Contents

Greetings from the General Co-Chairs

On behalf of the executive committee, it is our great pleasure to invite you to participate in the 2018 International Conference on Wireless Communications and Signal Processing (WCSP 2018), which will be held in Hangzhou, China, during Oct. 18-20, 2018.

WCSP is an annual International Conference on Wireless Communications and Signal Processing (WCSP). The aim of the conference is to provide an international forum that brings together researchers from academia and practitioners from industry to exchange advances in recent research work on all aspects of wireless communications and signal processing. With the support of all participants, the past nine events of the conference have been very successful. We are now organizing WCSP 2018, the tenth edition of the conference. You are cordially welcome to participate in and contribute to the conference in your valuable role.

Hangzhou is one of the most beautiful cities in China, and also one of the six famous ancient capitals of China. It is often known as a "paradise on earth", due largely to its picturesque West Lake and many other world-famous sites. The West Lake, a UNESCO World Natural and Cultural Heritage Site, attracts tens of millions of visitors from all over the world every year. There are many other famous tourist attractions within or across the city, such as the Qiantang River, the Grand Canal and the Xixi National Wetland Park, etc.We hope that you will take this opportunity to visit the beautiful and historic sites, and enjoy the amazing lake and hill scenery as well as the Chinese culture after the conference.

Thank you. Look forward to welcoming you in Hangzhou in October 2018!

Prof. Yonghua Song, Zhejiang University, China
Prof. Lajos Hanzo, University of Southampton, UK

WCSP 2018 General Co-Chairs

Welcome Message from the TPC Co-Chairs




On behalf of the technical program committee, it is our great pleasure to welcome you all to the Fifth International Conference on Wireless Communications and Signal Processing (WCSP 2018).

WCSP 2018 consists of eight symposia, including Communication Theory Symposium, Wireless Communication Symposium, and Wireless Networking Symposium, Signal and Information Processing Symposium, Network and Information Security Symposium, Machine Learning in Communications and Signal Processing, Underwater Acoustic Signal Processing and Communications, and Internet of Things Symposium. The technical program committee consists of 536 members from all over the world. We received totally 643 paper submissions, and each submission was carefully peer-reviewed by at least three reviewers working in the areas. After being rigorously reviewed, 287 papers have been selected for inclusion in the technical program and oral presentation at in the conference, which is equivalent to an acceptance ratio of about 44.6%.

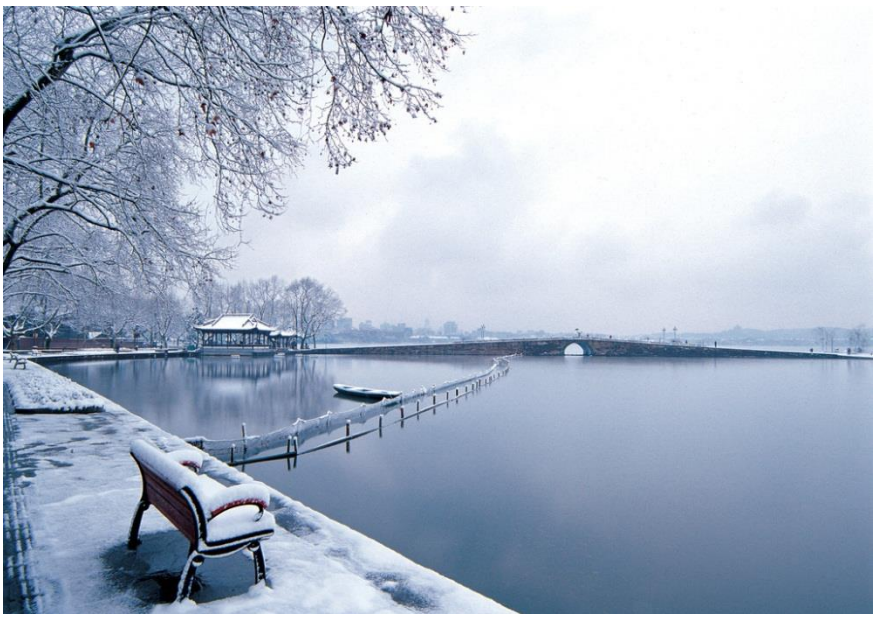
The technical program of WCSP 2018 includes seven keynote talks and 48 technical sessions, which cover a diversity of topics in the areas of wireless communications and signal processing. We are pleased to present you seven keynote speeches which will be delivered by Prof. Zhi-Quan (Tom) Luo from University of Minnesota, Prof. Merouane Debbah from Huawei Mathematical and Algorithmic Science Lab in Paris, Prof. Costas Courcoubetis from Singapore University of Technology and Design, Prof. Geoffrey Li from Georgia Institute of Technology, Prof. Junshan Zhang from Arizona State University, Prof. Wei Yu from University of Toronto, and Dr. Xiansheng Hua from iDST, Alibaba. All the above speakers are world-wide renowned academic and industry leaders in the areas of wireless communications and signal processing. We hope that you will find the technical program interesting, informative, and stimulating.

The technical program would not have been possible without the efforts of all symposium co-chairs, TPC members, and the reviewers who volunteered their time and professional expertise. We take this opportunity to thank all of them for their hard work and great support. We also thank all the authors who have submitted their papers and contributed their quality work to this conference. Moreover, we thank our sponsors and partners, Zhejiang University, Singapore University of Technology and Design, IEEE, IEEE Communications Society, IEEE Communications Society Nanjing Chapter, IEEE Signal Processing Society Nanjing Chapter, SEU, NUPT, PLAUST and USTC, for their support and contribution.

Finally, we hope that you will enjoy the technical program of the conference and wish you all a pleasant stay at the conference and in the beautiful city, Hangzhou.

Zhaoyang Zhang, Zhejiang University, China
Tony Quek, Singapore University of Technology and Design, Singapore
Kai-Kit Wong, University College London, UK
Robert Schober, Friedrich-Alexander University Erlangen-Nurnberg, Germany

WCSP 2018 TPC Co-Chairs



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Zhejiang University, China

Lajos Hanzo
University of Southampton, UK

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Zhejiang University, China

Tony Quek
SUTD, Singapore

Kai-Kit Wong
University College London, UK

Robert Schober
FAU, Germany

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Caijun Zhong
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Hangguan Shan
Zhejiang University, China

Finance Chair

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Zhejiang University, China

Hai Lin
Osaka Prefecture University, Japan

Nikolaos Pappas
Linkpoing University, Sweden

WCSP 2018 Technical Program Committee

Technical Program Committee Co-Chairs

Zhaoyang Zhang
Zhejiang University, China

Tony Quek
SUTD, Singapore

Kai-Kit Wong
University College London, UK

Robert Schober
FAU, Germany

Technical Symposium Co-Chairs

1. Communication Theory Symposium

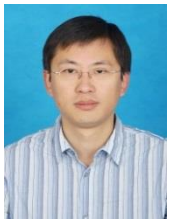
Theodoros Tsiftsis
JiZhaoUniversity, China

Jin Shi
Southeast University, China

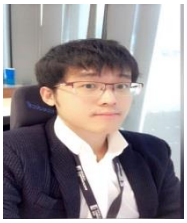
Kaibing Huang
Univ. of Hong Kong, China

Jinhong Yuan
Uni. of New South Wales, Australia

2. Wireless Communications Symposium



Xiaoming Chen
Zhejiang University, China



Derrick Kwan,
Uni. of New South Wales, Australia

Yingjun Angela Zhang
Chinese University of Hong Kong, China

Junhui Zhao
East China Jiaotong Uni., China

3. Wireless Networking Symposium

Min Shen
Xidian University, China

Xin Wang
Fudan University, China

Shiwen Mao
Auburn University, USA

Yonghui Li
University of Sydney, Australia

4. Signal and Information Processing Symposium

Himal Suraweera
Uni. of Peradeniya, Sri Lanka

Rose Qingyang Hu
Utah State University, USA

Minjian Zhao
Zhejiang University, China

Wen Chen
Shanghai Jiaotong Uni, China

5. Network and Information Security Symposium

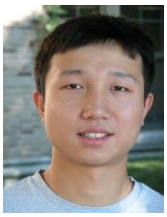
Kui Ren
Zhejiang University, China

Zhi Sun
University at Buffalo, SUNY, USA

Lifeng Lai
UC Davis, USA

Huaiyu Dai
NC State University, USA

6. Machine Learning in Communications and Signal Processing



Wenyi Zhang
USTC, China

Byonghyo Shim
Seoul National Uni., Korea

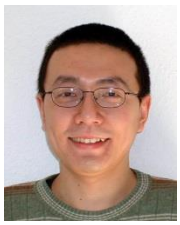
Zhongfei (Mark) Zhang
Binghamton University, USA

Jemin Lee
DGIST, Korea

7. Underwater Acoustic Signal Processing and Communications

Wen Xu
Zhejiang University, China

Shefeng Yan
Institute of Acoustics, China



Yue Rong
Curtin Uni. of Tech., Australia

Junhong (June) Cui
University of Connecticut, USA

8. Internet of Things Symposium

Zan Li
Xidian University, China

Mugen Peng
BUPT, China

Zhi Chen
UESTC, China

Cheng Li
Memorial University of Newfoundland, Canada

WCSP 2018 Steering Committee

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Guangguo Bi, Southeast University, China

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Aiping Huang, Zhejiang University, China
Yongming Huang, Southeast University, China
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Jinkang Zhu, University of Science and Technology of China, China
Wuyang Zhou, University of Science and Technology of China, China

International Advisory Committee

Chair

Xuemin Shen, University of Waterloo, Canada

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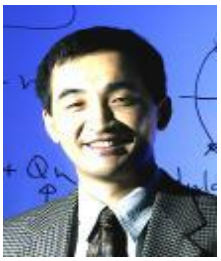
Xueming Shen, University of Waterloo, Canada
Xiang-Gen Xia, University of Delaware, USA
Tony Quek, Singapore University of Technology and Design, Singapore

WCSP 2018 Sponsors

Keynote Speakers



18, Oct 2018, 09:15am-10:00am, Location: Hua Gang Hall

Keynote Talk 1:
Understanding simple algorithms for big data

Prof. Zhi-Quan (Tom) Luo, IEEE Fellow
The Chinese University of Hong Kong, China

Abstract

Popular approaches to solve large scale optimization problems involving big data include block coordinate descent, stochastic gradient descent method, and in case of linear coupling constraints the Alternating Direction Method of Multipliers (ADMM). In this talk, we discuss various convergence issues, extensions and open questions related to the algorithm design, nonconvexity.

Biography

Professor Zhi-Quan (Tom) Luo received his BSc degree in Applied Mathematics from Peking University, China, in 1984, and the PhD degree in Operations Research from the Massachusetts Institute of Technology in 1989. From 1989 to 2003, he was with McMaster University, Canada where he eventually served as the department head and was awarded a Canada Research Chair (Tier I) in Information Processing. From 2003 to 2014, Professor Luo has been a full professor at University of Minnesota and held an endowed ADC Chair in digital technology. Currently, Professor Luo serves as the Vice President (Academic) of The Chinese University of Hong Kong, Shenzhen, and concurrently the Director of Shenzhen Research Institute of Big Data and also the Director of CUHK (SZ)-Tencent AI Lab Joint Laboratory on Machine Intelligence.

Professor Luo received the 2010 Farkas Prize from the INFORMS Optimization Society for outstanding contributions to the field of optimization. In 2018, he was awarded the prize of Paul Y. Tseng Memorial Lectureship in Continuous Optimization. He also received three Best Paper Awards from the IEEE Signal Processing Society in 2004, 2009 and 2011 respectively, and a 2011 Best Paper Award from the EURASIP. Professor Luo is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE) and a Fellow of the Society for Industrial and Applied Mathematics (SIAM). In 2014, he was elected to the Royal Society of Canada, the highest honor a Canadian scholar can achieve in the Arts, Humanities and Sciences. In 2016, Professor Luo was elected to the Leading Talent Program of Guangdong Province.

Professor Luo's research mainly addresses mathematical issues in information sciences, with particular focus on the design, analysis and applications of optimization algorithms. Professor Luo consults regularly with industry on topics related to signal processing and digital communication. Professor Luo was the semi-plenary speaker for the International Symposium on Mathematical Programming in 2003 and IEEE CDC conference in 2011, the distinguished lecturer for the IEEE Sensor Array and Multichannel Signal Processing Workshop in 2006, the plenary speaker for the IEEE Signal Processing Advance for Wireless Communications (SPAWC) Workshop in 2013, and IEEE Signal Processing Theory and Methods Workshop in 2014. Professor Luo has served as the Chair of the IEEE Signal Processing Society Technical Committee on Signal Processing for Communications (SPCOM). He was the Editor in Chief for IEEE Transactions on Signal Processing from 2012 to 2014 and served as the Associate Editor for many internationally recognized journals, including Mathematics of Operations Research, Management Science, Mathematical Programming and others.

18, Oct 2018, 10:30am-11:15am, Location: Hua Gang Hall

Keynote Talk 2:

Exploiting Delay-Tolerance in 5G: Decongesting the Backhaul

Prof. Costas Courcoubetis
Singapore University of Technology and Design, Singapore

Abstract

Our talk discusses strategies to reduce congestion in wireless networks and is motivated by the following two observations. Given the performance of existing wireless networks, 5G is expected to experience resource scarcity and hence congestion in the backhauling and in the wireless part. This may create delays to the real-time traffic originating from interactive applications and web browsing. Also, a significant fraction of the 5G traffic is expected to be generated by applications that are characterized by some delay-tolerance (such as the offline video launched recently by Netflix, the material posting at the social networks and the cache updates for content prefetching at the base stations). This delay tolerance is usually restricted and does not allow for complete time-scale decomposition of the traffic (e.g., shifting delay-tolerant transfers during the night). Still, it creates a rich space of potential improvement both in technical and economic terms, by smoothing out traffic peaks. A reasonable suggestion is to treat delay-tolerant traffic with lower priority compared to the real-time one, by employing Lower than Best Effort Protocols at the transport layer (Ledbat, TCP-LP). Our research findings suggest that this approach not only lacks any adoption incentives in the form of performance guarantees for the affected traffic but may also have negative effects on the delay-sensitive traffic, which we like to protect. We propose an application layer congestion control algorithm to be implemented at the server side, which strives to cause the least possible harm on real-time flows traversing the same link, while providing some necessary performance guarantees to the delay-tolerant traffic to make it stable. Finally, we propose two adoption alternatives, where the network provider may incentivize the content providers by applying transit-like charges at the interconnection points or may implement the algorithms at its own servers after classifying the traffic according to its priority.

Biography

Prof. Costas A Courcoubetis was born in Athens, Greece and received his Diploma (1977) from the National Technical University of Athens, Greece, in Electrical and Mechanical Engineering, his MS (1980) and PhD (1982) from the University of California, Berkeley, in Electrical Engineering and Computer Science. He was MTS at the Mathematics Research Centre, Bell Laboratories, Professor in the Computer Science Department at the University of Crete, Professor in the Department of Informatics at the Athens University of Economics and Business, and since 2013 Professor in the ESD Pillar, Singapore University of Technology and Design where he heads the Initiative for the Sharing Economy and co-directs the new ST-SUTD Centre for Smart Systems. His current research interests are economics and performance analysis of networks and internet technologies, sharing economy and mobility, regulation policy, smart grids and energy systems, resource sharing and auctions. Besides leading a large number of research projects in these areas he has also published over 100 papers in scientific journals such as Management Science, Operations Research, Mathematics of Operations Research, Journal on Applied Probability, ToN, IEEE Transactions in Communications, IEEE JSAC, SIAM Journal on Computing, etc. and in conferences such as FOCS, STOC, LICS, INFOCOM. GLOBCOM, ITC, ACM SIGMETRICS. His work has 14,000 citations according to Google Scholar. He is co-author with Richard Weber of "Pricing Communication Networks: Economics, Technology and Modelling" (Wiley, 2003).

18, Oct 2018, 11:15am-12:00am, Location: Hua Gang Hall

Keynote Talk 3:

Alibaba Practices of Large Scale Visual Intelligence in the Real World

Dr. Xiansheng Hua, IEEE Fellow
iDST, Alibaba, USA

Abstract

Visual intelligence is one of the key aspects of Artificial Intelligence. Considerable technology progresses along this direction have been made in the past a few years. However, how to develop the right technologies and convert them into real business values in the real-world remains a challenge. In this talk, based on a few examples of Alibaba, we will analyze how to successfully solve real-world problems to realize technology's business values, from the problem definition/discovery, to technology development, to product design, and to commercialization.

