Wang, Cong Sun, Beijing University of Posts and Telecommunications, China

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1008: Channel Estimation with Reduced Phase Allocations in RIS-Aided Systems

Benedikt Fesl, Andreas Faika, Nurettin Turan, Michael Joham, Wolfgang Utschick, Technical University of Munich, Germany

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1072: Achievable Rate Maximization for RIS-UAV Assisted Vehicular Communication Network

Sun Wenxue, Xu Zhuoran, Zhu Mingkai, Li Longze, Ni Yiyang, Zhao Haitao, Nanjing University of Posts and Telecommunications, China

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1077: Does an IRS Degrade Out-of-Band Performance?

Yashvanth L, Chandra Murthy, Indian Institute of Science, India

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1105: High SNR Analysis of RIS-Aided Mimo Broadcast Channels

Dominik Semmler, Michael Joham, Wolfgang Utschick, Technische Universität München, Germany

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1125: Joint Active and Passive Beamforming for IRS-Aided Multiuser Systems with Low-Resolution DACs

Hongwei Wang, Yujun Luo, Jun Fang, University of Electronic Science and Technology of China, China

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1158: THzCondenser: Beamforming Design for RIS-Aided THz Wideband Communication Systems

Yihang Jiang, Ziqin Zhou, Yi Gong, Southern University of Science and Technology, China; Xiaoyang Li, Shenzhen Research Institute of Big Data, China

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1240: Multiuser Tracking for Reconfigurable Intelligent Surface Aided Mimo-Ofdm Systems: A Variational Bayesian Approach

Boyu Teng, Xiaojun Yuan, The National Key Lab. on Wireless Commun., UESTC, China; Rui Wang, The College of Electronics and Information Engineering, Tongji University, China

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1242: Hybrid Active-Passive IRS-Assisted Framework in Uplink Noma Communication

Chi-Wei Chen, Wen-Chiao Tsai, An-Yeu Wu, National Taiwan University, Taiwan

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Regular Session 6: MIMO Systems II

Time: Wednesday, 27 September, 10:00-11:30
Place: Public Area
Session Chair: Ying-Ren Chien

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1023: Exploiting Channel Sparsity in Massive MIMO Blind Signal Detection via l2 - l1 Optimization Over the Stiefel Manifold

Yuchen Feng, Fan Fei, Jinyan Fan, Shanghai Jiao Tong University, China; Ying Zhang, Jin Wu, Yixin Wu, Songyan Xue, Huawei Technologies Co., Ltd., China

1054: Blind MIMO Detection for Doubly-Selective Fading Channels

Yi Yao, Shengsong Luo, Chongbin Xu, Die Hu, Xin Wang, Fudan University, China

1108: Closed-Form Detection Error Rate Analysis in Physical Layer Anonymous Communications

Yifan Cui, Zhongxiang Wei, Tongji University, China; Dawei Wang, Northwestern Polytechnical University, China; Christos Masouros, University College London, United Kingdom of Great Britain and Northern Ireland; Qinbo Wang, China Mobile Group Co., Ltd., China

1163: An Efficient Algorithm Design of MIMO-OFDM Systems for Co-Channel Interference Mitigation

Junkai Liu, Ziyu Wen, Wei Zhang, Yi Jiang, Fudan University, China

1245: Joint Active User Detection, Channel Estimation, and Data Detection for Massive Grant-Free Transmission in Cell-Free Systems

Gangle Sun, Mengyao Cao, Wenjin Wang, Wei Xu, Southeast University, China; Christoph Studer, Eidgenössische Technische Hochschule Zürich, Switzerland

1254: Leveraging User-Wise SVD for Accelerated Convergence in Iterative ELAA-MIMO Detections

Jiuyu Liu, Yi Ma, Rahim Tafazolli, University of Surrey, United Kingdom of Great Britain and Northern Ireland

1262: Random Projection Based Efficient Detectors in Massive MIMO Communication Networks

Gopal Chamarthi, Adarsh Patel, Indian institute of Technology Mandi, India; Rameshwar Pratap, Indian institute of Technology Hyderabad, India

