2019 IEEE 2nd International Conference on Electronic Information and Communication Technology

ICEICT 2019

Co-sponsors:

IEEE AP/MTT/EMC Joint Chapter (Harbin)

微波學報

Harbin, China•January 20-22, 2019
http://www.iceict.org/

Contents

Venue

Qi-hang activity center 启航活动中心

Address: 145 Nantong Street, Harbin Engineering University

Registration

International exchange center 国际交流中心

Address: 145 Nantong Street, Harbin Engineering University

Program at a Glance

Sunday, January 20, 2019		
09:00-19:00	Registration	at the hall of International exchange center 国际交流中心 1 楼大厅

Monday, January 21, 2019		
08:30-09:00	Opening Ceremony	at Sunshine Hall of Qi-hang activity center 启航活动中心阳光大厅
09:00-09:20	Group Photo	
09:20-09:50	Keynote Speech I	Academic Lecture Hall 4F, Qi-hang activity center 启航活动中心 4 楼学术报告厅
09:50-10:10	Coffee Break	
10:10-10:40	Keynote Speech II	
10:40-11:10	Keynote Speech III	
11:10-11:40	Keynote Speech IV	
11:40-13:30	Lunch	1F, Cafeteria of International exchange center 国际交流中心 1 楼餐厅
14:00-15:20	Invited Speech 1-2-3	4F Academic Lecture Hall
	Special Session 1	Bohai Hall: 428-429
	Oral Session 1 Invited Speech 15	Beihai Hall: 432-433 Huanghai Hall: 430-431
15:20-15:40	Coffee Break and Poster Session	
15:40-17:00	Invited Speech 4-5-6	4F Academic Lecture Hall
	Special Session 6	Bohai Hall: 428-429
	Oral Session 2	Beihai Hall: 432-433
	Invited Speech 13-14 Special Session 3	Huanghai Hall: 430-431
17:30-20:00	Dinner	Get together in the lobby of Qi-hang activity center Dining out by bus

Tuesday, January 22, 2019		
08:30-09:00	Keynote Speech V	4F Academic Lecture Hall
09:00-09:30	Keynote Speech VI	
09:30-09:50	Coffee Break and Poster Session	
09:50-11:00	Invited Speech 10-11-12	4F Academic Lecture Hall
	Invited Speech 8-9 Oral Session-3	Beihai Hall: 432-433 Huanghai Hall: 430-431
	Special Session 2	Bohai Hall: 428-429
11: 00-12:00	Invited Speech 7 Oral Session-4	4F Academic Lecture Hall
	Special Session 5, 9	Bohai Hall: 428-429
	Special Session 7	Beihai Hall: 432-433
	Special Session 8	Huanghai Hall: 430-431
12:00-13:30	Lunch	1F, Cafeteria of International exchange center 国际交流中心 1 楼餐厅

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General Chair's Welcome

On behalf of the Organizing Committee of the 2019 IEEE 2nd International Conference on Electronic Information and Communication Technology(ICEICT2019), it is my great honor and pleasure to welcome you to this conference, to be held in Harbin, China, January 20 to 22, 2019.

This year, the conference is sponsored by Harbin Engineering University, co-sponsored by Harbin Institute of Technology, Tongji University, and Changsha University of Science & Technology, in addition, IEEE is the technical co-sponsor. Thanks the support from IEEE Harbin AP/MTT/EMC Joint Chapter, Journal of Microwave, Science and Technology on Electromagnetic Compatibility Laboratory, and China Shipbuilding Industry Corporation, 701 Research Institute.

The technologies in Electronics Information, Communications have been playing important roles in our modern civilization and expected to stay as main characters in the future. The ICEICT2019 intends to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in these field. The conference welcomes contributions that could enhance the collision of excellent ideas and generate sparkle of wisdom between researchers all over the world.

Harbin city, the northern most provincial capital of China, situated at the center of northeast Asia, has always been the prime city of trade with Russia and East Europe, it is beautiful and richly-endowed city, known as the "pearl of black swan ", "City of Ice" and "East-small Paris". The view here is amazing in Winter

HEU is a national key university of glorious history and fine traditions, subordinate to the Commission of Science, Technology and Industry for National Defense. Moreover, HEU is an important base for talent cultivation and scientific research in the fields of ship industry, marine equipment, marine engineering, nuclear application and information and communications as well. She impresses everyone on her beautiful campus and culture. I hope that you will find the conference and your stay in Harbin both valuable and enjoyable.

This conference has received enthusiastic responses, with 320 submitted papers from nearly 50 university and regions. The Technical Program Committee consists of over 60 international specialists in the paper review and selection process. Based on careful peer review, 210 papers were accepted, the conference also invited keynote speeches from renowned researchers in the field.

At last, I wish the conference a great success, and wish you all pleasant stay in HARBIN.

Prof. Zheng Dou

Harbin Engineering University.
General Chair, ICEICT2019

Keynote Speeches

Keynote Speech I: On Deep Learning Based Indoor Localization

Speaker's bio:

Shiwen Mao received his Ph.D. in electrical and computer engineering from Polytechnic University (now New York University), Brooklyn, NY in 2004. He is the Samuel Ginn Distinguished Professor, and Director of the Wireless Engineering Research and Education Center (WEREC) at Auburn University, Auburn, AL. His research interests include 5G wireless, IoT, and Smart Grid. He is a Distinguished Speaker of the IEEE Vehicular Technology Society. He is on the Editorial Board of IEEE Transactions on Mobile Computing, IEEE Transactions on Multimedia, IEEE Internet of Things Journal, IEEE Multimedia, ACM GetMobile, among others. He received the 2017 IEEE ComSoc ITC Outstanding Service Award, the 2015 IEEE ComSoC TC-CSR Distinguished Service Award, the 2013 IEEE ComSoc MMTC Outstanding Leadership Award, and the NSF CAREER Award in 2010. He is a co-recipient of the Best Paper Awards from IEEE GLOBECOM 2016, IEEE GLOBECOM 2015, IEEE WCNC 2015, and IEEE ICC 2013, the Best Demo Award from IEEE SECON 2017, the IEEE ComSoc MMTC 2017 Best Conference Paper Award, and the 2004 IEEE Communications Society Leonard G. Abraham Prize in the Field of Communications Systems.

Abstract:

With the fast growing demand of location-based services in indoor environments, indoor positioning based on fingerprinting has attracted considerable interest due to its high accuracy. In this talk, we present our recent work on using deep learning for fingerprinting based indoor localization where Channel State Information (CSI), such as amplitude and phase difference information, are exploited for location estimation. Specifically, we present the design of ResLoc, which employs bi-modal CSI tensor data to train a deep residual sharing learning network. We then present DeepMap, a deep Gaussian process based approach for indoor radio map construction and location estimation, aiming to greatly reduce the training burden. Experimental results are presented to confirm that with deep learning and CSI, the proposed system can effectively reduce location error compared with existing methods in representative indoor environments.