Biography

Xian-Sheng Hua is now a Distinguished Engineer/VP of Alibaba Group, leading a team working on large-scale visual intelligence on the cloud. Dr. Hua is an IEEE Fellow, and ACM Distinguished Scientist. He received the B.S. degree in 1996, and the Ph.D. degree in applied mathematics in 2001, both from Peking University, Beijing, China. He joined Microsoft Research Asia, Beijing, China, in 2001, as a Researcher. He was a Principal Research and Development Lead in Multimedia Search for the Microsoft Bing search engine in USA, from 2011 to 2013. He was a Senior Researcher with Microsoft Research Redmond from 2013 to 2015. He became a Researcher and Senior Director of the Alibaba Group, Hangzhou, China, in April of 2015, leading the Visual Computing Team in Search Division, Alibaba Cloud and then DAMO Academy. He has authored or coauthored more than 200 research papers and has filed more than 90 patents. His research interests include big multimedia data search, advertising, understanding, and mining, as well as pattern recognition and machine learning. Dr. Hua served or is now serving as an Associate Editor for the IEEE Trans. on Multimedia and ACM Transactions on Intelligent Systems and Technology. He served as a Program Co-Chair for IEEE ICME 2013, ACM Multimedia 2012, and IEEE ICME 2012. He was one of the recipients of the 2008 MIT Technology Review TR35 Young Innovator Award for his outstanding contributions on video search. He was the recipient of the Best Paper Awards at ACM Multimedia 2007, and Best Paper Award of the IEEE Trans. on CSVT in 2014.Dr. Hua will be serving as a general co-chair of ACM Multimedia 2020.

19, Oct 2018, 08:30am-09:15am, Location: Hua Gang Hall

Keynote Talk 4:
Wireless AI: Challenges and Opportunities

Dr. Merouane Debbah, IEEE Fellow
Huawei Mathematical and Algorithmic Science Lab in Paris, France

Abstract

Mobile cellular networks are becoming increasingly complex to manage while classical deployment/optimization techniques are cost-ineffective and thus seen as stopgaps. This is all the more difficult considering the extreme constraints of 5G networks in terms of data rate (more than 10 Gb/s), massive connectivity (more than 1,000,000 devices per km2), latency (under 1ms) and energy efficiency (a reduction by a factor of 100 with respect to 4G network). Unfortunately, the development of adequate solutions is severely limited by the scarcity of the actual resources (energy, bandwidth and space). Recently, the community has turned to a new resource known as Artificial Intelligence at all layers of the network to exploit the increasing computing power afforded by the improvement in Moore's law in combination with the availability of huge data in 5G networks. This is an important paradigm shift which considers the increasing data flood/huge number of nodes as an opportunity rather than a curse. In this talk, we will discuss through various examples how the recent advances in big data algorithms can provide an efficient framework for the design of Next Generation Intelligent Networks.

Biography

Mérouane Debbah is a Full Professor at CentraleSupelec (Gif-sur-Yvette, France) and the Director of the Mathematical and Algorithmic Sciences Lab, Huawei. His research interests lie in fundamental mathematics, algorithms, statistics, information & communication sciences research. He is an IEEE Fellow, a WWRF Fellow and a member of the academic senate of Paris-Saclay. He is a leading researcher in wireless communications and recipient of several prestigious awards. Mérouane Debbah entered the Ecole Normale Supérieure Paris-Saclay (France) in 1996 where he received his M.Sc and Ph.D. degrees respectively. He worked for Motorola Labs (Saclay, France) from 1999-2002 and the Vienna Research Center for Telecommunications (Vienna, Austria) until 2003. From 2003 to 2007, he joined the Mobile Communications department of the Institut Eurecom (Sophia Antipolis, France) as an Assistant Professor. Since 2007, he is a Full Professor at CentraleSupelec (Gif-sur-Yvette, France). From 2007 to 2014, he was the director of the Alcatel-Lucent Chair on Flexible Radio. Since 2014, he is the director of the Mathematical and Algorithmic Sciences Lab.

19, Oct 2018, 09:15am-10:00am, Location: Hua Gang Hall

Keynote Talk 5:

Impact of Social Learning on Privacy-Preserving Crowdsensing

Prof. Junshan Zhang, IEEE Fellow
Arizona State University

Abstract

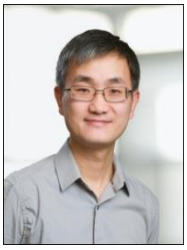
Crowdsensing, in the form of user data collection, is playing a critical role in data analytics and accelerating the use of machine learning in many IoT applications. In particular, personal data is often collected based on "informed consent," where users decide whether to report data or not based upon who is collecting the data. This approach is however untenable, because of vague privacy policies and a behind-the-scenes data brokerage market becoming the norm. Indeed, data privacy has become one notorious threat in human civilization, as evidenced by the very recent Facebook scandal. Two fundamental issues remain open: (i) users have no control of data privacy after reporting private data and the use of data is without their knowledge; and (ii) the data collector has sole liability to protect users' private data.

Making a paradigm shift, we advocate a new approach to privacy-preserving data collection for IoT applications: users control their own data privacy by reporting data with noise injection, and the data collector provides rewards in exchange for receiving more accurate data. We explore a model where users learn (noisy versions of) personal data with social friends. Based on learning from both her personal data and her friends' noisy data, each user makes strategic decisions to report privacy-preserving data. We develop a Bayesian game theoretic framework to study the impact of social learning on users' data reporting strategies and devise the payment mechanism for the data collector. Our findings reveal that both the data collector and the users benefit from social learning under some mild conditions.

Biography

Junshan Zhang received his Ph.D. degree from the School of ECE at Purdue University in 2000. He joined the School of ECEE at Arizona State University in August 2000, where he has been Fulton Chair Professor since 2015. His research interests fall in the general field of information networks and data science, including communication networks, Internet of Things (IoT), Fog Computing, social networks, smart grid. His current research focuses on fundamental problems in information networks and data science, including Fog Computing and its applications in IoT and 5G, IoT data privacy/security, optimization/control of mobile social networks, stochastic modeling and optimization for smart grid.

Prof. Zhang is a Fellow of the IEEE, and a recipient of the ONR Young Investigator Award in 2005 and the NSF CAREER award in 2003. He received the IEEE Wireless Communication Technical Committee Recognition Award in 2016. His papers have won a few awards, including the Best Student paper at WiOPT 2018, the Kenneth C. Sevcik Outstanding Paper Award of ACM SIGMETRICS/IFIP Performance 2016, the Best Paper Runner-up Award of IEEE INFOCOM 2009 and IEEE INFOCOM 2014, and the Best Paper Award at IEEE ICC 2008 and ICC 2017. Building on his research findings, he co-founded Smartiply Inc in 2015, a Fog Computing startup company delivering boosted network connectivity and embedded artificial intelligence. Prof. Zhang was TPC co-chair for a number of major conferences in communication networks, including IEEE INFOCOM 2012 and ACM MOBIHOC 2015. He was general chair for ACM/IEEE SEC 2017, WiOPT 2016, and IEEE Communication Theory Workshop 2007. He is currently serving as an editor-at-large for IEEE/ACM Transactions on Networking and an editor for IEEE Network Magazine.



19, Oct 2018, 10:30am-11:15am, Location: Hua Gang Hall

Keynote Talk 6:
Spatial Deep Learning for Wireless Scheduling

Prof. Wei Yu, IEEE Fellow
University of Toronto, Canada

Abstract

The optimal scheduling of interfering links in a dense wireless network with full frequency reuse is a challenging task. In this talk, we first propose a novel fractional programming method to solve this problem, then point out that the traditional optimization approach of first estimating all the interfering channel strengths then optimizing the scheduling based on the model is not always practical, because channel estimation is resource intensive, especially in dense networks. To address this issue, we investigate the possibility of using a deep learning approach to bypass channel estimation and to schedule links efficiently based solely on the geographic locations of transmitters and receivers. This is accomplished by using locally optimal schedules generated using fractional programming for randomly deployed device-to-device networks as training data, and by using a novel neural network architecture that takes the geographic spatial convolutions of the interfering or interfered neighboring nodes as input over multiple feedback stages to learn the optimum solution. The resulting neural network gives good performance for sum-rate maximization and is capable of generalizing to larger deployment areas and to deployments of different link densities. Further, we propose a novel approach of utilizing the sum-rate optimal scheduling heuristics over judiciously chosen subsets of links to provide fair scheduling across the network, thereby showing the promise of using deep learning to solve discrete optimization problems in wireless networking.

Biography

Wei Yu received the B.A.Sc. degree in Computer Engineering and Mathematics from the University of Waterloo, Waterloo, Ontario, Canada in 1997 and M.S. and Ph.D. degrees in Electrical Engineering from Stanford University, Stanford, CA, in 1998 and 2002, respectively. He is now Professor and holds a Canada Research Chair (Tier 1) in Information Theory and Wireless Communications in the Electrical and Computer Engineering Department at the University of Toronto, Canada. Prof. Wei Yu currently serves on the IEEE Information Theory Society Board of Governors. He was an IEEE Communications Society Distinguished Lecturer (2015-16), and currently serves as an Area Editor for the IEEE Transactions on Wireless Communications. He is currently the Chair of the Signal Processing for Communications and Networking Technical Committee of the IEEE Signal Processing Society. Prof. Wei Yu received the IEEE Signal Processing Society Best Paper Award in 2017 and 2008, the Journal of Communications and Networks Best Paper Award in 2017, an E.W.R. Steacie Memorial Fellowship in 2015, and an IEEE Communications Society Best Tutorial Paper Award in 2015. Prof. Wei Yu is recognized as a Highly Cited Researcher. He is a Fellow of IEEE, a Fellow of Canadian Academy of Engineering, and a member of the Royal Society of Canada's College of New Scholars, Artists and Scientists.

19, Oct 2018, 11:15am-12:00am, Location: Hua Gang Hall

Keynote Talk 7:

Deep Learning in Physical Layer Communications

Prof. Geoffrey Li, IEEE Fellow
Georgia Institute of Technology, USA

Abstract

Recent research has demonstrated that machine learning (DL) has great potentials to break the bottleneck of communication systems. This presentation introduces our recent work in DL in physical layer communications. DL can improve the performance of each individual (traditional) module in communication systems or optimize the whole transmitter or receiver. Therefore, we can categorize the applications of DL in physical layer communications into with and without block processing structures. For DL based communication systems with block structures, we present a couple of examples in channel estimation and signal detection. For those without block structures, we provide our recent endeavors in developing end-to-end learning communication systems. At the end of the talk, we discuss some potential research directions in the area.

Biography

Dr. Geoffrey Li is a Professor with the School of Electrical and Computer Engineering at Georgia Institute of Technology. He was with AT&T Labs – Research for five years before joining Georgia Tech in 2000. His general research interests include wireless communications and statistical signal processing. In these areas, he has published over 400 referred journal and conference papers in addition to over 40 granted patents. His publications have been cited by over 32,000 times and he has been listed as the World's Most Influential Scientific Mind, also known as a Highly-Cited Researcher, by Thomson Reuters almost every year. He has been an IEEE Fellow since 2006. He received 2010 IEEE ComSoc Stephen O. Rice Prize Paper Award, 2013 IEEE VTS James Evans Avant Garde Award, 2014 IEEE VTS Jack Neubauer Memorial Award, 2017 IEEE ComSoc Award for Advances in Communication, and 2017 IEEE SPS Donald G. Fink Overview Paper Award. He also won the 2015 Distinguished Faculty Achievement Award from the School of Electrical and Computer Engineering, Georgia Tech.

WCSP 2018 Panel Discussion

Topic: Will Machine Learning Tools Replace Communication Engineers?

Time: 14:00-17:00, 19th October, 2018

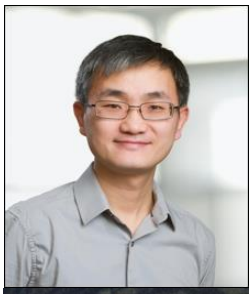
Venue: Huang Long Hall

Moderators:

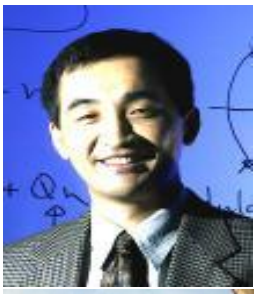
Kai-Kit Wong
Professor, IEEE Fellow
University College London

Lajos Hanzo
Professor, IEEE Fellow
University of Southampton

Panelists:



Wei Yu
Professor, IEEE Fellow
University of Toronto

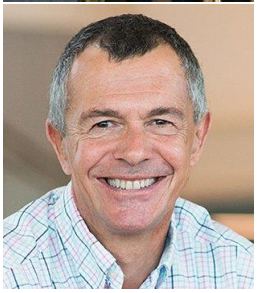


Zhi-Quan(Tom) Luo
Professor, IEEE Fellow
University of Minnesota

Geoffrey Li
Professor, IEEE Fellow
Georgia Institute of Technology

Junshan Zhang
Professor, IEEE Fellow
Arizona State University

Merouane Debbah
Director, IEEE Fellow
Huawei Mathematical and Algorithmic Science Lab in Paris



Costas Courcoubetis
Professor
Singapore University of Technology and Design

Schedule at a glance

<table>
<tr><th>Time</th><th>Oct. 18 (Thursday)</th><th colspan="2">Oct. 19 (Friday)</th><th>Oct. 20 (Saturday)</th></tr>
<tr><td>08:30-09:00</td><td>Registration</td><td colspan="2" rowspan="2">Keynote Talk 4</td><td rowspan="3">Technical Sessions</td></tr>
<tr><td>09:00-09:15</td><td>Opening Ceremony</td></tr>
<tr><td>09:15-10:00</td><td>Keynote Talk 1</td><td colspan="2">Keynote Talk 5</td></tr>
<tr><td>10:00-10:30</td><td colspan="4">Coffee Break</td></tr>
<tr><td>10:30-11:15</td><td>Keynote Talk 2</td><td colspan="2">Keynote Talk 6</td><td rowspan="2">Technical Sessions</td></tr>
<tr><td>11:15-12:00</td><td>Keynote Talk 3</td><td colspan="2">Keynote Talk 7</td></tr>
<tr><td>12:00-14:00</td><td colspan="4">Lunch Break</td></tr>
<tr><td>14:00-15:30</td><td>Technical Sessions</td><td>Technical Sessions</td><td>Panel</td><td>Technical Sessions</td></tr>
<tr><td>15:30-16:00</td><td colspan="4">Coffee Break</td></tr>
<tr><td>16:00-17:30</td><td>Technical Sessions</td><td>Technical Sessions</td><td>Panel</td><td>Technical Sessions</td></tr>
<tr><td>18:30-20:30</td><td>Welcome Reception</td><td colspan="2">Banquet</td><td></td></tr>
</table>

Important Notes:

1. The venue for plenary meeting including the Opening Ceremony and all the keynote presentations is at the ***Hua Gang Hall***.
2. The Welcome Reception will be held at the ***Western Restaurant***.
3. The Luncheon is at ***Western Restaurant***.
4. The Banquet will be held at the ***Chinese Hangzhou Cuisine Museum***, which is about 20 minutes' drive from the conference hotel. You will be taken there by the conference bus. The waiting site is at the front door of the conference hotel.

