IEEE Communications Society Technical Committee on Signal Processing & Computing for Communications Technical Committee (SPCC)

NEWSLETTER

Issue 12 – January 2023

Dear colleagues from IEEE ComSoc Signal Processing and Computing for Communications Technical Committee,

Welcome to the twelfth issue of the SPCC Technical Committee Newsletter. This newsletter is conceived as a way to share all the relevant information for the members of the technical committee and to have some brief contact approximately every six months. Our aim is that it can be a useful communication tool, open for everybody to contribute.

Please feel free to send us any piece of news that you believe can be of interest for our community.

Kindest regards,

Roberto Corvaja   roberto.corvaja@unipd.it
SPCC TC Newsletter Editor

Message from the Chair

Dear SPCC Members,

We would like to thank you all for being part of the SPCC community, and for your dedicated contribution to its technical activities.

We are happy to report the exciting activities which our technical committee is involved in, from supporting various conferences in our areas, to organizing journal special issues and special sessions at conferences. We hope to further increase the number and types of activities, and for that we rely on your support. Please contact us with any ideas about new activities.

Please stay healthy and safe. We are looking forward to seeing you again at future in-person

SPCC TC meetings at ICC and GLOBECOM.

Best Regards,

Jingxian Wu

Contact information

The current officers of the SPCC TC between 2022 and 2023 are:

Chair
Jingxian Wu
University of Arkansas, USA

Vice Chair
Ana Garcia Armada
University Carlos III of Madrid, Spain

Secretary
Yuanwei Liu
Queen Mary University of London, UK

Standards Liaison
Richie Leo
ZTE Corporation, China

Newsletter Editor
Roberto Corvaja
University of Padova, Italy

SIG Coordinator
Fang Fang
Durham University, UK

Student Competition Representative
Rui Dinis
University Nova Lisboa, Portugal

Please refer to our web page for further information:
http://spcc.committees.comsoc.org/officers/

The SPCC Technical Committee reports to the Technical Committees Board. Operation of the SPCC Technical Committee and coordination among TC members will be managed by the elected officers, i.e. TC Chair, TC Vice Chair and TC Secretary. Each term of elected Technical Committee officers is two years.

SPCC-TC has been successfully recertified for 2023-2024 with very positive feedbacks from Technical Committee/Industry Community Recertification Standing Committee about our accomplishments and the recommendation from the recertification committee to further increase the diversity of the TC membership, such as female members and industrial members.

How to join SPCC Technical Committee and mailing list

Membership on the IEEE SPCC TC is open to all members of the IEEE Communications Society who share an interest in signal processing & computing for communications.

To join the SPCC, you simply subscribe to the SPCC mailing list by using the following link:

https://comsoc-listserv.ieee.org/cgi-bin/wa?SUBED1=spce&A=1

Committee meetings

- **The SPCC ICC 2022 Minutes are available at**

   SPCC ICC 2022 Minutes

   https://spcc.committees.comsoc.org/meeting-reports/ICC-22/

- **Last SPCC TC meeting was held online, on November 29, 2022 with the following agenda**:
   - Welcome & Introduction
   - Approval of Meeting Minutes from May 5, 2022
   - SPCC Scope, Objectives and Organization Structure
   - Technical Program Committee Reports
   - SIG Activity Reports/New SIG Presentation
   - Student/Standard Activities
   - Newsletter
   - SPCC Awards Announcement
   - Other Business

Committee awards

Nominations will be solicited by e-mail from the SPCC members and the SPCC Award Selection Committee will be responsible for the award selection process. The following awards are granted on a yearly basis by the SPCC TC:

IEEE SPCC Outstanding Service Award

The award recognizes members of the IEEE Communications Society for outstanding contribution to the technical activities sponsored and endorsed by the SPCC technical committee.

The recipient of the SPCC Outstanding Service Award 2022 is Dr**. Richie Liu**, ZTE, China.

IEEE SPCC Technical Recognition Award

The award recognizes members of the IEEE Communications Society for outstanding contribution to the area of signal processing for communications.

The Technical Recognition Award Committee consists of the second past chair, the first past chair, the current chair and other two SPCC members nominated by the Committee Chair and is chaired by the second past chair.