Keynote Speech II: Seamless Global Air-based Wireless Communication Networks

Speaker's bio:

Weixiao Meng（SM'10）received the B.Eng., M.Eng., and Ph.D. degrees from Harbin Institute of Technology (HIT), Harbin, China, in 1990,1995, and 2000, respectively. From 1998 to1999, he worked at NTT DoCoMo on adaptive array antenna and dynamic resource allocation for beyond 3G as a senior visiting researcher. He is now a full professor and the vice dean of the School of Electronics and Information Engineering of HIT. His research interests include broadband wireless communications, space-air-ground integrated networks and wireless localization technologies. He has published 4books and over 260 papers on journals and international conferences. He is the Chair of IEEE Communications Society Harbin Chapter, a Fellow of the China Institute of Electronics, a senior member of the IEEE ComSoc and the China Institute of Communication. He has been an editorial board member for Wiley's WCMC Journal from2010to 2017, an area editor for PHYCOM journal from2014to 2016, an editorial board for IEEE Communications Surveys and Tutorials from 2014 to 2017 and IEEE Wireless Communications since 2015. He acted as leading TPC co-chair of ChinaCom2011 andChinaCom2016, leading Services and Applications track co-chair of IEEE WCNC2013, Awards co-chair of IEEE ICC2015 and Wireless Networking Symposia co-Chair of IEEE Globecom2015, AHSN Symposia co-Chair of IEEE Globecom2018, leading Workshop co-Chair of IEEE ICC2019. In 2005 he was honored provincial excellent returnee and selected into New Century Excellent Talents (NCET) plan by Ministry of Education, China in 2008, and the Distinguished Academic Leadership of Harbin. He won Chapter of the Year Award, Asia Pacific Region Chapter Achievement Award and Member & Global Activities Contribution Award in 2018.

Abstract:

With the development of 5G, the space-air-ground integrated networks are expected to help the development of the sixth generation mobile communications. The Internet of Space (IoS) with dense Low Earth Orbit (LEO) satellites is the hotspot of contemporary research. However, a series of problems such as orbit, spectrum, cost, operation, maintenance and space trash caused by thousands of dense LEO satellites in the future cannot be avoided. Therefore, this presentation proposes an idea of seamless global air-based wireless communication networks based on civil aviation. Most LEO satellites will be replaced as communications access platforms by the aircrafts on the increasingly dense aircraft lines. Then the feasibility analysis about coverage is studied and the dead zone supplement methods are introduced. The main feature of this talk is to propose unware massive civil aircrafts, aiming to take the place of the traditional idea of priority to dense LEO satellites. It has the great innovation value for the development of the space-air-earth networks.

Keynote Speech III: Future Generation Waveform Design for Wireless Communications

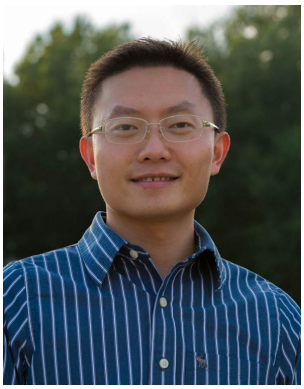
Speaker's bio:

Dr. Masanori Hamamura is a Professor of the School of Information at Kochi University of Technology, Kochi, Japan, now a Dean of the School and a Head of the Informatics Course, Graduate School of Engineering at Kochi University of Technology. He was a Research Fellow of the Japan Society for the Promotion of Science (1998-2000) and a visiting researcher at Centre for Telecommunications Research at King's College London, UK (1998-1999). He has been serving as a Chair of IEEE Shikoku Section (2017-2018), Vice Chair of IEICE Technical Committee on Wideband System (2016-2018), Associate Editor, Guest Associate Editor and Guest Editor of IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences, including Special Section on Wideband Systems and Special Section on Information Theory and Its Applications, and Technical Program Committee member of IEEE Conferences including ICC and WCNC, and so on. His research interests are in the areas of signal design, wireless communications and signal processing.

Abstract:

We will review spectrally efficient waveform designs, including filterbank multicarrier (FBMC) signals, that can be used to realize exceptionally small out-of-band power emissions. One of the main topics in this talk is the prolate spheroidal wave functions (PSWFs), which is known to be a set of waveforms that achieves the highest spectral efficiency (the minimum out-of-band power emissions) with a finite time duration. Inverse discrete Fourier transform (IDFT) based configuration of the transmitter is discussed for easy implementation of the PSWFs.

Keynote Speech IV: Security, Privacy, and Digital Forensics in Mobile Services



Speaker's bio:

Lei Chen is tenured Associate Professor, Graduate Program Director (MSAE-IT) and WebBSIT Program Coordinator for the Department of Information Technology at Georgia Southern University. He received his PhD. in Computer Science and Software Engineering from Auburn University, USA.Dr. Chen's research interests focus on the security, privacy and digital forensics of networks, information, cloud, Big Data, and mobile, handheld and wireless networks. He has authored or co-authored over 100 peer-reviewed scholarly works, including publications with high-impact journals and conferences, such as the IEEE Internet of Things Journal, Springer Mobile Networks and Applications, IEEE GLOBECOM, and IEEE ICNC. His edited book "Wireless Network Security: Theories and Practices", published by Springer in August 2013, has received over 17,800 combined downloads. His scholarly activities are supported by the U.S. National Security Agency (NSA) and the National Natural Science Foundation of China (NSFC).Dr. Chen has served as the editor, associate editor, and guest editor for multiple high-impact journals, such as the Elsevier Journal of Network and Applications, Spring MONET, and IEEE COMSOC Multimedia Communications Technical Committee, Communications – Frontiers. He has also chaired and helped organize many international conferences and workshops, such as IEEE INFOCOM workshop, IEEE GLOBECOM workshop, IEEE ICNC, IEEE Mobile Cloud, and IEEE Smart City Innovations.

Abstract:

Mobile applications and services have been an integral part of modern life and work in the recent years. Along with the advantages of efficiency and convenience brought by mobile services comes the concerns of security and privacy. Personal and private information and sensitive business data are exchanged among and processed in mobile systems and networks through mobile apps and portals. The main challenge is how to promote efficiency and convenience without compromising user privacy and data security. In the case of network attacks and data breaches, digital forensics plays its important role in acquiring, analyzing and presenting potential digital evidence. This talk focuses on the importance, current progresses and future trends of research and developments in security, privacy and the aftermath digital forensics in mobile services.

Keynote Speech V: Antennas for Radio Wave Propagation in Seawater

Speaker's bio:

Qiang Chen received the Ph. D degree from Tohoku University, Sendai, Japan, in 1994. He is currently Chair Professor of Electromagnetic Engineering Laboratory with the Department of Communications Engineering, School of Engineering, Tohoku University, and adjunct professor of Xidian University, China. His primary research interests include antenna engineering, microwave and millimeter wave radar and imaging, electromagnetic measurement and computational electromagnetics. He was the Chair of IEICE Technical Committee on Photonics-applied Electromagnetic Measurement in 2012 and 2013, and the Chair of IEICE Technical Committee on Wireless Power Transfer in 2016 and 2017.He is serving as the Chair of Tokyo Chapter of IEEE Antennas and Propagation Society. IEICE Fellow.

Abstract:

Because of the high permittivity and conductivity of seawater, it is a big challenge to transfer radio wave in seawater over a long distance. In this talk, the research of developing antennas for seawater use is introduced. The electromagnetic performance of antennas for seawater use and propagation loss under seawater of extremely low frequency (ELF) and super low frequency (SLF) are investigated numerically and experimentally. The possibility of applications using radio wave in seawater is discussed.

Keynote Speech VI:

Speaker's bio:

Badong Chen received the Ph.D. degree in computer science and technology from Tsinghua University in 2008. He was a Postdoctoral Researcher with Tsinghua University from 2008 to 2010, and a Postdoctoral Associate at the University of Florida Computational NeuroEngineering Laboratory (CNEL) during the period October, 2010 to September, 2012. During July to August 2015, he visited the Nanyang Technological University (NTU) as a visiting research scientist. He also served as a senior research fellow with The Hong Kong Polytechnic University from August to November in 2017. Currently he is a professor at the Institute of Artificial Intelligence and Robotics (IAIR), Xi'an Jiaotong University. His research interests are in signal processing, information theory, machine learning, and their applications to cognitive science and neural engineering. He has published 2 books, 4 chapters, and over 200 papers in various journals and conference proceedings. Dr. Chen is an IEEE Senior Member, a Technical Committee Member of IEEE SPS Machine Learning for Signal Processing (MLSP) and IEEE CIS Cognitive and Developmental Systems (CDS), and an associate editor of IEEE Transactions on Cognitive and Developmental Systems, IEEE Transactions on Neural Networks and Learning Systems and Journal of The Franklin Institute, and has been on the editorial board of Entropy.