Overview of Day 1

WCSP 2018 Technical Program on Oct. 18, 2018						
09:00-09:15	**Opening and Welcome Ceremony** **Prof. Yonghua Song** (General Co-Chair), Zhejiang University, P.R. of China **Prof. Lajos Hanzo** (General Co-Chair), University of Southampton, UK **Prof. Zhaoyang Zhang** (TPC Co-Chair), Zhejiang University, P.R. of China **Prof. Tony Quek** (TPC Co-Chair), Singapore University of Technology and Design, Singapore					
09:15-10:00	Keynote Talk 1: **Understanding simple algorithms for big data** **Prof. Zhi-Quan (Tom) Luo**, IEEE Fellow University of Minnesota, USA					
10:00-10:30	Coffee Break					
10:30-11:15	Keynote Talk 2: **Exploiting Delay-Tolerance in 5G: Decongesting the Backhaul** **Prof. Costas Courcoubetis** Singapore University of Technology and Design, Singapore					
11:15-12:00	Keynote Talk 3: **Alibaba Practices of Large Scale Visual Intelligence in the Real World** **Dr. Xian-sheng Hua**, IEEE Fellow Alibaba Group, China					
12:00-14:00	Luncheon					
14:00-15:30	CTS-01: Multi-Antenna Communications	WCS-01: SWIPT	SIPS-01: Machine Learning	WNS-01: D2D Communications	MLSPC-01: Estimation and Localization	UASPC-01: Signal Processing Methods
15:30-16:00	Coffee Break					
16:00-17:30	CTS-02: Polar Codes	WCS-02: UAV Communications	SIPS-02: Image Processing	WNS-02: Space Networks	NISS-01: Network Security	UASPC-02: Performance Evaluation
18:30-20:30	Welcome Reception					

Hua Gang Hall
Yun Qi Hall
Wo Long Hall
Jiu Xi Hall
Huang Long Hall
Gui Yu Hall
Huan Bi Hall
Jin Sui Hall

Overview of Day 2

WCSP 2018 Technical Program on Oct. 19, 2018							
08:30-09:15	Keynote Talk 4: **Wireless AI: Challenges and Opportunities** **Dr. Merouane Debbah**, IEEE Fellow Huawei Mathematical and Algorithmic Science Lab in Paris, France						
09:15-10:00	Keynote Talk 5: **Impact of Social Learning on Privacy-Preserving Crowdsensing** **Prof. Junshan Zhang**, IEEE Fellow Arizona State University, USA						
10:00-10:30	Coffee Break						
10:30-11:15	Keynote Talk 6: **Spatial Deep Learning for Wireless Scheduling** **Prof. Wei Yu**, IEEE Fellow University of Toronto, Canada						
11:15-12:00	Keynote Talk 7: **Deep Learning in Physical Layer Communications** **Prof. Geoffrey Li**, IEEE Fellow Georgia Institute of Technology, USA						
12:00-14:00	Luncheon						
14:00-15:30	CTS-03: LDPC Codes	WCS-03: Energy Harvesting Communications	Panel: Will machine learning tools replace communications engineers	SIPS-03: Sparse Signal Processing	WNS-03: Fog Networks	MLSPC-02: Recognition and Detection	UASPC-03: Detection and Classification
15:30-16:00	Coffee Break						
16:00-17:30	CTS-04: Mobile Edge Computing	WCS-04: mmWave Massive MIMO	Panel: Will machine learning tools replace communications engineers	SIPS-04: Localization	WNS-04: Mobile Edge Computing	WCS-05: Massive MIMO I	UASPC-04: Estimation
18:30-20:30	Banquet						

Hua Gang Hall
Yun Qi Hall
Wo Long Hall
Jiu Xi Hall
Huang Long Hall
Gui Yu Hall
Huan Bi Hall
Jin Sui Hall

Overview of Day 3

WCSP 2018 Technical Program on Oct. 20, 2018						
08:30-10:00	CTS-05: Mobile Caching	WCS-06: Massive MIMO II	SIPS-05: Estimation	WNS-05: UAV Networks	MLSPC-03: Deep Learning and Reinforcement Learning	IoT-01: Wireless Sensor Networks
10:00-10:30	Coffee Break					
10:30-12:00	CTS-06: mmWave Communications	WCS-07: Vehicular Communications	SIPS-6: Detection	WNS-06: Small Cell and HetNet	WCS-08: Resource Allocation	WNS-07: Software Defined Networks
12:00-14:00	Luncheon					
14:00-15:30	CTS-07: Emerging Topics in Communications	WCS-09: NOMA	SPS-7: Optimization	WNS-08: Dense Networks	WCS-10: Performance Analysis	NISS-02: Phyical Layer Security
15:30-16:00	Coffee Break					
16:00-17:30	CTS-08: Miscellaneous Topics in Communications	WCS-11: Multiple Access	IoT-02: Wireless Powered Networks	WNS-09: Emerging Topics in Wireless Networks	WCS-12: Multi-Carrier Communications	WCS-13: Miscellaneous Topics

Yun Qi Hall
Gui Yu Hall
Wo Long Hall
Huan Bi Hall
Jiu Xi Hall
Jin Sui Hall

WCSP 2018 Technical Program

Communication Theory Symposium

CTS-01: Multi-Antenna Communications

Date: Oct. 18, 2018
Time: 14:00pm – 15:30pm
Room: Yun Qi Hall
Chair: Xuesong Liang, Hangzhou Dianzi University, China

1. **Optimal Design of Widely Linear Pre-coding and Estimation in Multi-user MIMO Broadcast Channel**
   Huan Bai and Fanglin Gu (National University of Defense Technology, P.R. China); Shan Wang (National University of Defense Technology and University of Montreal, P.R. China); Jun Xiong (National University of Defense Technology, P.R. China)

2. **Pilot Decontamination based on Pilot Allocation for Large-Scale Distributed Antenna Systems**
   Lingling Zhang (Southeast Univrsity, P.R. China); Pengcheng Zhu (National Mobile Communications Research Laboratory, Southeast University, P.R. China); Jiamin Li (National Mobile Communications Research Lab., Southeast University, P.R. China)

3. **Utility Maximization for MISO Bursty Interference Channels**
   Ho-Chun Tsao (National Tsing Hua University, Taiwan); Che Lin (National Tsing Hua University and Institute of Communication Engineering, Taiwan)

4. **Robust Beamforming for Downlink 3D-MIMO Systems with l1-norm Bounded CSI Uncertainty**
   Kai Liu, Hui Feng and Tao Yang (Fudan University, P.R. China); Bo Hu (Fudan University, Shanghai, P.R. China)

5. **Fast and Accurate Near-Field Calibration Method for Phased Array Antennas**
   Xin Jin, Shuai Wang, Yujie Lin, Xiangyuan Bu and Jianping An (Beijing Institute of Technology, P.R. China)

6. **Approximate ergodic sum capacity of large-scale multi-user distributed antenna systems**
   Yue Zhang and Lin Dai (City University of Hong Kong, Hong Kong)

CTS-02: Polar Codes

Date: Oct. 18, 2018
Time: 16:00pm – 17:30pm
Room: Yun Qi Hall
Chair: Wen Chen, Shanghai Jiao Tong University, China

1. **Rate Matching and Piecewise Sequence Adaptation for Polar Codes with Reed-Solomon Kernels**
   Ran Zhang and Hamid Saber (Huawei Technologies, Canada); Yiqun Ge and Wuxian Shi (Huawei Technologies Canada Inc., Canada)

2. **Enhanced Bit-Flipping Successive Cancellation Decoding for Convolutional Polar Codes**
   Ran Zhang (Huawei Technologies, Canada); Yiqun Ge, Wuxian Shi and Qifan Zhang (Huawei Technologies Canada Inc., Canada)

3. **Low Complexity Blind Detection Scheme for Polar Codes: A Segmented CRC Approach**
   Xiong Wang, Kangjian Qin, Zhihuan Zhu and Zhaoyang Zhang (Zhejiang University, P.R. China)

4. **Successive Cancellation List Bit-flip Decoder for Polar Codes**
   Yongrun Yu, Zhiwen Pan and Nan Liu (Southeast University, P.R. China); Xiaohu You (National Mobile communication Research Lab., Southeast University, P.R. China)

5. **Polar Coding for Noncoherent Block Fading Channels**
   Mengfan Zheng and Wen Chen (Shanghai Jiao Tong University, P.R. China); Cong Ling (Imperial College London, United Kingdom (Great Britain))

6. **Generalized Gaussian Approximation and Its Application in Polar Decoding**
   Zhihuan Zhu, Zhaoyang Zhang, Kangjian Qin and Xiong Wang (Zhejiang University, P.R. China)

CTS-03: LDPC Codes

Date: Oct. 19, 2018
Time: 14:00pm – 15:30pm
Room: Yun Qi Hall
Chair: Qin Huang, Beihang University, China

1. **Construction of LDPC Codes Based on Deep Reinforcement Learning**
   Mingxu Zhang (Beihang University, P.R. China); Qin Huang (Group 201, Beihang University, P.R. China); Shuai Wang (Beihang Unversity, P.R. China); Zulin Wang (Beihang University, P.R. China)

2. **A Distributed CRC Early Termination Scheme for High Throughput QC-LDPC Codes**

Hao Wu, Fang Wang and Yuqing Yuan (ZTE Corporation, P.R. China)

3. **Fast Decoding of the (41, 21, 9) Quadratic Residue Code Without Computing Unknown Syndromes**
   Chunlan Luo (Fujian Normal University, P.R. China); Yi Wu (Fujian normal university, P.R. China); Hsin-Chiu Chang and Zheng Yang (Fujian Normal University, P.R. China); Lianfeng Shen (National Mobile Communications Research Laboratory, Southeast University, P.R. China); Song Xing (California State University, Los Angeles, USA)

4. **A Hybrid Decoding Algorithm for Low-Rate LDPC codes in 5G**
   Kaifei Sun (SouthEast University, P.R. China); Ming Jiang (Southeast University, P.R. China)

5. **Dynamic-Reference-Voltage-based Detection Algorithm for LDPC-Coded NAND Flash Memory**
   Guojun Han, Wenjie Liu, Ruiquan HE, Yi Fang and Guofa Cai (Guangdong University of Technology, P.R. China)

6. **Faster-than-Nyquist signaling based adaptive modulation and coding**
   Mengmeng Liu (Xidian University, P.R. China); Shuangyang Li (Xidian University, P.R. China, School of Electrical Engineering and Telecommunications, University of New South Wales, Australia); Qian Li (PING AN BANK, P.R. China); Baoming Bai (Xidian University, P.R. China)

CTS-04: Mobile Edge Computing

Date: Oct. 19, 2018
Time: 16:00pm – 17:30pm
Room: Yun Qi Hall
Chair: Jianmin Zhang, China Telecom Technology Innovation Center, China

1. **Delay Analysis and Computing Offloading of URLLC in Mobile Edge Computing Systems**
   Yifan Duan (University of Electronic Science and Technology of China (UESTC), P.R. China); Changyang She (University of Sydney, Australia); Guodong Zhao (University of Electronic Science and Technology of China (UESTC), P.R. China); Tony Q. S. Quek (Singapore University of Technology and Design, Singapore)

2. **Analyzing Hit Probability of Spatial Correlated Caching for Heterogeneous Mobile Edge Computing**
   Shubin Zhang, Wen Sun and Jiajia Liu (Xidian University, P.R. China)

3. **Joint Optimization of Offloading and Resource Allocation in Vehicular Networks with Mobile Edge Computing**
   Jie Zhou, Fan Wu, Ke Zhang, Yuming Mao and Supeng Leng (University of Electronic Science and Technology of China, P.R. China)

4. **Joint Heterogeneous Tasks Offloading and Resource Allocation in Mobile Edge Computing Systems**
   Sihua Wang, Chunyu Pan and Changchuan Yin (Beijing University of Posts and Telecommunications, P.R. China)

5. **CDN Convergence Based on Multi-access Edge Computing**
   Zhouyun Wu, Jianmin Zhang, Weiliang Xie and Fengyi Yang (China Telecom Technology Innovation Center, P.R. China)

6. **MEC Architectures in 4G and 5G Mobile Networks**
   Jianmin Zhang, Zhouyun Wu, Weiliang Xie and Fengyi Yang (China Telecom Technology Innovation Center, P.R. China)

CTS-05: Mobile Caching

Date: Oct. 20, 2018
Time: 8:30am – 10:00am
Room: Yun Qi Hall
Chair: Lisheng Fan, Guangzhou University, China

1. **Optimizing Caching and Recommendation Towards User Satisfaction**
   Kaiqiang Qi, Binqiang Chen, Chenyang Yang and Shengqian Han (Beihang University, P.R. China)

2. **A Physical-social-based Group Utility Maximization framework for Cooperative Caching in Mobile Networks**
   Hao Zhou (HeFei University of Technology, P.R. China); Lei Xu and Jiaojiao Zhang (Hefei University of Technology, P.R. China)

3. **Graph-Theoretic Approach for Cache Placement and Delay Optimization in Mobile Networks**
   Fang Dong, Tianyu Wang and Shaowei Wang (Nanjing University, P.R. China)

4. **Optimal Power Allocation for the Downlink of Cache-aided NOMA Systems**
   Yaru Fu (City University of Hong Kong, Hong Kong); Hong Wang (Nanjing University of Posts and Telecommunications, P.R. China); Chi Wan Sung (City University of Hong Kong, Hong Kong)

5. **Cache-Enabled Hierarchical Transmission Scheme for Fog Radio Access Networks**
   Shiwen He (School of Information Science and Engineering, Central South University, P.R. China); Wei Huang (Southeast University, P.R. China); Jiaheng Wang (National Mobile Communications

Research Lab, Southeast University, P.R. China); Ju Ren (Central South University, P.R. China); Yongming Huang (Southeast University, P.R. China); Yaoxue Zhang (Central South University, P.R. China)

6. **Secure Probabilistic Caching for Stochastic Multi-User Multi-Relay Networks**
   Lisheng Fan (Guangzhou University, P.R. China); Xianfu Lei (Southwest Jiaotong University, P.R. China); Nan Zhao (Dalian University of Technology, P.R. China); Pingzhi Fan (Southwest Jiaotong Universityiversity, P.R. China); George K. Karagiannidis (Aristotle University of Thessaloniki, Greece)

CTS-06: mmWave Communications

Date: Oct. 20, 2018
Time: 10:30am – 12:00am
Room: Yun Qi Hall
Chair: Shiwen He, Central South University, China

1. **Analog Codebook Design for mmWave Communications with An Auxiliary Phase Shifter Group**
   Renmin Zhang, Hua Zhang and Wei Xu (Southeast University, P.R. China)

2. **High-SNR Capacity Analysis of mmWave Systems under Finite-Dimensional Channel Model**
   Xi Yang and Q (Southeast University, P.R. China); Shengli Zhang (Shenzhen University, P.R. China); Shi Jin (Southeast University, P.R. China)

3. **An mmWave-Based Adaptive Multi-Beamforming Scheme for High Speed Railway Communications**
   Yin Hui and Rui Jiang (Nanjing University of Posts and Telecommunications, P.R. China); Youyun Xu (Nanjing University of Posts and Telecommunications and Shanghai Jioatong University, P.R. China)

4. **LTE-U or mmWave Network: A Network Selection Scheme**
   Xiaoxia Xu, Qimei Chen and Jiang Hao (Wuhan University, P.R. China)

5. **A Joint Resource Allocation Algorithm for mmWave Device-to-Device Networks with Heterogeneous Antenna Arrays**
   Lei Wang, Siran Liu and Mingkai Chen (Nanjing University of Posts and Telecommunications, P.R. China); Yaqiu Liu (Shanghai Radio Monitoring Station, P.R. China); Baoyu Zheng (Nanjing University of Posts and Telecommunications, P.R. China)

6. **Positioning Algorithm and AoD Estimation for mmWave FD-MISO System**
   Weicong Chen (Southeast University, P.R. China); Shiwen He (School of Information Science and Engineering, Central South University, P.R. China); Qinzhen Xu (Southeast University, P.R. China); Ju Ren (Central South University, P.R. China); Yongming Huang and Luxi Yang (Southeast University, P.R. China)

CTS-07: Emerging topics in Communications

Date: Oct. 20, 2018
Time: 14:00pm – 15:30pm
Room: Yun Qi Hall
Chair: Deli Qiao, East China Normal University, China

1. **Achievable Rate of Indoor THz Communication Systems with Finite-Bit ADCs**
   Dan Li and Deli Qiao (East China Normal University, P.R. China); Lei Zhang (University of Glasgow, United Kingdom (Great Britain))

2. **Redundant Residue Number System Coded Diffusive Molecular Communication**
   Liwei Mu (South China Normal University, P.R. China); Xingcheng Liu (Sun Yat-sen University, P.R. China); Lie-Liang Yang (University of Southampton, United Kingdom (Great Britain))

3. **Novel Ultrasonic Broadcast Communication System**
   He Yitao and Bian Junyu (Shanghai Jiao Tong University, P.R. China)

4. **Energy-efficient Deployment of Fat-Tree Hybrid Data Center Networks**
   Mingmeng Luo, Hongguang Sun, Min Sheng, Yan Shi and Jiandong Li (Xidian University, P.R. China)

5. **QoS-guaranteed Energy-Efficient VM Dynamic Migration Strategy in Cloud Data Centers**
   Hao Cao, Hongguang Sun, Min Sheng, Yan Shi and Jiandong Li (Xidian University, P.R. China)

6. **Conformity-aware Influence Maximization with User Profiles**
   Yiqing Li, Xiaoying Gan, Luoyi Fu, Xiaohua Tian and Zhida Qin (Shanghai Jiao Tong University, P.R. China); Yanhong Zhou (Tencent Technology (Shanghai) Company, P.R. China)

CTS-08: Miscellaneous Topics in Communications

Date: Oct. 20, 2018
Time: 16:00pm – 17:30pm
Room: Yun Qi Hall
Chair: Rui Yin, Zhejiang University City College, China

1. **Location Verification based on Radio Irregularity:**

Sequential Evaluation and Performance Assessment
Nanlan Jiang (Southeast University, P.R. China); Hazem Sallouha (KU Leuven, Belgium); Pingping Xu and Xuzhe Wang (Southeast University, P.R. China); Sofie Pollin (KU Leuven, Belgium)

2. **3D Outdoor Positioning Based on RSSI**
Wanjing Kuang, Mengting Zhang and Wenrui Li (Sun Yat-sen University, P.R. China); Caiyun Chen (Guangzhou University, P.R. China); Minghua Xia (Sun Yat-sen University, P.R. China)