Regular Session 7: Machine Learning for Wireless Communications and Networking II

Time: Wednesday, 27 September, 10:00-11:30
Place: Public Area
Session Chair: Faramarz Fekri

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1086: Communication Channel-Aware Federated Distillation for Massive MIMO Systems

Yuchen Mu, Navneet Garg, Tharmalingam Ratnarajah, The University of Edinburgh, United Kingdom of Great Britain and Northern Ireland

1156: FEDGSM: Efficient Federated Learning for LEO Constellations with Gradient Staleness Mitigation

Lingling Wu, Jingjing Zhang, Fudan University, China

1195: ATTRI-FED: A GIB Framework for Attribute-Based Privacy and Communication-Efficient Federated Learning

Ahmet Faruk Saz, Faramarz Fekri, Yashas Malur Saidutta, Georgia Institute of Technology, United States of America; Mustafa Riza Akdeniz, Brandon Edwards, Nageen Himayat, Intel Corporation, United States of America

1219: Approximate Message Passing for Not So Large niid Generalized Linear Models

Zilu Zhao, Fangqing Xiao, Dirk Slock, EURECOM, France

1024: Learning Based Compressive Beam Detection Using Real-Valued Beamspace Covariance Processing for MMWAVE Communications

Zhibin Yu, Ahmed Abdelkader, Xiaofeng Wu, Huawei Technologies Duesseldorf GmbH, Germany; Martin Haardt, Ilmenau University of Technology, Germany

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Regular Session 8: Internet of Things

Time: Wednesday, 27 September, 14:30-16:00
Place: Public Area
Session Chair: Henry Chen

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1015: Low Complexity and High Accuracy Positioning for IIOT Applications
Mengting Liu, Xin Gao, Jianghua Liu, Huawei, HiSilicon, China

1062: Long Range Barcode Scan Using Resonant Beam
Xiaozhe Li, Shuaifan Xia, Qingwen Liu, Yunfeng Bai, Tongji University, China

1111: Laser Rangefinder-Based Multi-Robot Cooperative Localization Using Cloud Computing
Yihan Zhu, Mingqing Liu, Haoming Liu, Shuze Shen, Shuaifan Xia, Qingwen Liu, Hai Lu, Qunhui Yang, Tongji University, China

1167: Lora Preamble Detection Robust to Inter-Channel Interference
Joachim Tapparel, Andreas Burg, École polytechnique fédérale de Lausanne, Switzerland; Alexios Balatsoukas-Stimming, Eindhoven University of Technology, Netherlands

1198: Physical-Layer Authentication of Commodity Wi-Fi Devices via Micro-Signals on CSI Curves
Ruiqi Kong, He (Henry) Chen, The Chinese University of Hong Kong, Hong Kong

1227: Harnessing the Power of Repetition Structure in Ultra-Narrowband IOT
Spyridon Peppas, Paris Karakasis, Nicholas Sidiropoulos, University of Virginia, United States of America; Danijela Cabric, University of California, United States of America

1233: ULA-Based Analog Beamforming and Mode Design for LAP-Assisted Multicasting Communication
Xiaopeng Yuan, Anke Achmeink, RWTH Aachen University, Germany; Peng Wu, Yulin Hu, Wuhan University, China

Regular Session 9: Channel Modeling and Equalization

Time: Wednesday, 27 September, 14:30-16:00
Place: Public Area
Session Chair: Jiang Yi

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1038: An Exploration-Estimation Beamforming Scheme For 5GNR FDD Massive MIMO Communications

Kai Li, Zhi-Quan Luo, The Chinese University of Hong Kong, Shenzhen, China; Wenqiang Pu, Shenzhen Research Institute of Big Data, China

1122: Pulse Shape-Aided Multipath Delay Estimation for Fine-Grained WIFI Sensing

Ke Xu, He (Henry) Chen, The Chinese University of Hong Kong, Hong Kong; Chenshu Wu, The University of Hong Kong, Hong Kong