Invited Speeches

Invited Speech (1): Prospects of Frequency Diverse Array in Radar, Communication and Electronic Warfare Applications

Speaker's bio:
Wen-Qin Wang has been with the School of Communication and Information Engineering, UESTC, where he is currently a Professor.

Abstract:
This talk will display the advantages and disadvantages of the frequency diverse array (FDA) in radar, communication, and electronic warfare applications. FDA will be compared with conventional phased-array(PA) in some applications such as search, tracking or multifunction, and radar imaging. The system implementation related to T/R modules, direct digital synthesis (DDS) and receiver architecture will be discussed, together with the signal processing associated with the TX and RX functions. Criterions to define the efficiency or usefulness of FDA radar and FDA communication from cost-effective and performance point of view also will be discussed. Finally, the technical challenges and possible future investigations will be given.

Invited Speech (2): Deep Learning for Physical Layer Wireless Communications

Speaker's bio:
Guan Gui received the Dr. Eng degree in Information and Communication Engineering from University of Electronic Science and Technology of China (UESTC), Chengdu, China, in 2012. Since November 2015, he has been a professor with Nanjing University of Posts and Telecommunications (NUPT), Nanjing, China.

Abstract:
The new demands for high-reliability and ultra-high capacity wireless communication have led to extensive research into 5G communications, but the current communication systems, which were designed on the basis of conventional communication theories, significantly restrict further performance improvements and lead to severe limitations. Recently, the emerging deep learning technique has been recognized as an excellent candidate for handling such complicated systems, and its potential for optimizing wireless communications has been fully demonstrated. In this talk, we review the development of deep learning for 5G wireless communication and propose efficient schemes for deep learning-based 5G scenarios. Specifically, the key ideas for several important deep learning based communication methods are described, along with the research opportunities and challenges that remain. On this topic of prime interest, novel communication frameworks of non-orthogonal multiple access (NOMA), massive multiple-input multiple-output (MIMO), and millimeter wave (mmWave) have been well investigated, and their superior performance has been corroborated. We hope that the appealing deep learning based wireless physical layer frameworks can bring a new evolution communication theories and that this work will move us along this road.

Invited Speech (3): Over-the-Air Testing: 4G Endeavour and 5G Challenges and Opportunities

Speaker's bio:

Xiaoming Chen received the B.Sc. degree in electrical engineering from Northwestern Polytechnical University, Xi'an, China, in 2006, and M.Sc. and PhD degrees in electrical engineering from Chalmers University of Technology, Gothenburg, Sweden, in 2007 and 2012, respectively. From 2013 to 2014, he was a postdoctoral researcher at the same University. From 2014 to 2017, he was with Qamcom Research & Technology AB, Gothenburg, Sweden. Since 2017, he has been a professor at Xi'an Jiaotong University, Xi'an, China. His research areas include over-the-air (OTA) testing, reverberation chambers, MIMO antennas, hardware impairments and mitigation, etc. Prof. Chen is a recipient of the 1000-Talent Plan for Young Scholars in China. He serves as an Associate Editor (AE) for IEEE Antennas and Wireless Propagation Letters and received the outstanding AE award in 2018. He also received URSI (International Union of Radio Science) Young Scientist Awards in 2017 and 2018.

Invited Speech (4): Under-ice acoustic data transmissions: simulations and experimental results

Speaker's bio:

Xiao Han is currently an associate Professor with the College of Underwater Acoustic Engineering, Harbin Engineering University, Harbin, China.

Abstract:

With the rapid development of various applications in the Arctic recent years, under-ice acoustic (UIA) research is becoming a hot topic. The thick ice cover in Arctic regions prevents underwater platforms (i.e. underwater unmanned vehicles, UUVs) from communicating with the satellites, which makes the acoustic become the only means to realize robust UI data transmissions, targets detection and navigation. The acoustic propagation under-ice water interference is very different from that under air-water interference.

As most of the sound velocity profiles (SVPs) have positive gradients in UI environment, the acoustic rays will bend to the ice cover during propagation. Furthermore, the reflection coefficients of ice are much smaller than that of air for acoustic signal, so the transmission loss is much greater in UI environment. In this paper, computer simulations are firstly conducted based on two typical SVPs measured in Arctic regions. Then this paper discusses several problems that need to be solved in order to realize robust UI data transmissions.

The first problem is Doppler effect. The movement of ice cover especially in floating ice region can make the ice-water cover keep changing, just like oceans waves, introducing Doppler effect to those acoustic rays reflected by the ice-water interference. The second problem is sparse channel impulse responses (CIRs) estimation in special noise environment. Due to the unique acoustic propagation features in UI environment, only few acoustic rays can arrive at the receiver, making the CIRs show sparse features. The special noise is impulsive noise which is introduced by ice cracking, ice breaking and ice melting. The paper proposes corresponding methods to solve the above problems and will show the theory, simulation results and experiments results.

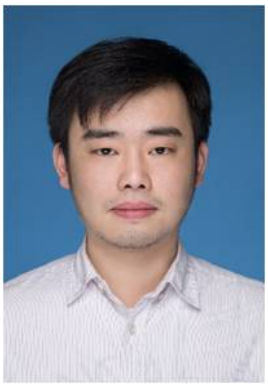
Invited Speech (5): Advanced Topics in Underwater Acoustic Communications

Speaker's bio:
Youwen Zhang received the M.E. in signal processing and Ph.D. degrees in underwater acoustic engineering from the Harbin Engineering University, Harbin, China, in 2004 and 2005, respectively.

Abstract:
In recent years, underwater acoustic (UWA) communications have received much attention as their applications have begun to shift from military toward commercial. The terrestrial wireless communication hasmade great achievements, however, wireless communicationunderwater, more specifically, the underwater acousticcommunication, is still facing significant challengesincurred by the harsh underwater acoustic propagationenvironment. Unlike the terrestrial radio channel,the UWA channel is featured by frequency-dependentlimited bandwidth, long delay spread and rapid time variationdue to severe Doppler effects (caused by the low speedof sound in water), leading to relatively low data ratesin a range between a few bits/s (bps) to several tens ofkilo bits/s (kbps) and often unsatisfied performance. TheUWA channel has been regarded as one of the most difficultchannels for communications. This talk presents a review of recent results in underwater acoustic communications, focusing on six advanced topics including the broadband Doppler estimation and compensation, millimeter wave (mmWave)high data rate communications, single carrier MIMO communications, AUV communications, deep learning based UWA communications, and in-band full-duplex UWA communication based on deep learning.

Invited Speech (6): Improperness-Inspired Widely Linear Adaptive Filters and Their Full Second-Order Performance Evaluations

Speaker's bio:
Yili Xia received the B.Eng. degree in information engineering from Southeast University, Nanjing, China, in 2006, and the Ph.D. degree in adaptive signal processing from the Department of Electrical and Electronic Engineering, Imperial College London, London, U.K., in 2011.