3. **A 3-D Indoor Positioning System Using Asymmetry Double-Sided Two-Way Ranging And Chan Assisted Extended Kalman Filter**
Qian Chao, Weiwei Xia, Wenqing Cui, Zhuorui Lan, Feng Yan and Lianfeng Shen (National Mobile Communications Research Laboratory, Southeast University, P.R. China)

4. **Phase Retrieval via a modified Null Vector Estimator**
Kaihui Liu (University of Electronic Science and Technology of China, P.R. China); Linxiao Yang (University Of Electronic Science And Technology Of China, P.R. China); Zhengli Xing (Institute of Electronic Engineering, China Academy of Engineering Physics, P.R. China); Liangtian Wan (Dalian University of Technology, P.R. China)

5. **Hybrid Decode-Forward & Amplify-Forward Relaying with Opportunistic Layered Multicast**
Yifan Liu (Beijing University of Posts and Telecommunications, P.R. China); Yang Liu (Beijing University of Posts and Telecommunications, P.R. China); Guannan Ma (Beijing University of Posts and Telecommunications, P.R. China)

6. **A Throughput-Efficient Rateless Scheme of Polar Codes**
Hao Liang (Army Engineering University of PLA); AiJun Liu (Nanjing Institute of Communications Engineering, P.R. China); Zhang Yingxian (Army Engineering University of PLA); Fengyi Cheng (Army Engineering University, P.R. China); Xuan Yi (Army Engineering University of PLA)

Wireless Communications Symposium

WCS-01: SWIPT

Date: Oct. 18, 2018
Time: 14:00pm – 15:30pm
Room: Gui Yu Hall
Chair: Rui Yin, Zhejiang University City College, China

1. **Joint Power Allocation and Splitting for SWIPT Based Two-Way Multiplicative AF Relay Networks**
Tianci Wang (Xi'an University of Posts and Telecommunications, P.R. China); Guangyue Lu (Xi'an University of Posts and Telecommunications, P.R. China); Yuan Ren (Xi'an University of Posts and Telecommunications, P.R. China); Chan Lei (Xi'an University of Posts and Telecommunications, P.R. China)

2. **Transceiver Design for Data Rate Maximization of MIMO SWIPT System Based on Generalized Triangular Decomposition**
Ahmed Al-Baidhani and Mohammed Benaissa (University of Sheffield, United Kingdom (Great Britain)); Mikko Vehkapera (Aalto University, Finland)

3. **Robust Beamforming Design for Power-Splitting SWIPT-based Distributed Antenna Systems**
Weili Ge and Zhongyong Wang (Zhengzhou University, P.R. China); Huiming Wang (Xi'an Jiaotong University, P.R. China); Xiaoming Xu (National Digital Switching System Engineering and Technological Research Center, P.R. China); Di Zhang (Zhengzhou University, P.R. China); Niu Hehao (PLA University of Science and Technology, P.R. China); Zhengyu Zhu (Zhengzhou University, P.R. China)

4. **Energy-efficient Optimization Scheme for SWIPT-based Distributed Antenna System**
Junya Chu, Xiangbin Yu, He Li and Qiuming Zhu (Nanjing University of Aeronautics and Astronautics, P.R. China)

5. **A Selection-Based Cooperative SWIPT Scheme with Energy-Preserving DF Relays**
Jiao Chen (Nanjing University of Posts and Telecommunications, P.R. China)

6. **Energy-Efficient Transceiver Design for Full-Duplex Cooperative NOMA Systems with SWIPT**
Xiaojuan Yin (Nanjing University of Posts and Telecommunicaitons, P.R. China); Wei Wu, Haibo Dai and Pei Li (Nanjing University of Posts and Telecommunications, P.R. China); Bao-Yun Wang (Nanjing University of Posts and Telecommunications, P.R. China)

WCS-02: UAV Communications

Date: Oct. 18, 2018
Time: 16:00pm – 17:30pm
Room: Gui Yu Hall
Chair: Guoru Ding, Army Engineering University of PLA, China

1. **UAV-Aided NOMA Networks with Optimization of Trajectory and Precoding**
   Xiaowei Pang (Dalian University of Technology, P.R. China); Zan Li (Xidian University, P.R. China); Xiaoming Chen (Zhejiang University, P.R. China); Yang Cao and Nan Zhao (Dalian University of Technology, P.R. China); Yunfei Chen (University of Warwick, United Kingdom (Great Britain)); Zhiguo Ding (University of Manchester, United Kingdom (Great Britain))

2. **Energy-Efficient Secure Transmission for UAV-enabled Wireless Powered Communication**
   Yida Wang (Army Engineering University of PLA, P.R. China); Weiwei Yang (PLA Army Engineering University, P.R. China); Xiaohui Shang (Army Engineering University, P.R. China); Yueming Cai (Institute of Communications Engineering, PLA Army Engineering University, P.R. China)

3. **A Geometry-based 3D Non-stationary UAV-MIMO Channel Model Allowing 3D Arbitrary Trajectories**
   Jiang Kaili, Chen Xiaomin, Qiuming Zhu, Weizhi Zhong, Wang Yawen, Xiangbin Yu and Bing Chen (Nanjing University of Aeronautics and Astronautics, P.R. China)

4. **Spectrum Sharing between UAV-based Wireless Mesh Networks and Ground Networks**
   Zhiqing Wei, Zijun Guo, Zhiyong Feng and Jialin Zhu (Beijing University of Posts and Telecommunications, P.R. China); Caijun Zhong (Zhejiang University, P.R. China); Qihui Wu (PLA Unicersity of Science and Technology, P.R. China); Huici Wu (Beijing University of Posts and Telecommunications, P.R. China)

5. **Trajectory Planning in UAV Communication with Jamming**
   Haichao Wang (Army Engineering University of PLA, P.R. China); Jin Chen (PLA University of Sci. and Tech., P.R. China); Guoru Ding (Army Engineering University of PLA and Southeast University, P.R. China); Jiachen Sun (PLA University of Science and Technology, P.R. China)

6. **Sum Rate Maximization in UAV-Enabled Mobile Relay Networks**
   Zhen Xue (College of Communications Engineering, P.R. China); Qihui Wu (PLA Unicersity of Science and Technology, P.R. China); Zhiyong Feng (Beijing University of Posts and Telecommunications, P.R. China); Caijun Zhong (Zhejiang University, P.R. China); Guoru Ding (Army Engineering University of PLA and Southeast University, P.R. China)

WCS-03: Energy Harvesting Communications

Date: Oct. 19, 2018
Time: 14:00pm – 15:30pm
Room: Gui Yu Hall
Chair: Ming-min Zhao, Zhejiang University, China

1. **Buffer-Aided Energy Harvesting Relay Systems under Statistical Energy Underflow Constraint**
   Benyao You and Deli Qiao (East China Normal University, P.R. China)

2. **Joint Transceiver Design for Decoupled Full-Duplex Wireless Powered Communication Networks with Lens Antenna Arrays**
   Rongbin Guo, Minjian Zhao and Ming-Min Zhao (Zhejiang University, P.R. China)

3. **Outage Performance of Underlay CR-NOMA Networks**
   Sultangali Arzykulov (Nazarbayev University, Kazakhstan); Galymzhan Nauryzbayev (LN Gumilyov Eurasian National University, Kazakhstan, and Hamad Bin Khalifa University (HBKU), Qatar); Theodoros Tsiftsis (Jinan University, P.R. China); Mohamed M. Abdallah (Hamad Bin Khalifa University (HBKU), Qatar)

4. **Energy Efficiency Optimization in Energy Harvesting Incremental Relay System**
   Donghui Liu, Ming Zhao and Wuyang Zhou (University of Science and Technology of China, P.R. China)

5. **Hybrid Beamformer Design with Low-Resolution Phase Shifters in MU-MISO SWIPT Systems**
   Rang Liu, Hongyu Li, Yiqun Guo, Ming Li and Qian Liu (Dalian University of Technology, P.R. China)

6. **Energy-Efficient Resource Allocation for Wireless Power Transfer Enabled Massive MIMO Systems with Hardware Impairments**
   Xiaoyu Wan, Xiaona Yang, Zhengqiang Wang, Xiaoxia Yang and Zifu Fan (Chongqing University of Posts and Telecommunications, P.R. China)

WCS-04: mmWave Massive MIMO

Date: Oct. 19, 2018
Time: 16:00pm – 17:30pm
Room: Gui Yu Hall
Chair: Chenhao Qi, Southeast University, China

1. **Model based Beamspace Channel Estimation for Millimeter Wave Massive MIMO System**
   Zhikang Xia, Chenhao Qi and Tengxiang Zhang (Southeast University, P.R. China)

2. **Hybrid Beamforming Based on Uniform Channel Decomposition for Millimeter Wave Massive MIMO Systems**
   Yuxing Lin and Shi Jin (Southeast University, P.R. China); Xiaohu You (National Mobile communication Research Lab., Southeast University, P.R. China)

3. **Noise Performance of Orthogonal RF Beamforming for Millimetre Wave MassiveMIMO Communication Systems**
   Krishan Kumar Tiwari (IHP, Germany); John Thompson (University of Edinburgh, United Kingdom (Great Britain)); Eckhard Grass (IHP and Humboldt-University Berlin, Germany)

4. **PAPR-Aware Beam Division Multiple Access for mmWave Massive MIMO Systems**
   Guanchong Niu and Man-On Pun (The Chinese University of Hong Kong, Shenzhen, P.R. China)

5. **Channel Tracking for Uniform Rectangular Arrays in mmWave Massive MIMO Systems**
   Haiyan Liu and Tiankui Zhang (Beijing University of Posts and Telecommunications, P.R. China); Zhirui Hu (Hangzhou Dianzi University, P.R. China); Jonathan Loo (University of West London, United Kingdom (Great Britain)); Youxiang Wang (China United Network Communication Corporation Ltd., P.R. China)

6. **Achievable Sum Rate Loss of Hybrid Beamforming with Imperfect Phase Shifters in Multiuser Millimeter Wave Systems**
   Wendi Wang, Huarui Yin, Xiaohui Chen and Weidong Wang (University of Science and Technology of China, P.R. China)

WCS-05: Massive MIMO I

Date: Oct. 19, 2018
Time: 16:00pm – 17:30pm
Room: Jiu Xi Hall
Chair: Rongpeng Li, Zhejiang University, China

1. **Hybrid Beamforming for Massive MIMO: A Unified Solution for Both Phase Shifter and Switch Networks**
   Yi Jiang and Yimeng Feng (Fudan University, P.R. China); Mahesh K Varanasi (University of Colorado, USA)

2. **The 3D Spatial Non-Stationarity and Spherical Wavefront in Massive MIMO Channel Measurement**
   Jianzhi Li, Bo Ai, Ruisi He, Mi Yang and Zhangdui Zhong (Beijing Jiaotong University, P.R. China); Yang Hao (Queen Mary University, United Kingdom (Great Britain)); Guowei Shi (China Academy of Telecommunication Research, P.R. China)

3. **Location information Aided Massive-MIMO Beam Domain Precoding for Next Generation Railway Mobile Communications**
   Tengfei Ge (Nanjing University of Posts and Telecommunications Ministry of Education, P.R. China); Youyun Xu (Nanjing University of Posts and Telecommunications and Shanghai Jioatong University, P.R. China); Dapeng Li (Nanjing University of Posts and Telecommunications, P.R. China); Jianping Chen (Nanjing Ticom Tech Co. Ltd, P.R. China)

4. **Experimental Evaluation of A Novel Antenna Structure:Multi-Panel Massive MIMO**
   Zheng Jiang (Technology Innovation Center, China Telecom Corp. Ltd, P.R. China); Peng Chen (Technology Innovation Center, China Telecom Co. Ltd., P.R. China); Fengyi Yang and Qi Bi (Technology Innovation Center, China Telecom Corp. Ltd, P.R. China)

5. **Fast Updating the STBC Decoder Matrices in the Uplink of a Massive MIMO System**
   Seyed Hosein Mousavi and Jafar Pourrostam (University of Tabriz, Iran)

6. **A PDQ-Based Iterative Receiver in Massive MIMO Systems with Low Resolution ADCs**
   Junhao Lin and Ming Jiang (Southeast University, P.R. China)

WCS-06: Massive MIMO II

Date: Oct. 20, 2018
Time: 08:30am – 10:00pm
Room: Gui Yu Hall
Chair: Wenjin Wang, Southeast University, China

1. **Machine Learning Assisted User-scheduling Method for Massive MIMO System**
   Junchao Shi and Wenjin Wang (Southeast University, P.R. China); Jiaheng Wang (National Mobile Communications Research Lab, Southeast University, P.R. China); Xiqi Gao (Southeast University, P.R. China)

2. **Analysis of Performances for Three Massive MIMO Channel Models**
   Fan Lai (Southeast University, P.R. China); Carlos F Lopez (Heriot-Watt University, United Kingdom (Great Britain)); Xiqi Gao and Cheng-Xiang Wang (Southeast University, P.R. China); Fu-Chun Zheng (University of York, United Kingdom (Great Britain) and Southeast University, P.R. China)

3. **Multi-Cell Massive MIMO Systems with Low Resolution ADCs**
   Qiang Huang, Chuili Kong and Caijun Zhong (Zhejiang University, P.R. China)

4. **SCA Power Optimization in Cell-Free Massive MIMO with Short-Term Power Constraints**
   Yao Zhang, Haotong Cao, Yongan Guo and Longxiang Yang (Nanjing University of Posts and Telecommunications, P.R. China)

5. **A Novel Pilot Allocation Scheme for TDD Massive MIMO Systems**
   Hui Zhi, Ziju Huang and Feiyue Wang (Anhui University, P.R. China)

6. **Spectral Efficiency Analysis of Multi-Cell Massive MIMO Systems with Ricean Fading**
   Pei Liu, Kai Luo, Da Chen and Tao Jiang (Huazhong University of Science and Technology, P.R. China); Michail Matthaiou (Queen's University Belfast, United Kingdom (Great Britain))

WCS-07: Vehicular Communications

Date: Oct. 20, 2018
Time: 10:30am – 12:00am
Room: Gui Yu Hall
Chair: Qiuming Zhu,Nanjing University of Aeronautics and Astronautics, China

1. **Path Loss Analysis and Modeling for Vehicle-to-Vehicle Communications with Vehicle Obstructions**
   Mi Yang (Beijing Jiaotong University, P.R. China); Bo Ai (Beijing Jiaotong University and State Key Lab of Rail Traffic Control and Safety, P.R. China); Ruisi He (Beijing Jiaotong University, P.R. China); Liang Chen and Xue Li (Huawei Technologies, P.R. China); Zefang Huang (Liaoyang First High School, P.R. China); Jianzhi Li and Chen Huang (Beijing Jiaotong University, P.R. China)

2. **V2X-Enabled Energy-Efficient Transmission in Cellular Networks**
   Zheng Canjian (ShenZhen University, P.R. China); Daquan Feng and Shengli Zhang (Shenzhen University, P.R. China); Xiang-Gen Xia (Shenzhen University and University of Delaware, USA); Qian Gongbin (Shenzhen University, P.R. China); Geoffrey Li (Georgia Tech, USA)

3. **A General 3D Non-Stationary Twin-Cluster Model for Vehicle-to-Vehicle MIMO Channels**
   Ying Yang, Qiuming Zhu, Weidong Li, Xiao-min Chen, Weizhi Zhong, Xiangbin Yu and Kai Mao (Nanjing University of Aeronautics and Astronautics, P.R. China)

4. **Computation Offloading Scheme to Improve QoE in Vehicular Networks with Mobile Edge Computing**
   Qiaorong Liu, Zhou Su and Yilong Hui (Shanghai University, P.R. China)

5. **Vehicular Transportation System Enabling Traffic Monitoring: A Heterogeneous Data Fusion Method**
   Xiaoyu Wang, Cailian Chen, Yang Min and Jianping He (Shanghai Jiao Tong University, P.R. China); Yang Zhang (Shanghai Transportation Information Center, P.R. China)

6. **Sparse Channel Estimation for High-Mobility OFDM Systems in Downlink**
   Wei Guo (Xidian University, P.R. China); Hao Deng (Henan University, P.R. China)

WCS-08: Resource Allocation

Date: Oct. 20, 2018
Time: 10:30am – 12:00am
Room: Jiu Xi Hall
Chair: Hongguang Sun, Xidian University, China

1. **Price-based Joint Offloading and Resource Allocation for Ad Hoc Mobile Cloud**
   Yueyue Zhang (Southeast University, P.R. China); Yunchi Shi (University of Kent, United Kingdom (Great Britain)); Fei Shen (Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, P.R. China); Weiwei Xia, Feng Yan and Lianfeng Shen (National Mobile Communications Research Laboratory, Southeast University, P.R. China)

2. **Joint Computation Offloading and Radio Resource Allocations in Wireless Cellular Networks**
   Hong Chen (Chongqing University of Posts and Telecommunications, P.R. China); Dongmei Zhao (McMaster University, Canada); Qianbin Chen and Rong Chai (Chongqing University of Posts and Telecommunications, P.R. China)