1179: Delay-Doppler Domain Channel Estimation for DZT-Based OTFS Systems

Sai Pradeep Muppaneni, Sandesh Rao Mattu, Ananthanarayanan Chockalingam, Indian Institute of Science, India

1190: Compressed Sensing Based Channel Estimation for GFDM Systems in High Mobility Scenario

Hamidreza Shayanfar, Wei-Ping Zhu, M.N.S Swamy, Concordia University, Canada

Regular Session 10: Signal Processing for Optical, Satellite, and Underwater

Time: Wednesday, 27 September, 14:30-16:00
Place: Public Area
Session Chair: Xiumei Yang

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1016: Joint Channel Selection and Spectrum Sensing in Integrated Satellite-Terrestrial Networks
Mengying Zhang, Xiumei Yang, Zhiyong Bu, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences; University of Chinese Academy of Sciences, China

1021: Weak Signal Detection based on Beta Divergence
Jiahao Liu, Haoxuan Liu, Wenqiang Pu, Rui Zhou, Shenzhen Research Institute of Big Data, China; Ming-Yi You, Science and Technology on Communication Information Security Control Laboratory, China; Qingjiang Shi, Tongji University, China

1104: Optimality Analysis and Efficient Scheduling for Massive IOT-Leo Satellite NETWORKS
Xiaohui Zhao, Tong-Xing Zheng, Lei Lei, Xi'an Jiaotong University, China; Yaxiong Yuan, Anyue Wang, University of Luxembourg, China

1267: Inter-Vector Interference Self-Cancellation Scheme for Differential OSDM in Underwater Acoustic Communications
Yujie Wang, Qunfei Zhang, Shengqian Ma, Lingling Zhang, Jing Han, Northwestern Polytechnical University, China; Geert Leus, Delft University of Technology, China

Regular Session 11: MIMO Systems III

Time: Thursday, 28 September, 9:30-11:00
Place: Public Area
Session Chair: Lipeng Zhu

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1067: Multiuser Communication Aided by Movable Antenna

Lipeng Zhu, Wenyan Ma, National University of Singapore, Singapore; Boyu Ning, University of Electronic Science and Technology of China, China; Rui Zhang, National University of Singapore & The Chinese University of Hong Kong, Singapore

1081: A Rate-Splitting Approach for RIS-Aided Massive MIMO Networks with Transceiver Design

Hanxiao Ge, Navneet Garg, Tharmalingam Ratnarajah, The University of Edinburgh, United Kingdom of Great Britain and Northern Ireland; Anastasios Papazafeiropoulos, University of Hertfordshire, United Kingdom of Great Britain and Northern Ireland

1082: Joint Design of Energy-Based Constellations for Two-User Noncoherent Massive SIMO Systems

Mengdi Liu, Zheng Dong, Hongji Xu, Zhi Liu, Shandong University, China; He (Henry) Chen, The Chinese University of Hong Kong, China

1138: How Resilient Are Cell-Free Massive MIMO OFDM Systems to Propagation Delays?

Anubhab Chowdhury, Chandra Murthy, Indian Institute of Science, Bangalore, India

1144: A Robust Approach to Dynamic Pilot Assignment in Distributed Massive MIMO Networks

Han Yu, Hao Guo, Tommy Svensson, Chalmers university of technology, Sweden; Xinping Yi, University of Liverpool, United Kingdom of Great Britain and Northern Ireland

1151: Analysis of Oversampling in Uplink Massive MIMO-OFDM with Low-Resolution ADCS

Mengyuan Ma, Nhan Thanh Nguyen, Italo Atzeni, Markku Juntti, University of Oulu, Finland

1210: Unicast Beamforming in the Presence of a Smart Reactive Jammer: A Stackelberg Game Approach

Bai Shi, Huaizong Shao, Jingran Lin, Zhikai Zhai, University of Electronic Science and Technology of China, China

Regular Session 12: Machine Learning for Wireless Communications and Networking III

Time: Thursday, 28 September, 9:30-11:00
Place: Public Area
Session Chair: Jingjing Zhang