Abstract:
Widely linear adaptive filters have been recently developed in the complex domain due to their generalized framework to take into account the full second-order signal statistics, namely, the covariance matrix and the complementary covariance matrix, when processing improper data. However, their current performance evaluations still directly inherit the conventional mean square analysis from the real domain and provide limited physical insights into these adaptive filters, since they omit the complementary second-order statistics of the estimation errors – a key feature of improper data. Therefore, in this talk, we propose a novel complementary second-order performance analysis of widely linear adaptive filters by investigating the transient and steady-state behaviors of the complementary mean square errors (CMSEs), which are used to represent the degree of improperness of estimation errors. In this way, the proposed complementary mean square analysis augments the standard mean square convergence analysis of widely linear adaptive filters, and they together equip us with an additional insight into MSE evolutions along the real part (I channel) and imaginary part (Q channel) of widely linear adaptive filters, independently. This usefulness of the proposed full second-order performance analysis will be illustrated when applying adaptive filters in the compensation of I/Q imbalanced OFDM transceivers, a typical scenario where improper complex-valued signals occur.

Invited Speech (7): Analytical Formulation for the Quantum Radar Scattering of the Rectangular Plate

***Speaker's bio*:**
Chonghua Fang's education
China ship development and design center, Science and Technology on Electromagnetic Compatibility Laboratory, Wuhan, P.R. China.
PhD Design and Construction of Ship and Marine Structure (2009)

Abstract:
There has been much recent interest in quantum information for applications to remote sensing such as in quantum radar. In order to analyze and solve the prediction of scattering problems better, an analytical expression has been proposed for the quantum cross section (QRCS) of a rectangular target with single photon pulse. And it can predict the QRCS in both monostatic and bistatic scenes for different pitch and azimuthal angles. In addition, the comparison of our numerical simulation results with the analytical solutions reveals that they agree with one another extremely well. Finally, we also used the predicted data to illustrate the cause of the sidelobe enhancement effect between monostatic QRCS and corresponding the classic radar cross section (CRCS).

Invited Speech (8):

Speaker's bio:
Guangjie Han is currently a Professor with the Department of Information and Communication System, Hohai University, Changzhou, China and a Distinguished Professor of Dalian University of Technology, Dalian, China.

Abstract:
The fifth generation (5G) wireless systems aims to differentiate its services based on different application scenarios. Instead of constructing different physical networks to support each application, radio access network (RAN) slicing is deemed as a prospective solution to help operate multiple logical separated wireless networks in a single physical network. In this talk, we incorporate two typical 5G services, i.e., enhanced Mobile BroadBand (eMBB) and Ultra-Reliable Low-Latency Communications (URLLC), in a cloud RAN (C-RAN), which is suitable for RAN slicing due to its high flexibility. In particular, for eMBB, we make use of multicasting to improve the throughput, and for URLLC, we leverage finite blocklength capacity to capture the delay accurately. We envision that there will be many slice requests for each of these two services. Accepting a slice request means a certain amount of revenue (consists of long-term revenue and shot-term revenue) is earned by the C-RAN operator. Our objective is to maximize the C-RAN operator's revenue by properly admitting the slice requests, subject to the limited physical resource constraints. We formulate the problem as a mixed-integer nonlinear programming (MINLP) and exploit efficient approaches to solve it, such as successive convex approximation and semidefinite relaxation. Simulation results show that our proposed algorithm significantly saves system power consumption and receives the near-optimal revenue with an acceptable time complexity.

Invited Speech (9): Lattice Gaussian sampling for Communications.

Speaker's bio:
Qingjiang Shi received the Ph.D. degree in communication engineering from Shanghai Jiao Tong University, Shanghai, China, in 2011. Since January 2018, he has been a Professor with the School of Software Engineering, Tongji University, Shanghai, China.

Abstract:
As a mathematic tool for multi-dimensional systems, lattice Gaussian distribution has emerged as a common theme incoding, decoding and cryptography, making sampling from it become an important problem inthese fields. In this talk, the Markov chain Monte Carlo (MCMC) - based sampling methods for lattice Gaussian distribution are presented. Through the Markov chain, successful lattice Gaussian sampling can be realized after the Markov mixing. Here, the Markov mixing is not only shown to be uniformly ergodic, but also enjoys an accessible convergence rate, leading to a tractable Markov chain. Based on it, applications in Massive MIMO detection are presented while results and advantages are also investigated.

Invited Speech (10): Dispersion Engineering of Spoof Surface Plasmon Polaritons in Metamateirals and on Metasurfaces

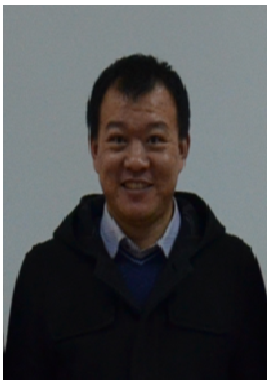
Speaker's bio:
Jiafu Wang is currently an Associate Professor with the College of Science, Airforce Engineering University, Xi'an, China.

Abstract:
Spoof surface plasmon polariton (SSPP), as an analogue to surface plasmon polariton at optical frequencies, is a sub-wavelength mode confined around the interfaces between artificially structured materials or surfaces. Metamaterials and metasurfaces, as emerging artificial materials and surfaces, are the most important means of exciting SSPP modes. The most typical characteristic of metamaterials/metasurfaces is that their constituent artificial structures are sub-wavelength, which enables them to intrinsically support the sub-wavelength SSPP mode. In addition to the attractive shorter wavelength, SSPP exhibits very rich and unique dispersion properties due to its nonlinear asymptotic dispersion curve lying below the light line. The dispersion curve of SSPP can be divided into two regions: the linear weakly-dispersive region with low loss and the nonlinear strongly-dispersive region with high dissipation loss. By deliberately engineering the two dispersion regions comprehensively, novel microwave devises can be devised with significantly disparate EM performances in two closely adjacent bands, such as EM windows with strong absorption out of band, low RCS antennas, etc. In this report, we firstly briefly introduce the design principles of metamaterials from the perspective of dipole polarization mechanisms in dielectrics physics. Based on the electric dipole model, the effective electric/magnetic susceptibility of metamaterials is obtained and the design methodology of metamaterials is summarized. On this basis, the dispersion of SSPP in metamaterials or on metasurfaces are analyzed using the cascaded dipole model. Finally, we present some typical application of dispersion engineering of SSPP, such as beam steering, polarization conversion, RCS reduction, etc.

Invited Speech (11): Random Radiation Metamaterial Aperture design for the Coincidence Imaging

Speaker's bio:

Shitao Zhu is currently an associate researcher with the School of Electronic and Information Engineering, Xi'an Jiaotong University, Xi'an, China



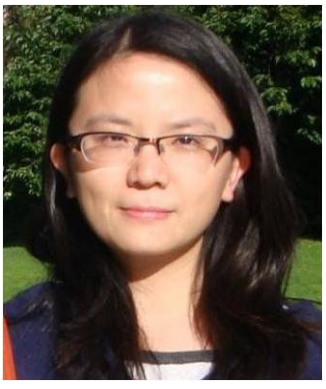
Abstract:

With the development of the coincidence imaging and the metamaterial, the metamaterial aperture can provide large number of test modes in a single input single output, which extends the application scope of the coincidence imaging. The test modes (uncorrelated complex radiation petterns), which are generated by the metamaterial aperture, has been widely used in the coincidence imaging system. However,the design of the metamaterial aperture and the requirement of the coincidence imaging are still disconnected theoretically. In this paper, we attempt to present the problems in the connection of the metamaterial aperture design and the coincidence imaging requirement. Firstly, the property of the metamaterial cells depends on the structure, which is hard to be modeled in the aperture design. Then, the physical constraints, which should be considered in the requirement of the coincidence imaging, is hard to be given. Finally, the number of the test modes that contained in the aperture is hard to evaluate in theory. The related researches have been reviewed in the paper, including ourattempt in the design of the metamaterial antenna and the application in the coincidence imaging. We believe the presented problems can be solved in the next few years.