3. **Joint User Pairing and Power Allocation for Full-Duplex MIMO Cellular Systems under Imperfect Channel State Information**
   Fangni Chen (Zhejiang University of Science and Technology, P.R. China); Jingyu Hua (Zhejiang University of Technology, P.R. China); Wang Zhongpeng (Zhejiang University of science and Technology, P.R. China); Yang Zhou and Weiwei Qiu (Zhejiang University of Science and Technology, P.R. China)

4. **Optimal Channel Occupancy Duration and Subcarrier Allocation for LTE-U Systems**
   Jiantao Yuan, Aiping Huang and Hangguan Shan (Zhejiang University, P.R. China)

5. **Promoting and Balancing Resource Utilization via Integration by Exploiting the Time-varying Property of Resource Requirements**
   Luyao Jin, Hongguang Sun, Min Sheng, Yan Shi and Jiandong Li (Xidian University, P.R. China)

6. **Chance Quality-of-Service Driven Resource Allocation Scheme in Multicast Networks**
   Changqing Pan (China Railway Test and Certification Center, P.R. China); Mei Yan (Beijing University of Posts and Telecommunications, P.R. China); Wanxin Zhao (Beijing University of Post and Telecommunication, P.R. China); Yinglei Teng (Beijing University of Posts and Telecommunications, P.R. China); An Liu (Zhejiang University, P.R. China)

WCS-09: NOMA

Date: Oct. 20, 2018
Time: 14:00pm – 15:30pm
Room: Gui Yu Hall
Chair: Nan Zhao, Dalian University of Technology, China

1. **NOMA/CA: NOMA-based Random Access with Pattern Detection and Collision Avoidance**
   Shiqi Zhou, Zhaoyang Zhang, Jue Wang and Chunxu Jiao (Zhejiang University, P.R. China); Yan Chen (Huawei, P.R. China)

2. **Privacy Protection via Beamforming Optimization in MISO NOMA Networks**
   Yang Cao and Nan Zhao (Dalian University of Technology, P.R. China); Yunfei Chen (University of Warwick, United Kingdom (Great Britain)); Minglu Jin (Dalian University of Technology, P.R. China); Lisheng Fan (Guangzhou University, P.R. China); Zhiguo Ding (University of Manchester, United Kingdom (Great Britain)); F. Richard Yu (Carleton University, Canada)

3. **Performance Analysis of Uplink Uncoordinated Code-Domain NOMA for SINs**

Mingduo Gan (Harbin Institute of Technology(Shenzhen), P.R. China); Jian Jiao (Harbin Institute of Technology - Shenzhen, P.R. China); Lianqin Li and Shaohua Wu (Harbin Institute of Technology, P.R. China); Qinyu Zhang (Shenzhen Graduate School, Harbin Institute of Technology, P.R. China)

4. **BER Analysis for NOMA-Enabled Visible Light Communication Systems with M-PSK**
   Xiaodong Liu (Wuhan University, P.R. China); Yuhao Wang (Nanchang University, P.R. China); Fuhui Zhou and Rose Qingyang Hu (Utah State University, USA)

5. **Outage analysis of cooperative NOMA in 5G systems over Nakagami-m fading channels**
   Yangyang Zhang and Jianhua Ge (Xidian University, P.R. China)

6. **Design of Cooperative NOMA for Live Video Broadcast**
   Qiming Zheng and Hangguan Shan (Zhejiang University, P.R. China)

WCS-10: Performance Analysis

Date: Oct. 20, 2018
Time: 14:00pm – 15:30pm
Room: Jiu Xi Hall
Chair: Xuesong Liang, Hangzhou Dianzi University, China

1. **Performance Analysis of Soft Decoding Algorithms for Polar-Staircase Coding Scheme**
   Liu Zhou (Harbin Institute of Technology (Shenzhen), P.R. China); Bowen Feng (Harbin Institute of Technology Shenzhen Graduate School, P.R. China); Jian Jiao (Harbin Institute of Technology - Shenzhen, P.R. China); Kexin Liang and Shaohua Wu (Harbin Institute of Technology, P.R. China); Qinyu Zhang (Shenzhen Graduate School, Harbin Institute of Technology, P.R. China)

2. **Performance Modeling of LAA LBT with Random Backoff and a Variable Contention Window**
   Jie Xiao, Jun Zheng, Liangyu Chu and Qilei Ren (Southeast University, P.R. China)

3. **On the Performance of Variable-Rate HARQ-IR over Beckmann Fading Channels**
   Zheng Shi (Jinan University, P.R. China); Huan Zhang and Shenke Zhong (University of Macau, Macao); Guanghua Yang (Jinan University, P.R. China); Xinrong Ye (Anhui Normal University, P.R. China); Shaodan Ma (University of Macau, P.R. China)

4. **Performance Analysis of Land-to-Ship Marine Communication Based on Block Markov Superposition Transmission and Spatial Modulation**
   Yao Shi (Sun Yat-sen University,China); Xiao Ma (Sun Yat-sen University, P.R. China)

5. **Performance of Cooperative Spatial Modulation with AF Relaying in the Presence of Channel Estimation Error**
   Qing Pan, Xiangbin Yu, He Li, Yuheng Du and Qiuming Zhu (Nanjing University of Aeronautics and Astronautics, P.R. China)

6. **Performance Analysis of Indoor Polarization Multiplexing Coherent Optical Wireless Systems**
   Zaichen Zhang (National Mobile Communications Research Laboratory, Southeast University, P.R. China); Jiashun Hu and Liang Wu (Southeast University, P.R. China); Jian Dang (Southeast University and National Mobile Communications Research Laboratory, P.R. China); Guanghao Zhu (Nanjing University, P.R. China)

WCS-11: Multiple Access

Date: Oct. 20, 2018
Time: 16:00pm – 17:30pm
Room: Gui Yu Hall
Chair: Yu Zhang, Zhejiang University of Technology, China

1. **Uplink Performance Analysis of Mixed-ADC Massive MIMO Systems with MMSE Receivers**
   Yinkai Fu, Wence Zhang and Xiaoxuan Xia (Jiangsu University, P.R. China)

2. **Geolocation Based Channel Access for Underlay Cognitive Radio**
   Vaddadi Praneeth, *Nour Mansour and Dirk Dahlhaus (University of Kassel, Germany)*

3. **Dynamic DS-CDMA Aided by Successive Interference Cancellation for Massive Grant-Free Multiple-Access**
   Jiatian Zhang (University of Southampton, United Kingdom (Great Britain)); Peng Pan (Hangzhou Dianzi University, P.R. China); Lie-Liang Yang (University of Southampton, United Kingdom (Great Britain))

4. **Rateless Code Profiles Design for Uplink C-RAN under Block Fading Channel**
   Yu Zhang, Jiali Xu, Hong Peng, Weidang Lu and Hua Jingyu (Zhejiang University of Technology, P.R. China)

5. **Massive Access in the Presence of Imperfect Successive Interference Cancellation**
   Xiaoming Chen, Rundong Jia and Caijun Zhong (Zhejiang University, P.R. China); Derrick Wing Kwan Ng (University of New South Wales, Australia); Zhaoyang Zhang (Zhejiang University, P.R. China)

6. **A Low-Complexity Hybrid Interference Suppression Scheme Using Spectral Self-Coherence Property For GNSS Receivers**
   Xiaodong Xu and Kun Dong (University of Science and Technology of China, P.R. China); Junyu Yao (USTC, P.R. China); Jiaxi Zhou (CETC, P.R. China)

WCS-12: Multi-Carrier Communications

Date: Oct. 20, 2018
Time: 16:00pm – 17:30pm
Room: Jiu Xi Hall
Chair: Yongpeng Wu, Shanghai Jiaotong University, China

1. **MIMO-OFDM Scheme design for Medium Voltage Underground Cables based Power Line Communication**
   Mengyuan Cheng (Shanghai Jiao Tong University, P.R. China); Kai Wan (Global Energy Interconnection Research Institute, P.R. China); Fan Wei (Shanghai Jiao Tong University, P.R. China); Fuyong Zheng (Jiangxi Electric Power Company, P.R. China); Yongpeng Wu (Shanghai Jiao Tong University, P.R. China)

2. **3-D Constellation Extension-aided PAPR Suppressing for OFDM Systems**
   Hongqing Huang (Sun Yat-sen University, P.R. China); Lin Zhang (Sun Yat-sen University and SYSU-CMU Shunde International Joint Research Institute, P.R. China)

3. **Gaussian Message Passing based Receiver for Multicarrier Faster-Than-Nyquist Signaling**
   Falin Tian (School of Information and Electronics, Beijing Institute of Technology, P.R. China); Yuan Feng (Science Research Institute of China North Industries Group Corporation, P.R. China); Yunsi Ma and Nan Wu (Beijing Institute of Technology, P.R. China)

4. **A Novel Piecewise Nonlinear Companding Transform for PAPR Reduction in GFDM**
   Yinghua Li (State Radio Monitoring Center, P.R. China); WeiFeng Deng (Beijing University of Posts and Telecommunications and None, P.R. China)

5. **MMSE-based Detector for Spatial Modulation OFDM Systems with Multiple CFOs**
   Yan Zhao (UESTC, P.R. China); Yue Xiao, Ping Yang, Binhong Dong and Lei Xia (University of Electronic Science and Technology of China, P.R. China); Wei Xiang (James Cook University, Australia)

6. **Phase Noise Suppression in Uplink Massive MIMO OFDM Systems**
   Ke Xu (UESTC, P.R. China); Xiantao Cheng (University of Elctronic Sceience and Technology of China, P.R. China); Shaoqian Li (University of Electronic Science and Technology of China, P.R. China)

WCS-13: Miscellaneous Topics

Date: Oct. 20, 2018
Time: 16:00pm – 17:30pm
Room: Jin Sui Hall
Chair: Jue Wang, Nantong University, China

1. **chainABF: Sending Multiple-Bit Messages and Improving the Reliability with Multiple Rounds of Analog Bloom Filter**
   Zhenghao Zhang (Florida State University, USA)

2. **A Quality-driven Bit Rate Adaptation Method for Dynamic Adaptive Streaming over HTTP**
   Guannan Xie, Xixi Jin, Lei Xie and Huifang Chen (Zhejiang University, P.R. China)

3. **Sea Clutter Distribution Modeling: A Kernel Density Estimation Approach**
   Hongkuan Zhou, Yuzhou Li and Tao Jiang (Huazhong University of Science and Technology, P.R. China)

4. **Two-State Buffer Driven Rate Adaptation Strategy for Improving Video QoE over HTTP**
   Ailing Xiao and Xiaoming Tao (Tsinghua University, P.R. China); Li Wang (Beijing University of Posts and Telecommunications, P.R. China); Jie Liu and Jianhua Lu (Tsinghua University, P.R. China)

5. **A Ray-Optics Approach for Evaporation Duct Channel Modeling**
   Haifeng Zhou, Jue Wang and Qiang Sun (Nantong University, P.R. China); Wei Feng (Tsinghua University, P.R. China); Li You (Southeast University, P.R. China); Chen Xu (Nantong Unviersity, P.R. China)

Wireless Networking Symposium

WNS-01: D2D Communications

Date: Oct. 18, 2018
Time: 14:00pm – 15:30pm
Room: Huan Bi Hall
Chair: Haibo Wang, Beijing Jiaotong University, China

1. **SIM: An Incentive Mechanism Based on Signaling Games for Device-to-Device Content-Sharing**
   Dafeng Han and Haibo Wang (Beijing Jiaotong University, P.R. China); Renjun Zheng (BeijingJiaoTongUniversity, P.R. China)

2. **Prefix Caching for Video Streaming in Wireless D2D Networks**
   Hongwei Hou and Meixia Tao (Shanghai Jiao Tong University, P.R. China)

3. **Double Replication MDS Codes for Wireless D2D Distributed Storage Networks**
   Juan Li (Harbin Institute of Technology (Shenzhen), P.R. China); Shushi Gu (Harbin Institute of Technology, Shenzhen, P.R. China); Ye Wang (Harbin Institute of Technology (Shenzhen), P.R. China); Qinyu Zhang (Harbin Institute of Technology Shenzhen Graduate School, P.R. China)

4. **Performance Analysis of Network Coded Cooperative D2D Communications**
   Jin Zhou, Ye Li and Zhihua Bao (Nantong University,

P.R. China)

5. **Joint Uplink and Downlink Resource Allocation for D2D Communication Underlying Cellular Networks**
   Caihong Kai, Lei Xu, Jiaojiao Zhang and Min Peng (Hefei University of Technology, P.R. China)

WNS-02: Space Networks

Date: Oct. 18, 2018
Time: 16:00pm – 17:30pm
Room: Huan Bi Hall
Chair: Shun Zhang, Xidian University, China

1. **A Space-Time Graph based Minimum Cost Routing Algorithm for the Random Traffic in the Satellite Network**
   Chengcheng Shi (Harbin Institute of Technology Shenzhen Graduate School, P.R. China); Yue Li (Harbin Institute of Technology, Shenzhen, P.R. China); Peng Yuan (Harbin Institute of Technology Shenzhen Graduate School, P.R. China); Zhihua Yang (Harbin Institute of Technology, P.R. China)

2. **Virtual Agent Clustering based Mobility Management over the Satellite Networks**
   Dongang Li, Hongyan Li and Shun Zhang (Xidian University, P.R. China); Xiushe Zhang (Research Institute of Navigation Technology, P.R. China)

3. **Parallel Wavelength Fault Tolerant Clos-network for Space Optical Network**
   Kai Liu and Zhou Lu (China Academy of Electronics and Information Technology, P.R. China); Jian Yan (Tsinghua University, P.R. China)

4. **Task-oriented Resource Management Simulation Platform for Space Information Networks**
   Chengyuan Tang, Runzi Liu and Min Sheng (Xidian University, P.R. China); An Wang (Xi'an Satellite Control Center, P.R. China); Ningbo Song, Jiandong Li and Weihua Wu (Xidian University, P.R. China)

5. **Secure Satellite-Terrestrial Transmission via Hybrid Analog-Digital Beamforming**
   Qian Song and Shengjie Zhao (Tongji University, P.R. China); Qingjiang Shi (Zhejiang Sci-Tech University, P.R. China)
6. **A Back-tracing Partition based On-path Caching Distribution Strategy over integrated LEO Satellite and Terrestrial networks**
   Yue Li (Harbin Institute of Technology, Shenzhen, P.R. China); Qinyu Zhang (Shenzhen Graduate School, Harbin Institute of Technology, P.R. China); Peng Yuan (Harbin Institute of Technology Shenzhen Graduate School, P.R. China); Zhihua Yang (Harbin Institute of Technology, P.R. China)

WNS-03: Fog Networks

Date: Oct. 19, 2018
Time: 14:00pm – 15:30pm
Room: Huan Bi Hall
Chair: Wei Wang, Zhejiang University, China

1. **Hierarchical Collaborative Cloud and Fog Computing in IoT Networks**
   Qun Wang, Tan Thanh Le and Rose Qingyang Hu (Utah State University, USA); Geng Wu (Intel Corporation, USA)

2. **Delay Minimized Task Scheduling in Fog-Enabled IoT Networks**
   Guowei Zhang (Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences and University of Chinese Academy of Sciences, P.R. China); Fei Shen (Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, P.R. China); Yueyue Zhang (Shanghai Aecrospace Electronic Technology Institute); Rong Yang (Shenzhen University, P.R. China); Yang Yang (ShanghaiTech University); Eduard Jorswieck (TU Dresden, Germany)

3. **Research on Offloading Strategy of Computing Resources in Fog Computing Networks Based on F-matching**
   Hanlin Mou, Yutong Ai and Li Wang (Beijing University of Posts and Telecommunications, P.R. China)

4. **An Incentive Framework for Collaborative Sensing in Fog Networks**
   Chongchong Zhang and Fei Shen (Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, P.R. China); Guowei Zhang (Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences and University of Chinese Academy of Sciences, P.R. China); Fei Qin (Chinese Academy of Sciences, P.R. China); Feng Yan (National Mobile Communications Research Laboratory, Southeast University, P.R. China); Philippe Martins (Telecom ParisTech, France)

5. **Computational Resource Constrained Multi-Cell Joint Processing in Fog Radio Access Networks**
   Chao Han, Wei Wang, Panyouwen Zhang, Yitu Wang and Zhaoyang Zhang (Zhejiang University, P.R. China)

6. ***Delay-Aware Resource Allocation for Network Slicing in Fog Radio Access Networks***
   Dongxue Tang (Beijing University of Posts and Telecommunications, P.R. China); Chunjing Hu (Beijing University of Posts and Telecommunications (BUPT), P.R. China); Tian

Dang (Beijing University of Posts and Telecommunications, P.R. China)