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1039: Learning Beams Adaptive to the Environment: An RSRP-based Codebook Design

Xinzhi Ning, Qingjiang Shi, Tongji University, China; Shutao Zhang, Tsung-Hui Chang, The Chinese University of Hong Kong, Shenzhen, China; Ye Xue, Shenzhen Research Institute of Big Data, China; Xi Zheng, Huawei Technologies, China

1048: Cellular Network Optimization Using Unfolding-Based Graph Neural Networks

Pengcheng He, Yijia Tang, Qingjiang Shi, Tongji University, China; Fan Xu, Peng Cheng Laboratory, China

1065: Unsupervised Parameter Estimation Using Model-Based Decoder

Franz Weißer, Michael Baur, Wolfgang Utschick, Technical University Munich, Germany

1066: Model Order Selection with Variational Autoencoding

Michael Baur, Franz Weißer, Benedikt Böck, Wolfgang Utschick, Technical University of Munich, Germany

1115: Semi-Supervised Variational Inference over Nonlinear Channels

David Burshtein, Eli Bery, Tel Aviv University, Israel

1145: Space-Time Design for Deep Joint Source Channel Coding of Images over MIMO Channels, Chenghong Bian

Yulin Shao, Haotian Wu, Deniz Gunduz, Imperial College London, United Kingdom of Great Britain and Northern Ireland

1149: A Transformer Based Approach for Wireless Resource Allocation Problems Involving Mixed Discrete and Continuous Variables

Bingqing Song, Zhicheng Zhou, Mingyi Hong, University of Minnesota, United States of America; Chenliang Li, The Chinese University of Hong Kong, Shenzhen, China; Xiao Fu, Oregon State University, China; Dongning Guo, Northwestern University, United States of America

Regular Session 13: Energy Efficiency and Harvesting

Time: Thursday, 28 September, 9:30-11:00
Place: Public Area
Session Chair: Shunqin Zhang

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1031: AOI Minimization for Sensor Networks with Adaptive Packet and Energy Arrival
Ruiqi Zheng, Mengyuan Li, Yuyang Xia, Yonghao Ji, Xiaoli Xu, Southeast University, China

1059: Transmitter Rotation for Field of View Enhancement in Resonant Beam Wireless Power Transfer
Shun Han, Mengyuan Xu, Mingqing Liu, Shuaifan Xia, Qingwen Liu, Tongji, China

1154: Secrecy Energy Efficiency Maximization for UAV-Enabled FDMA systems
Jie Sun, Zhichao Sheng, Yanzan Sun, Yong Fang, Shanghai University, China; Ali Arshad Nasir, King Fahd University of Petroleum and Minerals, Saudi Arabia

1229: Energy-Efficient Transmit Beamforming and Antenna Selection with Non-Linear PA Efficiency
Yuan Fang, Gaoyuan Cheng, Guanlin Wu, Jie Xu, The Chinese University of Hong Kong, Shenzhen, China; Yi Huang, Tongji University, China; Chuan Ma, Yinghao Jin, Huawei Technologies Co., Ltd., Shanghai, China

1247: PV Panel/Battery Sizing and Resource Allocation for Smart-Grid Powered C-Ran
Xiaojing Chen, Xiaomei Zhang, Shunqing Zhang, Yanzan Sun, Shugong Xu, Shanghai University, China; Wei Ni, Commonwealth Scientific and Industrial Research Organization, Australia; Xin Wang, Fudan University, China

1249: Two-Scale Stochastic Optimization of Mobile Edge Computing Systems Powered by Smart Grid
Xiaojing Chen, Si Chen, Shunqing Zhang, Yanzan Sun, Shugong Xu, Shanghai University, China; Wei Ni, Commonwealth Scientific and Industrial Research Organization (CSIRO), Australia; Xin Wang, Fudan University, China

➢ Special Session

Special Session 1: Over-the-Air Computation and Learning

Time: Tuesday, 26 September, 10:30-12:00
Place: Public Area
Session Chair: Feng Wang