Invited Speech (12):

Speaker's bio:

Wen Xuan Tang received the B.Sc. degree and the M.Sc. degree from Southeast University, Nanjing, China, in 2006 and 2009, respectively, and the Ph.D. degree in electromagnetics from the Queen Mary University of London, London, U.K., in 2012. In 2012, she joined the School of Information Science and Engineering, Southeast University, Nanjing, China. She is currently an Associate Professor in State Key Laboratory of Millimeter Waves at Southeast University.



Abstract:

In recent years, spoof surface plasmon polaritons (SPPs) have been investigated at microwave and THz frequencies for engineering purpose. Due to momentum mismatch, the SPP mode cannot be directly converted from the spatial mode, and vice versa. On the one hand, stimulating schemes have been developed to transform spatial waveguide modes to SPP modes with high efficiency. On the other hand, the question may arise that, is it possible to transform the propagating SPP waves to directive radiating waves for wireless communication? In view of this, this paper introduces the new-concept antennas based on spoof SPPs at microwave frequencies. Methods of transforming SPP modes to radiating modes are studied, whilst a series of antenna designs are presented and discussed. The works reviewed are mostly fulfilled at Southeast University in China.

Invited Speech (13): Holographic metasurface antennas with high aperture efficiency and their polarization-reconfigurable implementation

Speaker's bio:

Mei Li received the Ph.D. degree in radio physics from the University of Electronic Science and Technology of China, Chengdu, in 2016. She was a Visiting Graduate Student with the Applied Electromagnetics Research Group, University of California at San Diego, La Jolla, CA, USA, from 2014 to 2016. Since 2016, she has been work with the Department of Microelectronics and Communication Engineering at Chongqing University.

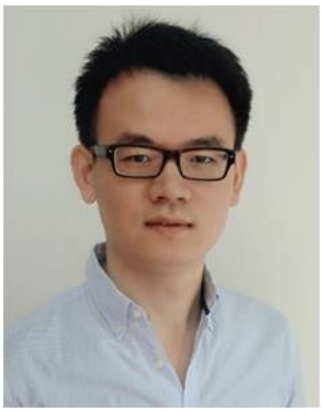
Abstract:

Holographicmetasurface antennas, which are essentially leaky-wave antennas with radiation performance of high gain and pencil beams, are usually comprised by a periodically modulated metasurface and a feeding launcher embedded in the aperture plane. Due to the simple manufacture process of standard printed-circuit techniques, holographic metasurface antennas have the advantages of planar configuration, low cost, lightweight, and conformability, and thereby have great potential to be utilized in many practical applications such assatellite communication scenarios. Although many papers have been recently published on holographic antennas, none of them has studied polarization-reconfigurable operation. Traditional scalar holographic metasurfaces are able to support a TE or TM lower order Floquet mode, and have the drawback of polarization sensitivity, which results in a mismatch between the E- and H-plane beamwidths when excited by a horizontal dipole, and thus a low aperture efficiency. In this talk, a polarization-insensitive holographic metasurface with high aperture efficiency is first introduced and then when integrated with a polarization-reconfigurable feeding launcher, a polarization-reconfigurable holographic metasurface antenna withbroadside radiation performance and LP, RHCP and LHCP polarization diversity is successfully realized.

Invited Speech (14): Reconfigurable Antennas with Controllable Radiation Aperture

Speaker's bio:

Lei Ge（IEEE Senior Member）received the Ph.D. degree in electronic engineering from City University of Hong Kong, Hong Kong, in 2015.He is currently Assistant Professor and Associate Head of Department of Electronic Engineering at Shenzhen University, China.



Abstract:

With the rapid development of wireless communication technologies, the requirements for antennas with multi-functionalities are more necessary than ever before. Reconfigurable antennas, with the ability to change frequency, radiation or polarization characteristics, are promising in addressing new system requirements.They are able to alter their behaviors to adapt tothe changes in surrounding conditions.

In this talk, three types of reconfigurable antennas are presented. By controlling the radiation aperture with the aid of the p-i-n diodes, these designs can exhibit superior flexibility and controllability of frequency, radiation or polarization properties. In addition, the design ideas, results and advantages are also discussed.

Invited Speech (15): A Novel Data Fusion Method For Indoor Navigation Using IMU Aided UWB

Speaker's bio:
Hailin Cao, Chongqing University; State Key Laboratory of Vehicle NVH and Safety Technology.

Abstract:
This speech proposes an unscented kalman filter (UKF) method for the IMU aided UWB indoor navigation system. GDOP is selected as the independent variable to analyze the positioning accuracy quantitatively, and the static, linear and circular motion states of the tag are simulated and analyzed. Based on the simulation analysis of the fusion positioning model, a TDOA-IMU positioning system is designed and implemented for verification. The simulation and experimental results both show that a higher positioning accuracy in linear and circular motion state is realized using TDOA-IMU fusion positioning. Compared with TDOA positioning alone, 80% probability circle error radius (CEP) in the region far from the anchor node is reduced from 0.530m to 0.340m.

Oral Session and Special Session

14:00-15:20, Monday, January 21, 2019
Bohai Hall: 428-429

Special session title 1: Recent Development on Radar Signal Processing

Session chair:
Xiaolong Chen, Naval Aviation University, cxlcxl1209@163.com
Xianpeng Wang, Hainan University, wxpeng2016@hainu.edu.cn
Ying Luo, Air Force Engineering University, luoying2002521@163.com
Xiaobo Deng, AVIC Leihua Electronic Technology Research Institute, xiaobobo.deng@qq.com

Paper Information:

SS1-1	MIMO Radar and MIMO Communication Spectrum Sharing with Interference Mitigation *Junhui Qian, Ran Liu, Yulong Huang, Yu Luo, Yangfan Huang, Fengchun Tian* Chongqing University	4055
SS1-2	Fast and Refined Radar Processing For Maneuvering Target via Two-stage Integration Detection *Xiaolong Chen, Xiaohan Yu, Hao Ding, Xue Yonghua, Jian Guan* Naval Aviation University	4007
SS1-3	FPGA Based Short-Range Targets Detection System with FMCW Radar *Jing Zhang, Lin Tang, Chao Feng, Xi Chen, Liangqing Lv, Jingwei Yang* Shanghai Radio Equipment Research Institute	3991
SS1-4	Three-dimensional Interferometric Imaging of Space Rotating Targets in Low-resolution Radar based on Multiple Measurement Vectors Model *Ting Liang, Yijun Chen, Hao Lou* Institute of Information and Navigation, AFEU	3934
SS1-5	A Fast Circular Convolution Imaging Algorithm for FMCW CSAR *Depeng Song, Binbing Li, Yi Qu, Yijun Chen* College of Information Engineering, Engineering University of PAP	3920
SS1-6	A Novel 3D Imaging Method for Region of Interest with Airborne MIMO-SAR *Kai-ming Li, Wang-yang Li, Xiao-yu Qu, Ying Luo, Qun Zhang* Institute of Information Navigation, Air Force Engineering University	3887
SS1-7	Time-Varying Bistatic Radar Coincidence Imaging for Rotating Targets *Rui Li, Ying Luo, Qun Zhang, Binbin Li* Information and Navigation College, AFEU	3918
SS1-8	Joint Angle And Array Gain-phase Error Estimation For Bistatic MIMO Radar With Unknown Colored Noise *Hongru Song, Yuehao Guo, Xianpeng Wang, Haojing Zhang, Dandan Meng* Beijing Institute of Aerospace	4008

Coffee Break

14:00-15:20, Monday, January 21, 2019
Beihai Hall: 432-433

Oral session title 1: Communications and Network
Session chair: Jingchao Li

Paper Information:

Invited Speech (15): A Novel Data Fusion Method For Indoor Navigation Using IMU Aided UWB

Speaker's bio:
Hailin Cao, Chongqing University; State Key Laboratory of Vehicle NVH and Safety Technology.