WNS-04: Mobile Edge Computing

Date: Oct. 19, 2018
Time: 16:00pm – 17:30pm
Room: Huan Bi Hall
Chair: Fei Shen, Shanghai Institute of Microsystem and Information Technology, CAS, China

1. **Joint User Clustering, Resource Allocation and Power Control for NOMA-based Mobile Edge Computing**
   Xianbang Diao (PLA Army Engineering University, P.R. China); Jianchao Zheng (National Institute of Defense Technology Innovation, Academy of Military Sciences PLA and Institute of Communications Engineering, PLA University of Science and Technology, P.R. China); Yueming Cai (Institute of Communications Engineering, PLA Army Engineering University, P.R. China); Xinsong Dong and Xiaoyi Zhang (PLA Army Engineering University, P.R. China)

2. **A Hierarchical Game for Joint Wireless and Cloud Resource Allocation in Mobile Edge Computing System**
   Zhuorui Lan, Weiwei Xia, Wenqing Cui and Feng Yan (National Mobile Communications Research Laboratory, Southeast University, P.R. China); Fei Shen (Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, P.R. China); Xuzhou Zuo (School of Information and Software Engineering, UESTC, P.R. China); Lianfeng Shen (National Mobile Communications Research Laboratory, Southeast University, P.R. China)

3. **An Efficient Offloading Algorithm Based on Support Vector Machine for Mobile Edge Computing in Vehicular Networks**
   Siyun Wu, Weiwei Xia, Wenqing Cui, Qian Chao, Zhuorui Lan, Feng Yan and Lianfeng Shen (National Mobile Communications Research Laboratory, Southeast University, P.R. China)

4. **Experimental Evaluation of Modern TCP Variants in MEC-enabled Cellular Networks**
   Zhi Wang, Yiming Tan and Xing Zhang (Beijing University of Posts and Telecommunications, P.R. China)

5. **Towards Fresh and Low-Latency Content Delivery in Vehicular Networks: An Edge Caching Aspect**
   Shan Zhang, Junjie Li and Hongbin Luo (Beihang University, P.R. China); Jie Gao and Lian Zhao (Ryerson University, Canada); Sherman Shen (University of Waterloo, Canada)

6. **Communication-Efficient Computation Load Scheduling for Edge Computing Systems**
   Minghui Zhao, Wei Wang, Yitu Wang and Zhaoyang Zhang (Zhejiang University, P.R. China)

WNS-05: UAV Networks

Date: Oct. 20, 2018
Time: 08:30am – 10:00am
Room: Huan Bi Hall
Chair: Chungang Yang, Xidian University, China

1. **QoS-aware 3D Deployment of UAV Base Stations**
   Zhongkai Zhu, Letian Li and Wuyang Zhou (University of Science and Technology of China, P.R. China)

2. **The Experiment and Performance Analysis of Multi-node UAV Ad Hoc Network Based on Swarm Tactics**
   Yuqing Jiang (Army Engineering University of PLA, P.R. China); Zhichao Mi, Wang Hai and Xudong Wang (PLA University of Science and Technology, P.R. China); Ning Zhao (The 28th Research Institute of China Electronics Technology Group Corporation, P.R. China)

3. **Mode Selection in UAV-aided Vehicular Network: an Evolutionary Game Approach**
   Guangchao Wang, Sheng Zhou and Zhisheng Niu (Tsinghua University, P.R. China)

4. **Fair-Energy Trajectory Plan for Reconnaissance Mission Based on UAVs Cooperation**
   Zhen Qin (The Army Engineering University of PLA, P.R. China); Aijing Li (PLA University of Science and Technology, P.R. China); Chao Dong (Nanjing University of Aeronautics and Astronautics, P.R. China); Haipeng Dai (Nanjing University and State Key Laboratory for Novel Software Technology, P.R. China); Ai Xu (The Army Engineering University of PLA, P.R. China)

5. **A Mobility Prediction and Delay Prediction Routing Protocol for UAV Networks**
   Min Song, Jing Liu and Shixin Yang (Shanghai Jiao Tong University, P.R. China)

6. **Energy Efficiency Optimization for Wireless Unmanned Aerial Vehicle Communication Networks: A Bargaining Game Approach**
   Chungang Yang and Mbazingwa E Mkiramweni (Xidian University, P.R. China)

WNS-06: Small Cell and HetNet

Date: Oct. 20, 2018
Time: 10:30am – 12:00am
Room: Huan Bi Hall
Chair: Junhui Zhao, Beijing Jiaotong University, China

1. **QoE-Orientated Resource Allocation for Wireless**

VR over Small Cell Networks
Tianyu Lu and Haibo Dai (Nanjing University of Posts and Telecommunications, P.R. China); Bao-Yun Wang (Nanjing University of Posts and Telecommunications, P.R. China)

2. **Load Based Dynamic Small Cell On/Off Strategy In Ultra-Dense Networks**
Chenqi Luo (Shanghai Jao Tong University, P.R. China); Jing Liu (Shanghai Jiao Tong University, P.R. China)

3. **Modeling and Analysis of FeICIC in OFDMA HetNets with Limited Backhaul Capacity**
Xuefang Nie (East China Jiaotong University, P.R. China); Junhui Zhao (Beijing Jiaotong University, P.R. China); Yang Wang (Harbin Institute of Technology, P.R. China); Kang Lichun (Jiangxi Agricultural University, P.R. China); Liqin Ding (Harbin Institute of Technology, P.R. China); Jiliang Zhang (Chalmers University of Technology, Sweden)

4. **Energy Efficient Beamforming in Heterogeneous Small Cell Networks**
Zeli Lao (Southeast University, P.R. China); Zhaohua Lu (ZTE Corporation, P.R. China); Jiaheng Wang (National Mobile Communications Research Lab, Southeast University, P.R. China); Yongming Huang and Leixin Han (Southeast University, P.R. China); Fusheng Zhu (ZTE Corporation, P.R. China); Licheng Zhao (HKUST, Hong Kong)

5. **A Throughput-Enhanced Transmission Scheme for Decoupled Heterogeneous Networks**
Wen Liu and Shi Jin (Southeast University, P.R. China); Xiaohu You (National Mobile communication Research Lab., Southeast University, P.R. China)

6. **Multipath TCP Scheduling Optimization Based on PSRBP in Heterogeneous Network**
Hai-tao Zhao, MengKang Zhang, Hongsu Yu, Tianqi Mao and Hongbo Zhu (Nanjing University of Posts and Telecommunications, P.R. China)

WNS-07: Software Defined Networks
Date: Oct. 20, 2018
Time: 10:30am – 12:00am
Room: Jin Sui Hall
Chair: Qingjiang Shi, Tongji University, China

1. **SDR Implementation of a 5G-Oriented Ultra-Dense Distributed MIMO Prototype System**
Wang Jiapin, Wang Kang and Bin Han (Southeast University, P.R. China); Senjie Zhang (Intel Labs China, P.R. China); Chao-Kai Wen (National Sun Yat-sen University, Taiwan); Shi Jin (Southeast University, P.R. China)

2. **Minimizing Congestion Impairment of Network Update in SDN: A Flow-Based Solution**
Chaozhun Wen, Peng Yang, Qiong Liu and Jingjing Luo (Huazhong University of Science and Technology, P.R. China); Li Yu (Huazhong University of Science and Technology, P.R. China)

3. **End-to-End Delay Minimization based Joint Route Selection and Network Function Placement in SDN**
Leilei Huang, Rong Chai, Qianbin Chen and Chun Jin (Chongqing University of Posts and Telecommunications, P.R. China)

4. **Flexible Routing-Proactive Updating Mechanism for Software Defined Vehicle Networks**
Shixin Yang, Jing Liu and Xiongshi Yan (Shanghai Jiao Tong University, P.R. China)

5. **Energy-Efficient Joint Power and Admission Control in Software Defined Mobile Networks**
Yueyue Zhang (Southeast University, P.R. China); Fei Shen (Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, P.R. China); Yunchi Shi (University of Kent, United Kingdom (Great Britain)); Weiwei Xia, Feng Yan and Lianfeng Shen (National Mobile Communications Research Laboratory, Southeast University, P.R. China)

6. **Distributed Resource Allocation for Mobile Users in Cache-Enabled Software Defined Cellular Networks**
Xiangqun Yang, Chunyu Pan, Mingzhe Chen and Changchuan Yin (Beijing University of Posts and Telecommunications, P.R. China)

WNS-08: Dense Networks
Date: Oct. 20, 2018
Time: 14:00pm – 15:30pm
Room: Huan Bi Hall
Chair: Cunqing Hua, Shanghai Jiao Tong University, China

1. **Stochastic Geometry based Handover Probability Analysis in Dense Cellular Networks**
Yinglei Teng (Beijing University of Posts and Telecommunications, P.R. China); An Liu (Zhejiang University, P.R. China); Vincent Lau (Hong Kong University of Science and Technology, Hong Kong)

2. **Power Splitting and Virtual Power Allocation for Virtual Cell in Ultra-Dense Networks**
Nan Lu (Xi'an University of Posts and Telecommunications, P.R. China); Hongfeng Qin (ZTE Corporation, P.R. China); Changyin Sun (College of Xi'an Post and Communication, P.R. China); Fan Jiang (Xian University of Posts and

Telecommunications, P.R. China)

3. **Downlink Interference Management in Dense Drone Small Cells Networks Using Mean-Field Game Theory**
   Zihe Zhang and Lixin Li (Northwestern Polytechnical University, P.R. China); Wei Liang (Northwestern Polytechnical University, P.R. China); Xu Li and Ang Gao (Northwestern Polytechnical University, P.R. China); Wei Chen (Tsinghua University, P.R. China); Zhu Han (University of Houston, USA)

4. **Handover Performance in Dense MmWave Cellular Networks**
   Zhiyuan Li and Weidong Wang (University of Science and Technology of China, P.R. China)

5. **Age of Information in Poisson Networks**
   Yuming Hu (University of Science and Technology of China, P.R. China); Yi Zhong (Huazhong University of Science and Technology, P.R. China); Wenyi Zhang (University of Science and Technology of China, P.R. China)

6. **Online Offloading in Dense Wireless Networks: An Adversary Multi-armed Bandit Approach**
   Cunqing Hua and Lingzhi Wang (Shanghai Jiao Tong University, P.R. China); Pengwenlong Gu (TELECOM ParisTech, France)

WNS-09: Emerging Topics in Wireless Networks

Date: Oct. 20, 2018
Time: 16:00pm – 1:30pm
Room: Huan Bi Hall
Chair: Hangguan Shan, Zhejiang University, China

1. **Joint Optimization Scheme for Spectrum Leasing in Cognitive Radio Network**
   Xiaomin Liu and Lixin Li (Northwestern Polytechnical University, P.R. China); Wei Liang (Northwestern Polytechnical University, P.R. China); Fucheng Yang (Naval Aviation University, P.R. China); Haitao Xu (University of Science and Technology Beijing, P.R. China); Zhu Han (University of Houston, USA)

2. **Task Assignment with Precedence Constraint over Networks: A Case Study of Computation-Communication Convergence**
   Zheng Cai, Zhaoyang Zhang, Xiaoming Chen and Wei Wang (Zhejiang University, P.R. China)

3. **STAG-based Dynamic Two-commodity Maximum Flow Algorithm for Time-varying Networks**
   Tao Zhang, Hongyan Li, Shun Zhang, Peng Wang and Jiandong Li (Xidian University, P.R. China)

4. **Analysis of Queueing Networks with Geo/Geo/1 Clients and Batch Service Queue**
   Kunpeng Yang and Hangguan Shan (Zhejiang University, P.R. China)

5. **Modeling and Analysis on Hybrid-Duplex Networks with Dynamic Traffic**
   Bin Li, Dingjie Xu, Chenchen Yang, Zhiyong Chen and Bin Xia (Shanghai Jiao Tong University, P.R. China)

6. **Understanding the Temporal Fading in Wireless Industrial Networks: Measurements and Analyses**
   Qilong Zhang and Qiwei Zhang (University of Chinese Academy of Sciences, P.R. China); Wuxiong Zhang (Shanghai Research Center for Wireless Communications, P.R. China); Fei Shen (Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, P.R. China); Tian Hong Loh (UK, National Physical Laboratory, United Kingdom (Great Britain)); Fei Qin (Chinese Academy of Sciences, P.R. China)

Signal and Information Processing Symposium

SIPS-01: Learning

Date: Oct. 18, 2018
Time: 14:00pm – 15:30pm
Room: Wo Long Hall
Chair: Linglong Dai, Tsinghua University, China

1. **Low Probability of Intercept Radar Waveform Recognition Based on Dictionary Learning**
   Huan Wang, Ming Diao, and Lipeng Gao (Harbin Engineering University, P.R. China)

2. **Learning-based Hierarchical Clustering Regression for Efficient Unaligned Face Hallucination**
   Shuyun Wang (Nanjing University of Posts and Telecommunications and Jiangsu Provincial Key Lab of Image Processing and Image Communication, P.R. China); Zongliang Gan and Feng Liu (Nanjing University of Posts and Telecommunications, P.R. China)

3. **Multiple Walking People Classification with Convolutional Neural Networks Based on Micro-Doppler**
   Zhongsheng Sun (Beihang University, P.R. China); Wang Jun (Beijing University of Aeronautics and Astronautics (BUAA) Beijing China, P.R. China); Peng Lei and Zhaotao Qin (Beihang University, P.R. China)

4. **A Multi-Layer Parallel LSTM Network for Human Activity Recognition with Smartphone Sensors**
   Tao Yu, Jianxin Chen and Na Yan (Nanjing University of Posts and Telecommunications, P.R. China); Xipeng Liu (Nanjing University of Posts and

Telecommunications, P.R. China)

5. **Distribution Test Based Low Complexity Modulation Classification in MIMO Systems**
   Zhechen Zhu and Zikang Gao (Soochow University, P.R. China)

6. **Vital Sign Integrated Tracking by Predictive KNN and Kalman Filter with UWB Radars**
   Yibo Yu, Wenfeng Yin, Lei Li and Lin Zhang (Beijing University of Posts and Telecommunications, P.R. China)

SIPS-02: Image Processing

Date: Oct. 18, 2018
Time: 16:00pm – 17:30pm
Room: Wo Long Hall
Chair: Haoji Hu, Zhejiang University, China

1. **Vehicle Precise Retrieval via Color Image Retrieval Method Based on Improved Fast-Match**
   Feng Liu, Yue Wang, Zongliang Gan and Ziguan Cui (Nanjing University of Posts and Telecommunications, P.R. China)

2. **Hierarchical Subspace Regression for Compressed Face Image Restoration**
   Xinyu Liu, Zongliang Gan and Feng Liu (Nanjing University of Posts and Telecommunications, P.R. China)

3. **Adaptive SVR Denoising Algorithm for Fetal Monitoring System**
   Zhenyuan Wang, Jianjun Wei, Xiaohui Li, Zelin Liu and Fan Su (Xidian University, P.R. China)

4. **Video Saliency Estimation via Encoding Deep Spatiotemporal Saliency Cues**
   Jun Wang (Army Engineering University of PLA, P.R. China); Chang Tian (PLA University of Sci. and Tech., P.R. China); Lei Hu (Army Engineering University of PLA, P.R. China); Wang Hai (PLA University of Science and Technology, P.R. China); Zeng Mingyong (The PLA University of Science and Technology, P.R. China); Qing Shen (Army Engineering University of PLA, P.R. China)

5. **In-Car Multiple Targets Vital Sign Monitoring Using Location-Based VMD Algorithm**
   Mengyao Yang and Xiuzhu Yang (Beijing University of Posts and Telecommunications, P.R. China); Lei Li (Beijing University of Posts And Telecommunications, P.R. China); Lin Zhang (Beijing University of Posts and Telecommunications, P.R. China)

6. **Dynamic Hand Gesture Recognition Using FMCW Radar Sensor for Driving Assistance**
   Xuhao Zhang, Qisong Wu and Dixian Zhao (Southeast University, P.R. China)

SIPS-03: Sparse Signal Processing

Date: Oct. 19, 2018
Time: 14:00pm – 15:30pm
Room: Wo Long Hall
Chair: Jun Tao, Southeast University, China

1. **Visual Tracking via Detecting and Removing Outliers Based on Block Sparse Representation**
   Lei Hu, Zhiyang Gao, Yunjiao Zang, Jun Wang and Lei Zhang (Army Engineering University of PLA, P.R. China)

2. **Complex-Valued Sparse Channel Estimation via Least Mean Fractional Lp-Norm Method**
   Wenying Lei, Yansong Meng, Tao Yan, Guoyong Wang, Ying Wang and Lang Bian (China Academy of Space Technology (Xi'an), P.R. China)

3. **Fast Sparse RLS Algorithms**
   Zhen Qin, Jun Tao, Liang An and Shuai Yao (Southeast University, P.R. China); Xiao Han (Harbin Engineering University, P.R. China)

4. **Robust Visual Tracking via Hierarchical Convolutional Features-Based Sparse Learning**
   Ziang Ma, Wei Lu, Jun Yin and Xingming Zhang (Zhejiang Dahua Technology CO., LTD., P.R. China)

5. **Hyperspectral image classification via a joint sparsity and spatial correlation model**
   Xiaoli Yang and Zeng Li (Northwestern Polytechnical University, P.R. China); Jie Chen (Northwestern Polytechincal University, P.R. China); Yi Zhang (Xi'an University of Architecture and Technology, P.R. China)

6. **Hyperspectral target detection based on a spatially regularized sparse representation**
   Xiaoli Yang (Northwestern Polytechnical University, P.R. China); Jie Chen (Northwestern Polytechincal University, P.R. China); Yi Zhang (Xi'an University of Architecture and Technology, P.R. China)

SIPS-04: Localization

Date: Oct. 19, 2018
Time: 16:00pm – 17:30pm
Room: Wo Long Hall
Chair: Junyu Liu, Xidian University, China

1. **A Noise Reduction Fingerprint Feature for Indoor Localization**
   Mingjiang Yan, Feng Xu, Siqi Bai and Qun Wan (University of Electronic Science and Technology of China, P.R. China)

2. **Distance-Azimuth Joint Cramér-Rao Lower Bound for Spherical-wavefront-based Scatterer Localization**
   Jiawei Duan and Xuefeng Yin (Tongji University, P.R. China); Bo Ai (Beijing Jiaotong University and State Key Lab of Rail Traffic Control and Safety, P.R.