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1035: Communication-Efficient Vertically Split Inference via Over-the-Air Computation
Peng Yang, Ting Wang, East China Normal University, China; Dingzhu Wen, Yuanming Shi, ShanghaiTech University, China; Qunsong Zeng, The University of Hong Kong, Hong Kong

1057: Robust Over-The-Air Aggregation for uplink OFDM system under burst sparse interference
Nilesh Kumar Jha, Huayan Guo, Vincent K N Lau, Hong Kong University of Science and Technology, Hong Kong

1083: Over-the-Air View-Pooling for Low-Latency Distributed Sensing
Zhiyan Liu, Qiao Lan, Kaibin Huang, The University of Hong Kong, Hong Kong; Anders Kalør, Petar Popovski, Aalborg University, Denmark

1184: Asynchronous Personalized Learning for Heterogeneous Wireless Networks
Xiaolan Liu, Loughborough University, United Kingdom of Great Britain and Northern Ireland; Jackson Ross, Independent, United Kingdom of Great Britain and Northern Ireland; Yue Liu, Macao Polytechnic University, China; Yuanwei Liu, Queen Mary University of London, United Kingdom of Great Britain and Northern Ireland

Special Session 2: Semantic-aware Communication

Time: Tuesday, 26 September, 10:30-12:00
Place: Public Area
Session Chair: Wenyi Zhang

Contents

1045: Semantic Communication Based on Entity Information Enhancement
Xi Zhang, Dan Song, Congduan Li, Sun Yat-sen University, China; Linqi Song, City University of Hong Kong, Hong Kong

1136: Communication-Efficient Multiuser AI Downloading via Reusable Knowledge Broadcasting
Hai Wu, Qunsong Zeng, Kaibin Huang, The University of Hong Kong, Hong Kong

1139: Image Semantic Communication over Fading Channel: A Learned Broadcast Approach
Kangning Ma, Shuo Shao, Meixia Tao, Shanghai Jiao Tong University, China

1166: A Hybrid Wireless Image Transmission Scheme with Diffusion
Xueyan Niu, Bo Bai, Weichao Chen, Guohua Zhou, Huawei Technologies Co. Ltd., Hong Kong; Xu Wang, City University of Hong Kong, Hong Kong; Deniz Gündüz, Imperial College London, United Kingdom of Great Britain and Northern Ireland

1197: Semantic Knowledge Base Synchronization by Limited Feedback Assistance
Qi Cao, Fei Wan, Yameng Du, Baoming Bai, Xidian University, China

Special Session 3: Rate-Splitting Multiple Access for 6G

Time: Tuesday, 26 September, 15:00-16:30
Place: Public Area
Session Chair: Yijie Mao

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1027: Data-Driven Deep Learning-Based Rate-Splitting Multiple Access for FDD Massive MIMO-OFDM Systems with Implicit CSI

Minghui Wu, Zhen Gao, Chun Hu, Zhongxiang Li, Beijing Institute of Technology, China

1091: Enhancing Security in RSMA Networks with Cooperative Jamming and Relaying

Haoran Pang, Fei Ji, Jian Zhao, Miaowen Wen, South China University of Technology, China; Zhaolong Ning, Chongqing University of Posts and Telecommunications, China

1113: Multi-Functional RIS for Sum-Rate Maximization in Rate-Splitting Multiple Access Networks

Wen Wang, Wanli Ni, Hui Tian, Beijing University of Posts and Telecommunications, China; Zhaohui Yang, Zhejiang University, China; Changsheng You, Southern University of Science and Technology, China; Dusit Niyato, Nanyang Technological University, Singapore

1188: Under Whose Umbrella: The Collaborative Benefits of RS and RIS in Covert Communications

Fatemeh Lotfi, Kevin Weinberger, Stefan Roth, Aydin Sezgin, Ruhr University Bochum, Germany

1230: RSMA-Enabled Multigroup Multicast Rate-Matching for Multibeam Satellite Systems