Abstract:
This speech proposes an unscented kalman filter (UKF) method for the IMU aided UWB indoor navigation system. GDOP is selected as the independent variable to analyze the positioning accuracy quantitatively, and the static, linear and circular motion states of the tag are simulated and analyzed. Based on the simulation analysis of the fusion positioning model, a TDOA-IMU positioning system is designed and implemented for verification. The simulation and experimental results both show that a higher positioning accuracy in linear and circular motion state is realized using TDOA-IMU fusion positioning. Compared with TDOA positioning alone, 80% probability circle error radius (CEP) in the region far from the anchor node is reduced from 0.530m to 0.340m.

OS1-1	Physical Layer Security in HARQ-Assisted Non-Orthogonal Multiple Access Networks *Zhongwu Xiang, Weiwei Yang, Yueming Cai, Yi Song, Meng Wang* Army Engineering University of PLA	4034
OS1-2	A Method of System Timing in TDMA Systems for LEO Satellites *Jinfei Zhu, Jian Cheng, Yuyang Tian, Yaxin Wang, Jinghui Chang* Army Engineering University of PLA	4021
OS1-3	Wireless Wearable Respirator for Accurate Measurement of Breathing Parameters *Bingjin Xiang, Yu Xu, Meng Zhou, Yanlang Zheng, Luxi Zhan Zhan, Junqiang Fan, Dan Zhou, Jun Liu* Wenzhou University	4017
OS1-4	Efficient Genetic-based Detection Algorithm For Large-Scale MIMO Systems *Ya Wang, Zheng Wang, Feng Shen, Qingjiang Shi* State Key Laboratory of Complex Electromagnetic Environment Effects on Electronics and Information System	3964

Coffee Break

14:00-15:20, Monday, January 21, 2019
Huanghai Hall: 430-431

Oral session title 1: Communications and Network
Session chair: Yulong Ying

Paper Information:

OS1-1	A Novel Wireless Information and Energy Transfer Protocol in Wireless Body Area Network with Two-way Relay *Hongzhi Wang, Tengjiao Hao, Yanlin Liu* Changchun University of Technology	3951
OS1-2	A Novel Mobile Agent Based Energy Efficient Data Gather Algorithm for Wireless Sensor Networks *Gu Xiujian, Wang Jin, Zeng Daojian, Chen Wencheng, Jung Yeon Woong, Kim Jeong-Uk* Yangzhou University	3931
OS1-3	MPPSK Demodulation Based on Neural Network under Impulsive Noise *Qiuyue Tan, Ling Zhao* Beihang University	3860
OS1-4	A Modified Power Control Algorithm for Coordinating CLI in Massive MIMO System *Mingshi Hao, Hui Zhao, Longhao Zhang* Beijing University of Posts and Telecommunications	3844
OS1-5	SECURED CLOUD STORAGE SCHEME BASED ON BLOCKCHAIN *Ntaya Matissi Soukoude, Jian Lili* Harbin Engineering University	4053

Coffee Break

15:40-17:00, Monday, January 21, 2019
Bohai Hall: 428-429

Special session title 6: Advanced Computational Methods for RF Applications

Session chair:

Hongxing Zheng, Hebei University of Technology, hxzheng@hebut.edu.cn
Xiangqin Zhu, Northwest Institute of Nuclear Technology, nintzxq@163.com
Yuanguo Zhou, Xi'an University of Science and Technology, zyg@xust.edu.cn

Paper Information:

SS6-1	Uplink Power Compensation of Rain Attenuation on Satellite Communication *Rong Li, Jian Ning, Shuqi Wang* Xian university of science and technology	3945
SS6-2	Dual-band Bandstop Filter Based-on Graphene in the Infrared Frequency Range *Yijun Cai, Yongbo Guo, Kai-Da Xu, Shikai Zuo, Haijun Lin, Rongrong Guo, Yuanguo Zhou* Xiamen University of Technology	3941
SS6-3	A Dual-Band Antenna Array with High Gain and Miniaturized Structure *Can Tang, Hongxing Zheng, Mengjun Wang, Xing An, Xinyan Wang, Erping Li* Hebei University of Technology	3893
SS6-4	Design of Wideband and Flexible Implantable Antenna for Wireless Medical Application *Ruipeng Liu, Hongxing Zheng, Zhiwei Song, Lu Wang, Wenjie Cui, Mengjun Wang, Erping Li* Hebei University of Technology	3882
SS6-5	Spatial Distributions of Radiation Fields in Air from an Underwater Magnetic Dipole Source *Tu Xiaoyun, Zheng Kuisong, Mingyue Yang* Northwestern Polytechnical University	3867
SS6-6	Analysis of Leakage Field from Bounded Wave Electromagnetic Pulse Simulator *Xiangqin Zhu, Wei Wu, Guowei Zhang, Libing Cai* State Key Laboratory of Intense Pulsed Radiation Simulation and Effect Northwest Institute of Nuclear Technology	3847

15:40-17:00, Monday, January 21, 2019
Beihai Hall: 432-433

Oral session title 2: Signal Processing (SP) and Information Technology
Oral session title 3: Antennas, Propagation, and Scattering
Session chair: Meiyu Wang

Paper Information:

OS2-1	Multiple Children Identification and Tracking for the Childcare Assisting System *Bin Zhang* Kanagawa University	3989
OS2-2	A Robust Adaptive Beamforming with Diagonal Loading and Steering Vector Estimation *Michael.P Masele, Wu Xing, Wang Lijiao* Harbin Engineering University	3961
OS2-3	Research on Polarization-Based Secure Satellite Communications via DL-MPWFRFT *Haobo Wang, Xinyu Da, Zhangkai Luo, Hang Hu, Lei Ni, Yu Pan* Air Force Engineering University	3957
OS3-1	Measurements of Beidou Antenna for Iridium Communication *Tingting Lyu, Min Zhang, Farnaz Mahmoudi ShikhSarmast, Hao Zhang* Ocean University of China	3859
OS3-2	Hybrid Metamaterial Absorber based on the Combination of Plasmonic Structure and Magentic Absorber *Shen Yang, Zhang Jieqiu, Wang Jiafu, Qu Shaobo* Department of Basic Science, Air Force Engineering University	3839
OS3-3	A Dual-Polarized Printed mono-pole Antenna with Simple Structure for Diversity Application *Qian Wang, Cheng Ze* The Shandong Institute of Aerospace Electronics Technology	4063
OS3-4	A quadrilaterial monopole printed Antenna with wide Band Fed by Coplanar Waveguide *Han Wen, LiZhong Song, Li Wang* School of Information Science and Engineering Harbin Institute of Technology at Weihai	4062

15:40-17:00, Monday, January 21, 2019
Huanghai Hall: 430-431

Special session title 3: Metamaterial and Reconfigurable Techniques in Advanced Antenna Designs

Session chair:

Daotong Li, Chongqing University, dli@cqu.edu.cn
Jianxing Li, Xi'an Jiaotong University, jianxingli.china@xjtu.edu.cn

Paper Information:

Invited Speech (13): Holographic metasurface antennas with high aperture efficiency and their polarization-reconfigurable implementation

Speaker's bio:

Mei Li has been work with the Department of Microelectronics and Communication Engineering at Chongqing University.