China); Bowen Deng (Shanghaitech University, P.R. China);

3. **An Adaptive Leverage Sampling Scheme for Fingerprint-based Indoor Localization**
   Wentao Kang, Haifeng Zheng and Xinxin Feng (Fuzhou University, P.R. China)

4. **A Hybrid BP-VMP-EP Localization Algorithm for Passive MIMO Radar Networks**
   Dan Wu (School of Information and Electronics, Beijing Institute of Technology, P.R. China); Yuan Feng and Jianfeng Wang (Science Research Institute of China North Industries Group Corporation, P.R. China); Nan Wu (Beijing Institute of Technology, P.R. China)

5. **AP-sequence Based Fingerprint Similarity Indoor Localization**
   Linlin Peng, Junyu Liu, Min Sheng, Yan Zhang, Danni Hou, Yang Zheng and Jiandong Li (Xidian University, P.R. China)

6. **AutLoc: Deep Autoencoder for Indoor Localization with RSS Fingerprinting**
   Jing Liu, Nan Liu and Zhiwen Pan (Southeast University, P.R. China); Xiaohu You (National Mobile communication Research Lab., Southeast University, P.R. China)

SIPS-05: Estimation

Date: Oct. 20, 2018
Time: 08:30am – 10:00am
Room: Wo Long Hall
Chair: Bin Liao, Shenzhen University, China

1. **DOA Estimation Method with the Distributed Nested Array**
   Ruigang Zhao and Yanping Liao (Harbin Engineering University, P.R. China); Hongyan Liu (National Lab of Science and Technology on Test Physics and Numerical Mathematic, P.R. China)

2. **Two-Dimensional DOA Estimation with Modified Parallel Coprime Linear Sub-Arrays**
   Sanjay Pandav (DLRL, India); P Ubaidulla (International Institute of Information Technology, India)

3. **One-Bit Direction of Arrival Estimation With an Improved Fixed-Point Continuation Algorithm**
   Xiaodong Huang, Peng Xiao and Bin Liao (Shenzhen University, P.R. China)

4. **An Efficient Channel Estimation Scheme based on Frozen Bits of Polar Codes over Fading Channel**
   Kexin Liang (Harbin Institute of Technology, P.R. China); Bowen Feng (Harbin Institute of Technology Shenzhen Graduate School, P.R. China); Jian Jiao (Harbin Institute of Technology - Shenzhen, P.R. China); Shaohua Wu (Harbin Institute of Technology, P.R. China); Qinyu Zhang (Shenzhen Graduate School, Harbin Institute of Technology, P.R. China)

5. **High Reliable Channel Estimation for Lens Antenna with Hybrid Structure**
   Yangyang Liu and Guangda Zang (Shanghai Jiao Tong University, P.R. China); Feng Yang (Shanghai Jiaotong University, P.R. China); Lianghui Ding (Shanghai Jiao Tong University, P.R. China)

6. **Pattern-Shared Sparse Bayesian Learning for Channel Estimation in FDD Massive MIMO Systems**
   Xiantao Cheng (University of Elctronic Sceience and Technology of China, P.R. China); Jingjing Sun and Shaoqian Li (University of Electronic Science and Technology of China, P.R. China)

SIPS-06: Detection

Date: Oct. 20, 2018
Time: 10:30am – 12:00am
Room: Wo Long Hall
Chair: Yunlong Cai, Zhejiang University, China

1. **Accurate Iterative Frequency Estimation by a new interpolator**
   Guo Bai and Yufan Cheng (University of Electronic Science and Technology of China, P.R. China); WanBin Tang (University of Electronic Science and Technology of China, P.R. China); Rong Shi (Science and Technology on Electronic Information Control Laboratory, P.R. China)

2. **Importance Sampling Based EM Algorithm for Sequence Detection in Outdoor OWC Systems**
   Nuo Huang, Ming Chen, Yijin Pan, Yinlu Wang and Zhiyang Li (Southeast University, P.R. China)

3. **Design and Implementation for Near-optimal Non-coherent Sequence Detection of CPM**
   Penghui Lai (National University of Defense Technology, P.R. China); Shilian Wang (National University of Defence Technology, P.R. China); Cong Peng and Yanmin Ma (National University of Defense Technology, P.R. China); Gao Kai (National University of Defence Technology, P.R. China); Chun Yang (Institute of Electronics, Chinese Academy of Sciences, P.R. China)

4. **Low-Complexity Factor Graph-Based Iterative Detection for RRC-SEFDM Signals**
   Yuan Feng (Science Research Institute of China North Industries Group Corporation, P.R. China); Yunsi Ma and Zhengdai Li (Beijing Institute of Technology, P.R. China); Chaoxing Yan (Beijing

Research Institute of Telemetry, P.R. China); Nan Wu (Beijing Institute of Technology, P.R. China)

5. **Performance Analysis of Decomposed Cramer-von Mises Detector for Blind Spectrum Sensing under Noise Uncertainty**
   Yin Mi (Xi'an University of Posts and Telecommunications and Xi'an Institute of Optics and Precision Mechanics of CAS, P.R. China); Guangyue Lu (Xi'an University of Posts and Telecommunications, P.R. China)

SIPS-07：Optimization

Date: Oct. 20, 2018
Time: 14:00pm – 15:30pm
Room: Wo Long Hall
Chair: Yuan Wu, Zhejiang University of Technology, China

1. **Joint Time Allocation and Power Splitting Schemes for Amplify-and-forward Relaying Network over Log-normal Fading Channel**
   Jianmei Shen, Yingting Liu and Hongwu Yang (Northwest Normal University, P.R. China); Chun-man Yan (Xidian University and Institute of Intelligent Control and Image Engineering, P.R. China)

2. **A Stochastic Gradient Descent Algorithm for Antenna Tilt Optimization in Cellular Networks**
   Yaxi Liu, Huangfu Wei, Haijun Zhang and Keping Long (University of Science and Technology Beijing, P.R. China)

3. **Safe Clock Synchronization Mechanism for Multi-Cluster TTEthernet Networks**
   Xueqian Tang, Qiao Li, Guangshan Lu and Huagang Xiong (Beihang University, P.R. China)

4. **Learning Framework for Virtual Network Function Instance Migration**
   Xue Bai and Hancheng Lu (University of Science and Technology of China, P.R. China); Yujiao Lu (USTC, P.R. China)

5. **A Novel Spatial-Temporal Regularized Tensor Completion Algorithm for Traffic Data Imputation**
   Kaitong Lin, Haifeng Zheng, Xinxin Feng and Zhonghui Chen (Fuzhou University, P.R. China)

6. **A Hybrid type ADMM for Multi-Block Separable Convex Programming**
   Bin Wang and Jun Fang (University of Electronic Science and Technology of China, P.R. China)

Network and Information Security Symposium

NISS-01: Network Security

Date: Oct. 18, 2018
Time: 16:00pm – 17:30pm
Room: Jiu Xi Hall
Chair: Lei Wang, Nanjing University of Posts and Telecommunications, China

1. **An Improved Detecting Mechanism against Wormhole Attacks in Delay Tolerant Networks**
   Jianing Li, Qiang Wang and Zhenliang Gao (Beijing Institute of Spacecraft System Engineering, P.R. China)

2. **Signalling Security Analysis: Is HTTP/2 Secure in 5G Core Network?**
   Xinxin Hu (National Digital Switching System Engineering and Technological Research Center, P.R. China); Liu Caixia (National Digital Switching System Engineering and Technological R and D Center, P.R. China); Shuxin Liu and Wei You (National Digital Switching System Engineering and Technological Research Center, P.R. China); Zhao Yu (National Digital Switching System Engineering and Technological R and D Center, P.R. China)

3. **A Method of Network Slicing Mapping Supporting Random Route Mutation**
   Hang Qiu and Hongbo Tang (National Digital Switching System Engineering and Technological R and D Center, P.R. China); Wei You (National Digital Switching System Engineering and Technological Research Center, P.R. China); Keyun Zhu and Quan Yuan (National Digital Switching System Engineering and Technological R and D Center, P.R. China)

4. **Crowdsourcing based large-scale network anomaly detection**
   Yang Li (Shanghai Jiaotong University, P.R. China); Wenguang Huang and Xiaohua Tian (Shanghai Jiao Tong University, P.R. China)

5. **Mobility-based Physical-layer Key Generation Scheme for D2D Communications Underlaying Cellular Network**
   Yuelin Du (Nanjing University of Posts and Telecommunications, P.R. China); Jiaming Liu (Nangjing University of Posts and Telecommunications, P.R. China); Mingkai Chen, Lei Wang and Baoyu Zheng (Nanjing University of Posts and Telecommunications, P.R. China)

6. **Privacy-enhanced Deep Packet Inspection at Outsourced Middlebox**
   Hongwei Li (University of Electronic Science and Technology of China, P.R. China); Hao Ren (UESTC, P.R. China); Dongxiao Liu and Sherman Shen

(University of Waterloo, Canada)

NISS-02: Phyical layer security

Date: Oct. 20, 2018
Time: 14:00pm – 15:30pm
Room: Jin Sui Hall
Chair: Kui Xu, Army Engineering University of PLA, China

1. **Energy Selected Transmitter RF Fingerprint Estimation in Multi-Antenna OFDM Systems**
   Dong Wang, Hu Aiqun and Linning Peng (Southeast University, P.R. China)

2. **Secrecy Performance Analysis on Relay-Assisted Millimeter Wave Networks**
   Ruiqian Ma (Army Engineering University of PLA, P.R. China); Weiwei Yang (PLA Army Engineering University, P.R. China); Wendong Yang and Xiaoqin Yang (Army Engineering University of PLA, P.R. China); Chunxiao Cai (Institute of Communications Engineering, PLAUST, P.R. China)

3. **A Hybrid Massive MIMO Jammer for TDD Point-to-Point Link**
   Tong Yue (Army Engineering University, P.R. China); Aijun Liu (PLA University of Science and Technology, P.R. China); Kui Xu (Army Engineering University of PLA, P.R. China); Chen Qin (Central South University, P.R. China)

4. **Secrecy Outage Analysis for DF Buffer-Aided Multi-Antenna Underlay CRNs**
   Chen Wei and Wendong Yang (Army Engineering University of PLA, P.R. China); Yueming Cai (Institute of Communications Engineering, PLA Army Engineering University, P.R. China); Xuanxuan Tang (Army Engineering University of PLA, P.R. China); Na Pu (Beihang University and Beijing Institute of Remote Sensing Information, P.R. China)

5. **Capacity Threshold-based On-off Transmission in mmWave Systems with Randomly Distributed Eavesdroppers**
   Liwei Tao (The Army Engineering University of PLA, P.R. China); Weiwei Yang (PLA Army Engineering University, P.R. China); Wendong Yang and Xiaoqin Yang (Army Engineering University of PLA, P.R. China); Chunxiao Cai (Institute of Communications Engineering, PLAUST, P.R. China)

6. **Secure Transmission Design of Millimeter-Wave Wiretap Channel with Guard Zone and Artificial Noise**
   Yi Song (Huaiyin Normal University and Army Engineering University of PLA, P.R. China); Weiwei Yang and Zhongwu Xiang (PLA Army Engineering University, P.R. China); Yueming Cai (Institute of Communications Engineering, PLA Army Engineering University, P.R. China)

Machine Learning in Communications and Signal Processing

MLCSP-01: Estimation and Localization

Date: Oct. 18, 2018
Time: 14:00pm – 15:30pm
Room: Jiu Xi Hall
Chair: Wenjin Wang, Southeast University, China

1. **An HMM-Based Localization Scheme Using Adaptive Forward Algorithm For LTE Networks**
   Dengke Pei (University of Science and Technology of China, P.R. China); Jialiang Gong (USTC, P.R. China); Xiaodong Xu (University of Science and Technology of China, P.R. China)

2. **Neural Network Based Localization Using Outdoor LTE Measurements**
   Zhenyu Shi and Yi Wang (Huawei Technologies Co., Ltd, P.R. China)

3. **A ResNet-DNN based Channel Estimation and Equalization Scheme in FBMC/OQAM Systems**
   Xing Cheng, Dejun Liu, Zhengyu Zhu, Wenzhe Shi and Yang Li (China University of Petroleum, Beijing, P.R. China)

4. **A Novel Pilot-Aided Channel Estimation Scheme Based on RNN for FDD-LTE systems**
   Jiaqi Gu, Chuanqiang Shan, Xiaohui Chen, Huarui Yin and Weidong Wang (University of Science and Technology of China, P.R. China)

5. **TDOA Based Indoor Positioning with NLOS Identification by Machine Learning**
   Xin Jin, Shuai Wang, Yujie Lin, Xiangyuan Bu and Jianping An (Beijing Institute of Technology, P.R. China)

6. **Learn to Sense: a Meta-learning Based Distributed Sensing Algorithm in Wireless Sensor Networks**
   Hui Wu, Zhaoyang Zhang and Chunxu Jiao (Zhejiang University, P.R. China)

MLCSP-02: Recognition and Detection

Date: Oct. 19, 2018
Time: 14:00pm – 15:30pm
Room: Jiu Xi Hall
Chair: Yiqing Zhou, Institute of Computing Tech, CAS, China

1. **A Feature Set for the Similar Activity Recognition Using Smartphone**
   Na Yan, Jianxin Chen and Tao Yu (Nanjing University of Posts and Telecommunications, P.R. China)

2. **Low Probability of Intercept Radar Signal Recognition by Staked Autoencoder and SVM**

Muqing Zhang (PLA Army Engineering University, P.R. China); Huali Wang (PLA University of Science and Technology, P.R. China); Kaijie Zhou (PLA Army Engineering University, P.R. China); Peipei Cao (Nanjing University of Science and Technology, P.R. China)

3. **Big Data Enabled Vehicle Collision Detection Using Linear Discriminant Analysis**
   Yiwen Nie, Junhui Zhao and Jin Liu (Beijing Jiaotong University, P.R. China)

4. **A Cooperative Outage Detection Approach Using an Improved RBF Neural Network with Genetic ABC Algorithm**
   Yuting Wang, Peng Long, Nan Liu and Zhiwen Pan (Southeast University, P.R. China); Xiaohu You (National Mobile communication Research Lab., Southeast University, P.R. China)

5. **Cyclic Spectrum Based Intelligent Modulation Recognition with Machine Learning**
   Hongning Zhao (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Yiqing Zhou (Chinese Academy of Science, P.R. China); Bule Sun (ICT/CAS, P.R. China); Lin Tian and Jinglin Shi (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China)

6. **A Novel Target Recognition Based Radio Channel Clustering Algorithm**
   Chen Huang, Ruisi He and Zhangdui Zhong (Beijing Jiaotong University, P.R. China); Bo Ai (Beijing Jiaotong University and State Key Lab of Rail Traffic Control and Safety, P.R. China); Gongpu Wang (Beijing Jiaotong University, P.R. China); Zhimeng Zhong (Huawei Technologies Co., Ltd., P.R. China); Claude Oestges (Université Catholique de Louvain, Belgium); Katsuyuki Haneda (Aalto University, Finland)

ML-03: Deep Learning and Reinforcement Learning

Date: Oct. 20, 2018
Time: 08:30am – 10:00am
Room: Jiu Xi Hall
Chair: Deli Qiao, East China Normal University, China