Juhwan Lee, Jungwoo Lee, Seoul National University, Korea, Republic of; Jaehyup Seong, Wonjae Shin, Ajou University, Korea, Republic of; Didier Le Ruyet, Conservatoire National des Arts et Metiers, France; Longfei Yin, Bruno Clerckx, Imperial College London, United Kingdom of Great Britain and Northern Ireland

Special Session 4: Optimization Theory and Algorithms for 5G and Beyond

Time: Tuesday, 26 September, 15:00-16:30
Place: Public Area
Session Chair: Yafei Liu

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1009: Blind Beamforming for Multiple-IRS Assisted Wireless Transmission
Fan Xu, Peng Cheng Laboratory, China; Jiawei Yao, Wenhai Lai, Kaiming Shen, Zhi-Quan Luo, The Chinese University of Hong Kong (Shenzhen), China; Xin Li, Xin Chen, Huawei Technologies, China

1043: Active Sensing for Reciprocal MIMO Channels
Tao Jiang, Wei Yu, University of Toronto, Canada

1153: Beam Scanning for Integrated Sensing and Communication in IRS-aided mmWave Systems
Renwang Li, Shu Sun, Meixia Tao, Shanghai Jiao Tong University, Chile; Xiaodan Shao, Rui Zhang, The Chinese University of Hong Kong, Shenzhen, China

1174: An Efficient Global Algorithm for One-Bit Maximum-Likelihood MIMO Detection
Cheng-Yang Yu, Wei-Kun Chen, Beijing Institute of Technology, China; Mingjie Shao, Shandong University, China; Ya-Feng Liu, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, China; Wing-Kin Ma, The Chinese University of Hong Kong, Hong Kong

1200: Iterative Delay-Scale Spread Channel Estimation and Variational Soft Symbol Decoding
Niladri Halder, Arunkumar K. P., Chandra R. Murthy, Indian Institute of Science, India

Special Session 5: Timely and Private Machine Learning over Networks

Time: Wednesday, 27 September, 10:00-11:30
Place: Public Area
Session Chair: Howard H. Yang

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1102: Decentralized Learning over Wireless Networks: The Effect of Broadcast with Random Access
Zheng Chen, Martin Dahl, Erik G. Larsson, Linköping University, Sweden

1132: Adaptive Gradient Methods for Over-the-Air Federated Learning
Chenhao Wang, Howard Hao Yang, Zhejiang University, China; Zihan Chen, Singapore University of Technology and Design, China; Nikolaos Pappas, Linköping University, Sweden

1137: Delayed Random Partial Gradient Averaging for Federated Learning
Xinyi Hu, Zhejiang University, China

1157: Joint Sparsification and Quantization for Wireless Federated Learning under Communication Constraints
Junshen Su, Xijun Wang, Xiang Chen, Sun Yat-sen University, China; Ray-Guang Cheng, National Taiwan University of Science and Technology, Taiwan

Special Session 6: Practical Evaluation of Integrated Communication and Sensing in 6G

Time: Wednesday, 27 September, 10:00-11:30
Place: Public Area
Session Chair: Jose R. Pineiro

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1011: Overhead-Free Channel Estimation Based on Phase-Domain Injected Training for FM-OFDM
Kun Chen Hu, Maria Julia Fernandez-Getino Garcia, Ana Garcia Armada, Universidad Carlos III de Madrid, Spain

1092: Propagation Characterization Based on Ray-Tracing at 60 GHZ Band: A Typical Office Scenario and Validation Measurements
Randy Verdecia Peña, Andres E. Grases-Valenzuela, José I. Alonso Montes, Universidad Politécnica de Madrid, Spain

1095: Measurement Environment for RIS Enhanced Wireless Channels
Florian Kiss, Robert Langwieser, Richard Prüller, Herbert Groll, Shengya Zhao, Markus Rupp, TU Wien, Austria

1152: 300 GHZ Experiment-Based Ranging and Mapping in Indoor Environments
Yuanbo Li, Yiqin Wang, Chong Han, Shanghai Jiao Tong University, China; Yi Chen, Ziming Yu, Huawei Technologies Co., Ltd, China