Abstract:

Holographicmetasurface antennas, which are essentially leaky-wave antennas with radiation performance of high gain and pencil beams, are usually comprised by a periodically modulated metasurface and a feeding launcher embedded in the aperture plane. Due to the simple manufacture process of standard printed-circuit techniques, holographic metasurface antennas have the advantages of planar configuration, low cost, lightweight, and conformability, and thereby have great potential to be utilized in many practical applications such assatellite communication scenarios. Although many papers have been recently published on holographic antennas, none of them has studied polarization-reconfigurable operation. Traditional scalar holographic metasurfaces are able to support a TE or TM lower order Floquet mode, and have the drawback of polarization sensitivity, which results in a mismatch between the E- and H-plane beamwidths when excited by a horizontal dipole, and thus a low aperture efficiency. In this talk, a polarization-insensitive holographic metasurface with high aperture efficiency is first introduced and then when integrated with a polarization-reconfigurable feeding launcher, a polarization-reconfigurable holographic metasurface antenna withbroadside radiation performance and LP, RHCP and LHCP polarization diversity is successfully realized.

Invited Speech (14): Reconfigurable Antennas with Controllable Radiation Aperture

Speaker's bio:

Lei Ge（IEEE Senior Member）is currently Assistant Professor and Associate Head of Department of Electronic Engineering at Shenzhen University, China.

Abstract:

With the rapid development of wireless communication technologies, the requirements for antennas with multi-functionalities are more necessary than ever before. Reconfigurable antennas, with the ability to change frequency, radiation or polarization characteristics, are promising in addressing new system requirements.They are able to alter their behaviors to adapt tothe changes in surrounding conditions.

In this talk, three types of reconfigurable antennas are presented. By controlling the radiation aperture with the aid of the p-i-n diodes, these designs can exhibit superior flexibility and controllability of frequency, radiation or polarization properties. In addition, the design ideas, results and advantages are also discussed.

SS3-1	Sense Reconfigurable Circularly Polarized Microstrip Patch Antenna Design *Xiong Sheng, Junwei Shi, Huimin Huo, Jianxing Li, Juan Chen, Anxue Zhang* Xi’an Jiaotong University	4003
SS3-2	The Asymmetric Transmission depending on the Propagation Direction Using Spoof Surface Plasmon Polaritons *Tianshuo Qiu, Jiafu Wang, Yongfeng li, Shaobo Qu* Air Force Engineering University	3983

09:50-11:00, Tuesday, January 22, 2019
Beihai Hall: 432-433

Oral session title 3: Antennas, Propagation, and Scattering
Session chair: Ya Tu

Paper Information:

OS3-5	Research on a Method for Effectively Improving the Bandwidth of Dipole Antennas *Yu Mao, Tao Zhang, Yan Wang, Lin Wang* Shenyang Aircraft Design and Research Institute, AVIC	4043
OS3-6	Excitation of Trapped Modes in a Lattice of Dielectric Particles *Pengchao Yu, Wei Han, Vladimir R. Tuz* College of Physics, Jilin University	3958
OS3-7	The Simulation Analysis of Airborne Antenna Siting Based on the Measured Pattern *Guihao BAO, Zhiyong CAI, Xiuhua ZHENG, Lei SHI, Hongzhi ZHANG, Hongyun LIANG* China Aviation Industry General Aircraft Institute Co., Ltd	3930
OS3-8	Turn-Table Platform Stirring in Reverberation Chambers for OTA applications *Quan Li, Sun Cong, An Zhang, Xiaoming Chen* Northwestern Polytechnical University	3907
OS3-9	Phase Difference Correcting for Terahertz Wave Horn Antenna Based on HFSS *Bo He, Shizhong Li, Yang Chen* North University of China, Taiyuan 030051, China	3890
OS3-10	A Low-Profile, Gain-Enhancement, Compact Lens for UHF Archimedean Spiral Antenna *Man Luo, Xiangyuan Sang, Wei Ge, Zhao Zhang, Zhenghui Peng, Juan Chen* Xian Jiaotong University	3868

09:50-11:00, Tuesday, January 22, 2019
Huanghai Hall: 430-431

Oral session title 2: Signal Processing (SP) and Information Technology
Session chair: Yulong Ying

Paper Information:

Invited Speech (8):
Speaker's bio:
Guangjie Han is currently a Professor with the Department of Information and Communication System, Hohai University, Changzhou, China
Abstract:
The fifth generation (5G) wireless systems aims to differentiate its services based on different application scenarios. Instead of constructing different physical networks to support each application, radio access network (RAN) slicing is deemed as a prospective solution to help operate multiple logical separated wireless networks in a single physical network. In this talk, we incorporate two typical 5G services, i.e., enhanced Mobile BroadBand (eMBB) and Ultra-Reliable Low-Latency Communications (URLLC), in a cloud RAN (C-RAN), which is suitable for RAN slicing due to its high flexibility. In particular, for eMBB, we make use of multicasting to improve the throughput, and for URLLC, we leverage finite blocklength capacity to capture the delay accurately. We envision that there will be many slice requests for each of these two services. Accepting a slice request means a certain amount of revenue (consists of long-term revenue and shot-term revenue) is earned by the C-RAN operator. Our objective is to maximize the C-RAN operator's revenue by properly admitting the slice requests, subject to the limited physical resource constraints. We formulate the problem as a mixed-integer nonlinear programming (MINLP) and exploit efficient approaches to solve it, such as successive convex approximation and semidefinite relaxation. Simulation results show that our proposed algorithm significantly saves system power consumption and receives the near-optimal revenue with an acceptable time complexity.

Invited Speech (9): Lattice Gaussian sampling for Communications.
Speaker's bio:
Qingjiang Shi has been a Professor with the School of Software Engineering, Tongji University, Shanghai, China. From Sept. 2009 to Sept. 2010
Abstract:
As a mathematic tool for multi-dimensional systems, lattice Gaussian distribution has emerged as a common theme incoding, decoding and cryptography, making sampling from it become an important problem inthese fields. In this talk, the Markov chain Monte Carlo (MCMC) - based sampling methods for lattice Gaussian distribution are presented. Through the Markov chain, successful lattice Gaussian sampling can be realized after the Markov mixing. Here, the Markov mixing is not only shown to be uniformly ergodic, but also enjoys an accessible convergence rate, leading to a tractable Markov chain. Based on it, applications in Massive MIMO detection are presented while results and advantages are also investigated.