1. **Reinforcement Learning based Safety Message Broadcasting in Vehicular Networks**
   Xiaosha Chen, Supeng Leng and Fan Wu (University of Electronic Science and Technology of China, P.R. China)

2. **Cache-Enabled Adaptive Bit Rate Streaming via Deep Self-Transfer Reinforcement Learning**
   Zhengming Zhang, Yaru Zheng, Chunguo Li, Yongming Huang and Luxi Yang (Southeast University, P.R. China)

3. **A Unified Deep Learning Based Polar-LDPC Decoder for 5G Communication Systems**
   Yaohan Wang, Zhichao Zhang, Shunqing Zhang, Shan Cao and Shugong Xu (Shanghai University, P.R. China)

4. **Deep Learning Based Reliable and Intelligent Chaotic OFDM Communications for Cognitive Radio System**
   Lin Zhang (Sun Yat-sen University and SYSU-CMU Shunde International Joint Research Institute, P.R. China); Xintong Lin (Sun Yat-sen University, P.R. China)

5. **3D Convolutional Generative Adversarial Networks for Missing Traffic Data Completion**
   Zhimin Li, Haifeng Zheng and Xinxin Feng (Fuzhou University, P.R. China)

Underwater Acoustic Signal Processing and Communications

UASPC-01: Signal Processing Methods

Date: Oct. 18, 2018
Time: 14:00pm – 15:30pm
Room: Jin Sui Hall
Chair: Fengzhong Qu, Zhejiang University, China

1. **Cross-subband Rateless Encoding for Filtered Multitone in Underwater Acoustic Communications**
   Zhenduo Wang and Shengjun Xiong (Hangzhou Applied Acoustic Research Institute, P.R. China); Hongtao Zhang (Hangzhou Appiled Acoustics Research Institute, P.R. China); Caijie Qian and Fengzhong Qu (Zhejiang University, P.R. China)

2. **A Load-adaptive CSMA/CA MAC Protocol for Mobile Underwater Acoustic Sensor Networks**
   Yayuan Zhang, Huifang Chen and Wen Xu (Zhejiang University, P.R. China)

3. **tow Ship Interference Suppression for Towed Array Sonar via Subspace Reconstruction**
   Jiutao Wu, Xinrong Cao, Yawei Chen and Jun Sun (Nanjing Research Institute of Electronics Technology, P.R. China)

4. **Study of Long Baseline Navigation Optimization Solution Based on Redundancy measurement**
   Ying Guo, Yan Wang and Nan Zou (Harbin Engineering University, P.R. China)

5. **Robust Frequency Invariant Beamforming based on Convex Optimization**
   Qingcui Wang and Shuanping Du (Hangzhou Applied Acoustics Research Institute, P.R. China); Hengheng Quan (Science and Technology on Sonar Laboratory, Hangzhou Applied Acoustics Research Institute, P.R. China)

6. **A Method of Sound Propagation Loss Calculation based on Gaussian Beams**
   Yu Hu (Hangzhou Applied Acoustics Research Institute, P.R. China)

UASPC-02: Performance Evaluation

Date: Oct. 18, 2018
Time: 16:00pm – 17:30pm
Room: Jin Sui Hall
Chair: Huifang Chen, Zhejiang University, China

1. **Error Analysis of a Distributed Node Positioning Algorithm in Underwater Acoustic Sensor Networks**
   Yiwen Liu, Guocan Fang, Huifang Chen, Lei Xie, Ruixin Fan and Xiangrui Su (Zhejiang University, P.R. China)

2. **Modeling and Evaluation on through-metal Power Transfer Using Piezoelectric Transducer**
   Falong Huang, Kehong Chen and Lianghui Ding (Shanghai Jiao Tong University, P.R. China); Feng Yang (Shanghai Jiaotong University, P.R. China); Haifeng Li (State Grid HeiLongJiang Electric Power Company Limited, P.R. China); Hongsheng Wang (Northeast Branch of State Grid Corporation of China, P.R. China)

3. **Mode Filtering with a Small Horizontal Line Array**
   YiFeng Zhang (Harbin Engineering University, P.R. China)

4. **Feature Analysis and Optimization of Underwater Target Radiated Noise Based on t-SNE**
   Yuechao Chen (Science and Technology on Sonar Laboratory, Hangzhou Applied Acoustics Research Institute, P.R. China); Shuanping Du (Hangzhou Applied Acoustics Research Institute, P.R. China); Hengheng Quan (Science and Technology on Sonar Laboratory, Hangzhou Applied Acoustics Research Institute, P.R. China)

5. **The Acoustic properties of gassy sediments due to gas-content fluctuations**
   Guangying Zheng (Hangzhou Applied Acoustic Research Institute, P.R. China); Xiumei He (Hangzhou Applied Acoustics Research Instituteinstitute, P.R. China)

6. **Experimental Demonstration of Acoustic Inversion Using an AUV Carrying Source**
   J. Chen, Jianlong Li, Tongchen Wang, Juntao Yu, Yuanxin Xu and Wei Feng (Zhejiang University, P.R. China)

UASPC-03: Detection and Classification

Date: Oct. 19, 2018
Time: 14:00pm – 15:30pm
Room: Jin Sui Hall
Chair: Yanqun Wu, National University of Defense Technology, China

1. **Neural network-based symbol detection in high-speed OFDM underwater acoustic communication**
   Zhipeng Chen, Zhiqiang He and Kai Niu (Beijing University of Posts and Telecommunications, P.R. China); Yue Rong (Curtin University, Australia)

2. **Classification of Cetacean Whistles Based on Convolutional Neural Network**
   Songzuo Liu, Meng Liu, Mengjia Wang, Tianlong Ma and Xin Qing (Harbin Engineering University, P.R. China)

3. **Sound source identification in the shallow water using the coherence of the vector field**
   Yanqun Wu, Wen Zhang, Yu Chen, Qiu Wei, Zhengliang Hu and Wu Hao (National University of Defense Technology, P.R. China)

4. **Study on Echo Features and Classification Methods of Fish Species**
   Yue Shang (ZheJiang University, P.R. China); Jianlong Li (Zhejiang University, P.R. China)

5. **Multiple Targets Tracking by Using Probability Data Association and Cubature Kalman Filter**
   Wei Qiu (National University of Defense Technology, P.R. China)

6. **Joint Detection and Tracking via Path Planning in the Mobile Underwater Sensing Network**
   Cheng Jiang, Jianlong Li and Wen Xu (Zhejiang University, P.R. China)

UASPC-04: Estimation

Date: Oct. 19, 2018
Time: 16:00pm – 17:30pm
Room: Jin Sui Hall
Chair: Ting Zhang, Zhejiang University, China

1. **An Improved Time Delay Estimation Algorithm with Robustness**
   Jilong Li, Minyan Huang and Haihong Feng (Chinese Academy of Sciences, P.R. China)

2. **DOA Estimation of LFM Signal with Single Vector Hydrophone Based on LVD-MUSIC Method**
   Zhibo Shi, Longhao Qiu, Nan Zou, Guolong Liang and KaiXin Liu (Harbin Engineering University, P.R. China)

3. **DOA estimation for large spacing nonuniform array based on sparse representation**
   Bin Zhou and Qing Wang (Hangzhou Applied Acoustics Research Institute, P.R. China); Hengheng Quan (Science and Technology on Sonar Laboratory, Hangzhou Applied Acoustics Research Institute, P.R. China)

4. **A Cross-correlation Threshold Based Direction-of-arrival Estimator for Active Underwater Sensing Systems**
   Linlin Mao and Shefeng Yan (Institute of Acoustics, Chinese Academy of Sciences, P.R. China); Lijun Xu (Institute of Acoustics Chinese Academy of Sciences, P.R. China)

5. **Passive Localization Based on Double-Correlation Function Using Sources of Opportunity**
   Jingyao Liang, Ting Zhang and Wen Xu (Zhejiang University, P.R. China)

6. **Radial source velocity estimation using multiple line spectrum signals based on compressive sensing**
   Xuejing Song, Fuchen Liu and You Shao (Hangzhou Applied Acoustics Research Institute, P.R. China)

Internet of Things Symposium

IOT-01: Wireless Sensor Networks

Date: Oct. 20, 2018
Time: 08:30am – 10:00am
Room: Jin Sui Hall
Chair: Rongpeng Li, Zhejiang University, China

1. **k-Coverage Hole Detection in Wireless Sensor Networks via Connectivity**
   Wenyu Ma and Feng Yan (National Mobile Communications Research Laboratory, Southeast University, P.R. China); Xuzhou Zuo (School of Information and Software Engineering, UESTC, P.R. China); Jin Hu (724 Research Institute of CSIC, P.R. China); Weiwei Xia and Lianfeng Shen (National Mobile Communications Research Laboratory, Southeast University, P.R. China)

2. **Energy Efficient Multiband Cooperative Spectrum Sensing for Heterogeneous Cognitive Industrial Wireless Sensor Networks**
   Chi Xu and Changqing Xia (Shenyang Institute of Automation, Chinese Academy of Sciences, P.R. China); Peng Zeng (Shenyang Institute of Automation, Chinese Academy of Sciences, Shenyang, P.R. China); Haibin Yu (Shenyang Institute of Automation China Academy of Sciences, P.R. China)

3. **An Efficient Location based Localized Broadcasting Algorithm for Wireless Ad Hoc and Sensor Networks**
   Xu Qin, Tao Wang and Baoxian Zhang (University of Chinese Academy of Sciences, P.R. China)

4. **Reliability Measurement Based Transmission Scheme for Wireless Sensor Network**
   Fucheng Yang (Naval Aviation University, P.R. China); Wei Xiong (Research Institute of Information Fusion, P.R. China); Jie Song (Naval Aeronautical and Astronautical University, P.R. China); Lixin Li (Northwestern Polytechnical University, P.R. China)

5. **Power Allocation for Target Positioning in Asynchronous Wireless Radar Sensor Networks**
   Liyuan Song and Tingting Zhang (Harbin Institute of Technology, Shenzhen Graduate School, P.R. China); Qinyu Zhang (Shenzhen Graduate School, Harbin Institute of Technology, P.R. China)

6. **Set-Membership Conjugate Gradient Channel Estimation for Wireless Sensor Networks**
   Fei Long (Harbin Institute of Technology, P.R. China); Tong Wang (Harbin Institute of Technology, Shenzhen, P.R. China); Ting Ma (Harbin Institute of Technology Shenzhen Graduate School, P.R. China); Lin Gao (Harbin Institute of Technology (Shenzhen), P.R. China); Yufei Jiang (Harbin Institute of Technology, Shenzhen, P.R. China); Lu Chang (Harbin Institute of Technology, P.R. China)

IOT-02: Wireless Powered Networks

Date: Oct. 20, 2018
Time: 16:00pm – 17:30pm
Room: Wo Long Hall
Chair: Yunlong Cai, Zhejiang University, China

1. **Asynchronous Multi-cluster Wireless Powered Communication Network and Its Performance Analysis**
   Han Chengcheng (University of Science and Technology of China, P.R. China); Chen Li (University of Science And Technology of China, P.R. China); Xiaohui Chen and Weidong Wang (University of Science and Technology of China, P.R. China)

2. **Energy Depositing for Energy Harvesting Wireless Communications**
   Yucheng Liao, Zhaojie Sun, Lilin Dan and Yue Xiao (University of Electronic Science and Technology of China, P.R. China)

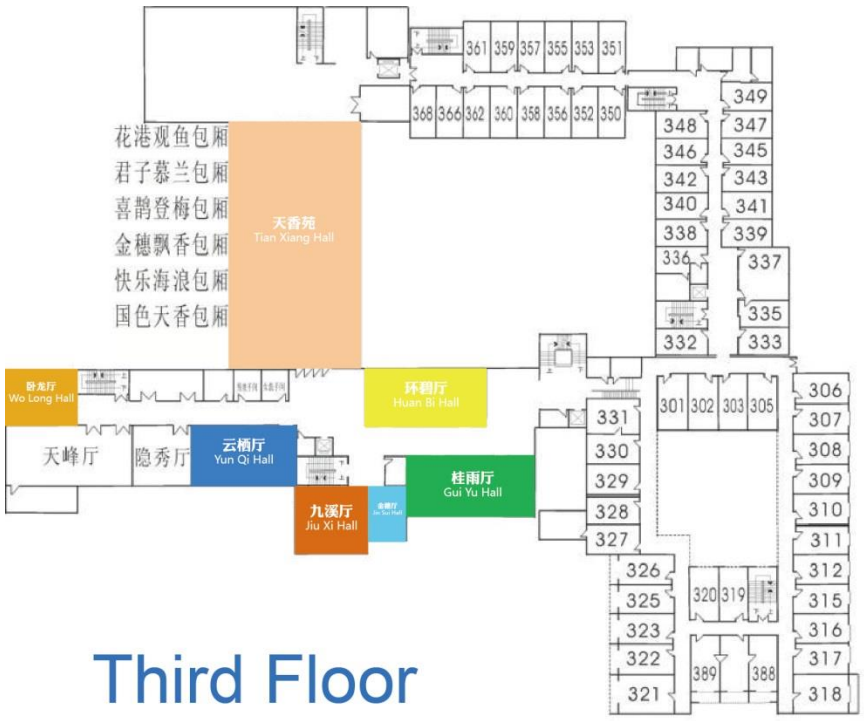
3. **A Contract-Based Incentive Mechanism in RF-Powered Backscatter Cognitive Radio Networks**
   Wenzhong Yan, Lixin Li, Xu Li, Ang Gao and Huisheng Zhang (Northwestern Polytechnical University, P.R. China); Wei Chen (Tsinghua University, P.R. China); Zhu Han (University of Houston, USA)

4. **An Energy Harvesting Chain Model for Wireless-Powered IoT Networks**
   Jie Wang, Xin Kang and Ying-Chang Liang (University of Electronic Science and Technology of China, P.R. China); Sumei Sun (Institute for Infocomm Research, Singapore)

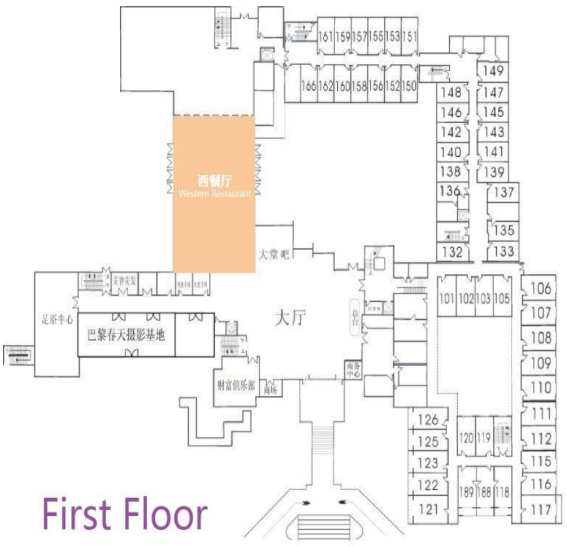
5. **Joint Subcarrier Assignment and Downlink-Uplink Time-Power Allocation for Wireless Powered OFDM-NOMA Systems**
   Jingru Zhang, Wenjun Xu, Wei Chen, Hui Gao and Jiaru Lin (Beijing University of Posts and Telecommunications, P.R. China)

6. **Connection Outage Probability of Power Beacon Assisted Multi-Source Transmission**
   Xuanxuan Tang (Army Engineering University of PLA, P.R. China); Yansha Deng (King's College London, United Kingdom (Great Britain)); Yueming Cai (Institute of Communications Engineering, PLA Army Engineering University, P.R. China); Wendong Yang (Army Engineering University of PLA, P.R. China); Arumugam Nallanathan (Queen Mary University of London, United Kingdom (Great Britain))

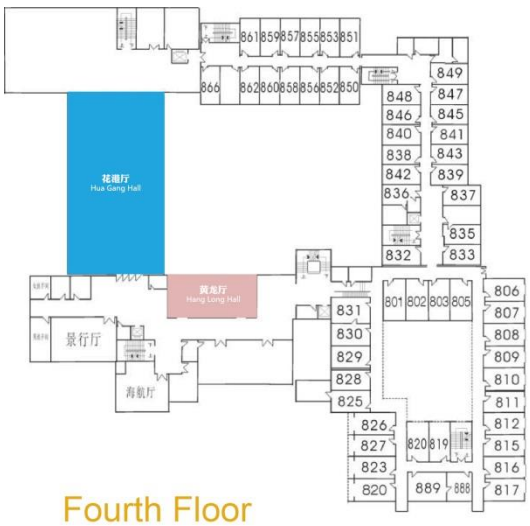
Layout of the Conference Center



三楼平面图



一楼平面图



四楼平面图

Banquet Venue

The Banquet will be held at the ***Chinese Hangzhou Cuisine Museum***, which is about 4 km away (a 15 minute drive) from the conference hotel. You will be taken there by the conference bus. The waiting site for bus is at the front door of the Hangzhou Huagang HNA Resort.