1182: A Novel Geometry-Based Spatio-Temporal Cluster Tracking Algorithm
Pengqi Zhu, José Rodríguez-Piñeiro, Tongji, China

1192: Terahertz Channel Modeling for Integrated Sensing and Communication
Jiayue Han, Danping He, Beijing Jiaotong university, China

1224: Vortex Wavefront FMCW ISAC Model: A Blender-Based Evaluation
Yuan Liu, Linlong Wu, Bhavani M. R. Shankar, University of Luxembourg, Luxembourg; Wen-Xuan Long, Rui Chen, Xidian University, China

Special Session 7: Efficient Signal Processing for LEO Satellite Communications

Time: Wednesday, 27 September, 10:00-11:30
Place: Public Area
Session Chair: Chenhao Qi

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1064: Beam Position Design for Low-Latency Leo Satellite Communications with Beam Hopping
Leyi Lyu, Chenhao Qi, Southeast University, China; Fu-Chun Zheng, Harbin Institute of Technology, China

1068: Outage Analysis of Noma-Based Cognitive Hybrid Satellite Terrestrial Network with Interference Constraints
Xinyu Wang, Min Jia, Qing Guo, Harbin Institute of Technology, China

1114: On the Performance of RIS-aided OFDM-Based LEO Satellite Networks with Doppler Effects
Mesut Toka, Wonjae Shin, Ajou University, Korea, Republic of; Aryan Kaushik, University of Sussex, United Kingdom of Great Britain and Northern Ireland; Ana García Armada, Universidad Carlos III de Madrid, Spain

1164: A Sparse Bayesian Learning Method of Joint Activity Detection and Channel Estimation for Leo Grant-Free Random Access
Chong Xu, Feng Liu, Junyi Yang, Zhenyu Xiao, Zhu Han, Beihang University, China

Special Session 8: Learning for Integrated Sensing and Communication

Time: Wednesday, 27 September, 14:30-16:00
Place: Public Area
Session Chair: Nuria Gonzalez-Prelcic

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1037: Uplink and Downlink Communications Fusion for Enhanced Radar Sensing

Akhileswar Chowdary, NYU Tandon School of Engineering, United States of America; Ahmad Bazzi, NYU Abu Dhabi, United Arab Emirates; Marwa Chafii, NYU Abu Dhabi and NYU Tandon School of Engineering, United Arab Emirates

1099: Time-Frequency-Space Signal Design with Dynamic Subarray for Terahertz Integrated Sensing and Communication

Yongzhi Wu, Chong Han, Shanghai Jiao Tong University, China

1194: Deep Learning-Based Cramér-Rao Bound Optimization for Integrated Sensing and Communication in Vehicular Networks

Xiaoqi Zhang, Weijie Yuan, Jun Wu, Zhongjie Li, Southern University of Science and Technology, China; Chang Liu, The Hong Kong Polytechnic University, China

1225: Sparse Recovery with Attention: A Hybrid Data/Model Driven Solution for High Accuracy Position and Channel Tracking at mmWave

Yun Chen, Nuria Gonzalez-Prelcic, North Carolina State University, United States of America; Takayuki Shimizu, Hongsheng Lu, Chinmay Mahabal, Toyota Motor North America, United States of America

Special Session 9: Communication and Computation Cooperation for Wireless Edge Intelligence

Time: Wednesday, 27 September, 14:30-16:00

Place: Public Area

Session Chair: Sheng Zhou

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1208: Noma-Enabled Delay Minimization for Marine Multi-Access Edge Computing Networks: A Contract Incentive Scheme

Zhishen Luo, Minghui Dai, University of Macao, Macao; Yuan WU, University of Macau, Macao; Liping QIAN, Zhejiang University of Technology, China; Bin Lin, Dalian Maritime University, China; Zhou Su, Xi'an Jiaotong University, China

1216: Fast Optimal Antenna Selection for Massive MIMO

Ke He, Thang Vu, Symeon Chatzinotas, Bjorn Ottersten, University of Luxembourg, Luxembourg