OS2-4	Verification and Recognition of Fractal Characteristics of Communication Modulation Signals *Li Jingchao, Ying Yulong, Lin Yun* Shanghai Dianji University	4051
OS2-5	Research on Anti-reverberation Method Based on Local Wave Vector *Rongrong Han, Xinyi Sun* Harbin University	3929
OS2-6	ICI Suppression of Underwater Acoustic OFDM Signal Transmission by Differential Multichannel Detection *Xuefei Ma, Guan Wang, Bo Wang, Tingting Wang, Yang Li, Pengpeng Hu* College of Underwater Acoustic Engineering Harbin Engineering University	3852

09:50-11:00, Tuesday, January 22, 2019
Bohai Hall: 428-429

Special session title 2: Artificial Intelligence and Applications

Session chair:
Wei Huang, Nanchang University, n060101@e.ntu.edu.sg
Peng Zhang, Northwestern Polytechnical University, zh0036ng@nwpu.edu.cn
Huijun Ding, Shenzhen University, huijun.d@gmail.com
Yong Yang, Jiangxi University of Finance and Economics, greatyangy@126.com
Tao You, Northwestern Polytechnical University, youtao@nwpu.edu.cn
Nan Jiang, East China Jiaotong University, jiangnan1018@gmail.com
Hanqiao Huang, Northwestern Polytechnical University, huanghanqiao@nwpu.edu.cn

Paper Information:

SS2-1	Cascaded Scheme for Sport Event Classification based on Object Level Motion Trajectory *Liguo Lu, Jian Xiong, Wengang Cao, Quan Chen, Jie Yang, Guan Gui* Nanjing University of Posts and Telecommunications	4049
SS2-2	Model of Sentiment Analysis with Deep Learning in Social Network Environment *Wanda Putra, Jin Jie Huang* Harbin University of Science and Technology	4001
SS2-3	Pose-based Gait Cycle Detection *Qing Shen, Chang Tian, Lin Du* Army Engineering University	3997
SS2-4	Crop Weed Identification System Based on Convolutional Neural Network *Fengjuan Miao, Siqi Zheng, Bairui Tao* Qiqihar University	3940
SS2-5	Gaze Estimation Based on Neural Network *Mingyuan Luo, Xi Liu, Wei Huang* School of Information Engineering, Nanchang University	3928
SS2-6	Deep Learning-based Automatic Modulation Recognition Algorithm in Internet of Things *Yu Wang, Guan Gui, Hao Huang, Jie Wang, Yue Yin, Tian Zhou, Yu Zhao, Sheng Hong, Xiaomei Zhu* Nanjing University of Posts and Telecommunications	3876
SS2-7	Application Research of Spatial Integrated Data Mining Technology on Land Intelligent Grading *Sijia Ma, Jihong Ouyang* Computer Science and Technology Jilin University	3849
SS2-8	Light-Weight Recurrent Deep Learning Algorithm for Non-Intrusive Load Monitoring *Mohammad, Mobasher-Kashani, Jiaming Li* The University of Newcastle; Commonwealth Scientific and Industrial Research Organisation	3851

11: 00-12:00, Tuesday, January 22, 2019
Academic Lecture Hall

Invited Speech (7): Analytical Formulation for the Quantum Radar Scattering of the Rectangular Plate

***Speaker's bio*:**
Chonghua Fang's education
China ship development and design center, Science and Technology on Electromagnetic Compatibility Laboratory, Wuhan, P.R. China.
PhD Design and Construction of Ship and Marine Structure (2009)

Abstract:
There has been much recent interest in quantum information for applications to remote sensing such as in quantum radar. In order to analyze and solve the prediction of scattering problems better, an analytical expression has been proposed for the quantum cross section (QRCS) of a rectangular target with single photon pulse. And it can predict the QRCS in both monostatic and bistatic scenes for different pitch and azimuthal angles. In addition, the comparison of our numerical simulation results with the analytical solutions reveals that they agree with one another extremely well. Finally, we also used the predicted data to illustrate the cause of the sidelobe enhancement effect between monostatic QRCS and corresponding the classic radar cross section (CRCS).

Oral session title 4: Microwave Systems, Radar, RF

Paper Information:

OS4-1	Research on the method of Using Single-tone Interference to Jam OFDM Signal *Jian-jian Ning, Wensheng Li, Bin Bai, Bohao Xu, Mingxi Yang* Luoyang Electronic Equipment Test Center of China	3967
OS4-2	High Precision Positioning and Accident Detection System for Vehicles in Traffic Tunnel *Fuzhu Fang, Zhizhong Ding* School of Computer Science and Information Engineering, Hefei University of Technology	3878
OS4-3	W Band Mini-SAR on Multi Rotor UAV Platform *Ding Manlai, Tang Li, Zhou Liangjiang, Wang Xuemei, Weng Zhilei, Qu Jiameng* Institute Of Electronics Chinese Academy Of Sciences	3873

11:00-12:00, Tuesday, January 22, 2019
Bohai Hall: 428-429

Special session title 9: Power System Information and Control

Session chair:
Nenghong Xia, College of Electrical Engineering, Shanghai University of Electric Power, xia_nh@vip.163.com

Paper Information:

SS5-1	Coupling Reduction of Antenna Array in 5G MIMO Frequency Band below 6GHz Based on Multi-feed Technology *Guodong Jing, Yujia Liu, Luyu Zhao* Xidian University	3971
SS9-1	Design of Parallel Multi-Module's Current Sharing Control Method for New DC Output Synchronous Generator *Zhenglei Zhang, Jinfeng Liu, Xudong Wang* Harbin University of Science and Technology	3980
SS9-2	The Integrated Electromagnetic Transient Model of Wind Turbine Considering the Grounding Environment in Intertidal Zone *Nenghong Xia, Heng Lu, Chao Qian* Shanghai University of Electric Power	3911

11:00-12:00, Tuesday, January 22, 2019
Beihai Hall: 432-433

Special session title 7: Recent advances in adaptive signal processing and machine learning

Session chair:
Badong Chen, Xi'an Jiaotong University, chenbd@mail.xjtu.edu.cn
Xinghua Liu, Xi'an University of Technology, liuxh@xaut.edu.cn
Wentao Ma, Xi'an University of Technology, mawt@xaut.edu.cn

SS7-1	Stochastic stability of networked Markovian jump systems via asynchronous controller *Xinghua Liu* Xian University of Technology	4002
SS7-2	Extended Random Fourier Features Recursive Non-quadratic Algorithm *Kui Xiong, Guobing Qian, Zhengji Long, Shiyuan Wang* Southwest University	3999
SS7-3	Recursive Kernel Mean p-Power Error Loss Algorithm *Wentao Ma, Jinzhe Qiu* Xi'an University of Technology	3905
SS7-4	Pneumonia Radiograph Diagnosis Utilizing Deep Learning Network *Wesley OQuinn, Rami Haddad, David Moore* Georgia Southern University	3978

11:00-12:00, Tuesday, January 22, 2019
Huanghai Hall: 430-431

Special session title 8: Metasurfaces in microwave region: theory and applications in antennas

Session chair:
Hongyu Shi, Xi'an Jiaotong University, hongyushi@xjtu.edu.cn
Kuang Zhang, Harbin Institute of Technology, zhangkuang@hit.edu.cn

SS8-1	A Phase-calibrated Computational Imaging Method Based on Programmable Metasurface *Zhenlong Luo, Yongqiang Cheng, Kaicheng Cao, Yuliang Qin, Kang Liu* National University of Defense Technology	3869
SS8-2	Characteristic Modes Analysis of Orbital Angular Momentum Antenna *Hui Ding, Wei Chen, Hai Lin* Central China Normal University	4000
SS8-3	Patch Antenna Bandwidth and Aperture Efficiency Enhancement Using Shorted Microstrip Loop and AMC *JEAN DE DIEU NTAWANGAHEZA, Sun Liguo, Gerard Rushingabigwi* University of Science and Technology	3973
SS8-4	Broadband Coding Metasurface with Cross- Polarization Conversion *Jialin Feng, Hongyu Shi, Anxue Zhang* Xian Jiaotong University	3954
SS8-5	Low Sidelobe Holographically Modulated Reactance Surface Antenna *Yihua Zhu, Kuang Zhang, Guohui Yang, Qun Wu* Harbin Institude of Technology	4066

Poster Session

10: 30-11:00, Tuesday, January 22, 2019 Session chair: Xiao Han	
A Design of Microwave LC-Resonator-Based Biosensor with Double Sensentive Region for Healthy-IoT Applications *Tian Qiang, Cong Wang, Adhikari Kishor Kumar, Qun Wu, Guo-Hui Yang* Harbin Institute of Technology	4074
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