1218: V2V-Assisted Timely Hierarchical Federated Learning

Jintao Yan, Zhaojun Nan, Sheng Zhou, Tsinghua univeristy, China

1241: An FPGA-based Low Latency Sensing and Communication Platform for Collaborative Autonomous Driving

Wei Zhang, Yuhang Gu, Yi Shi, Limin Jiang, Shan Li, Yijie Huang, Shan Cao, Zhiyuan Jiang, Shanghai University, China; Ruiqing Mao, Sheng Zhou, Tsinghua University, China

Special Session 10: Delay Doppler Signal Processing for Radar and Communications

Time: Thursday, 28 September, 9:30-11:00
Place: Public Area
Session Chair: Wei Yuan

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1112: Joint Radar-Communications via Laguerre-Gaussian Vortex Beams
Wanghan Lv, Nanjing Tech University, China; Kumar Vijay Mishra, The University of Iowa, United States of America; Jinsong Hu, Fuzhou University, China

1130: Reduced-Complexity Cross-Domain Iterative Detection for OTFS Modulation via Delay-Doppler Decoupling
Mengmeng Liu, Baoming Bai, Xidian University, China; Shuangyang Li, Giuseppe Caire, Technical University of Berlin, Germany

1162: Performance of ODDM with Imperfect Channel Estimation
Kehan Huang, Min Qiu, Jinhong Yuan, University of New South Wales, Australia; Jun Tong, University of Wollongong, Australia; Hai Lin, Osaka Metropolitan University, Australia

1187: Distributed Sensing and Centric Computing via FMCW Waveform in Wireless Sensor Network
Linlong Wu, Kunwar Pritiraj Rajput, Yuan Liu, Bhavani Shankar, University of Luxembourg, Luxembourg

Social Program

➢ Welcome Reception

Time: Monday, 25 September, 18:00-20:00
Venue: Gucun Park Hotel
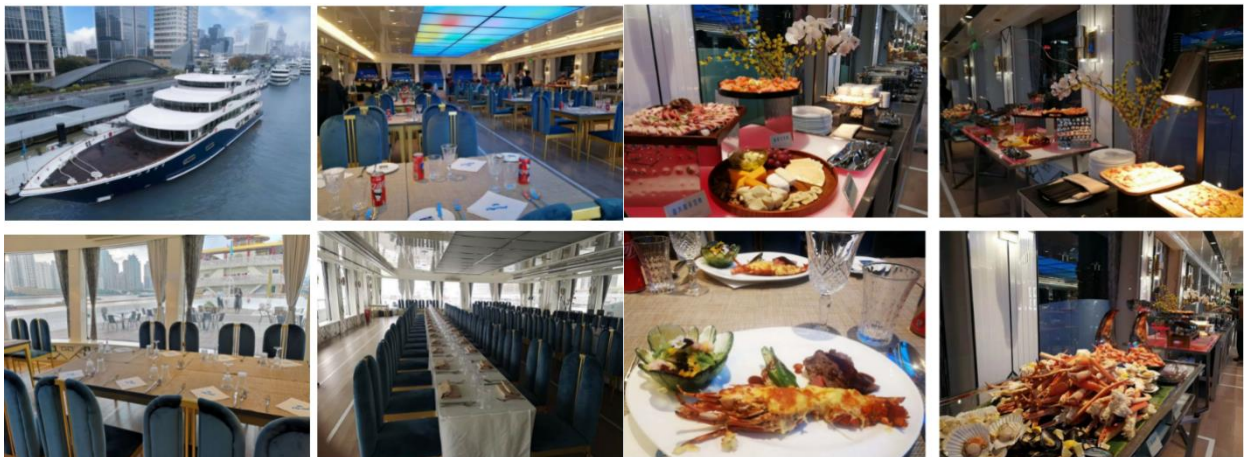**Address:** 4788 Hutai Road, Baoshan District

➢ Banquet Dinner

Time: Wednesday, 27 September, 17:30-21:00
Venue: Crystal Princess
Address: No. 99, Waima Road (Zone 3, the 16 Pu)

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