The recipient of the SPCC Technical Recognition Award 2022 is Prof. **Hamid Jafarkhani**, University of California, Irvine, *for pioneering contributions to signal processing for multi-antenna wireless communication systems*.

IEEE SPCC Best Paper Award

The award recognizes members of the IEEE Communications Society who have made outstanding contributions of one paper in the technical areas that are of interests to SPCC. It applies to papers published in SPCC-sponsored conferences during the past year, in which no less than half of the co-authors are SPCC members. It is nominated by SPCC members.
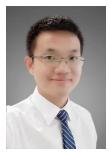
The SPCC Best Paper 2022 has been awarded to

Y. Liu, X. Mu, R. Schober, H. V. Poor, "Simultaneously Transmitting and Reflecting (STAR)-RISs: A Coupled Phase-Shift Model," IEEE ICC 2022 - IEEE International Conference on Communications, 2022, pp. 2840-2845.

Simultaneously Transmitting and Reflecting (STAR)-RISs: A Coupled Phase-Shift Model

Yuanwei Liu[*], Xidong Mu[†], Robert Schober[‡], and H. Vincent Poor[§]

[*]Queen Mary University of London, London, UK. [†]Beijing University of Posts and Telecommunications, Beijing, China. [‡]Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Germany. [§] Princeton University, Princeton, USA. E-mail: yuanwei.liu@qmul.ac.uk, muxidong@bupt.edu.cn, robert.schober@fau.de, poor@princeton.edu

IEEE SPCC Early Achievement Award

The award recognizes members of the IEEE Communications Society who have achieved early career visibility through research and service to the SPCC community within 10 years since the award of their last degree. It is nominated by SPCC members.

The recipient of the SPCC Early Achievement Award 2022 is Prof. **Qingqing Wu**, Shanghai Jiaotong University, China.

Please find additional information here:
http://spcc.committees.comsoc.org/awards/awards-by-laws-procedures/
and the list of past recipients:
http://spcc.committees.comsoc.org/awards/

Conferences

TPC Reports on flagship conferences

ICC 2022

IEEE ICC has been held in Seoul, South Korea, on May 16 - 20, 2022, in-person and virtual hybrid, with General Chair Dong In Kim, Sungkyunkwan University, Korea, and TPC Chair Prof. Ekram Hossain, University of Manitoba, Canada.

https://icc2022.ieee-icc.org/

SPCC sponsored this conference and appointed the following representatives:

- Nan Yang, (Australian National University), Signal Processing for Communications Symposium
- Sinem Coleri, (Koc University, Turkey), Wireless Communications Symposium
- Liang Xiao (Xiamen University, China), Communication & Information System Security Symposium

For the Signal Processing for Communications (SPC) symposium at ICC 2022, 149 paper have been submitted and have been reviewed by 174 TPC members. The number of accepted papers was 59, with 39.6% acceptance rate.

For the Wireless Communications (WC) symposium, 324 papers have been submitted and have been reviewed by 332 TPC members. The number of accepted papers was 123 with 37.3% acceptance rate.

For the Communication & Information System Security symposium, 252 papers have been submitted and have been reviewed by 159 TPC members. The number of accepted papers was 93 with 36.9% acceptance rate.

GLOBECOM 2022

IEEE GLOBECOM has been held in Rio de Janeiro, Brazil, on December 4-8, 2022, with General Chair Prof. Nelson Luis Saldanha da Fonseca, University of Campinas (UNICAMP), Brazil, and TPC Chair Prof. Fabrizio Granelli, University of Trento, Italy.

https://globecom2022.ieee-globecom.org/

SPCC nominated the Following Symposium Co-Chairs

- Nan Zhao (Dalian University of Technology, China), Signal Processing for Communications Symposium
- Sami Muhaidat (Khalifa University, UAE), Wireless Communication Symposium

For the Signal Processing for Communications (SPC) symposium at GLOBECOM 2022, 127 paper have been submitted and have been reviewed by 110 TPC members. The number of accepted papers was 52, with 40.9% acceptance rate.

For the Wireless Communications (WC) symposium, 336 papers have been submitted and have been reviewed. The number of accepted papers was 134 with 40% acceptance rate.

For the Selected Areas in Communication (SAC) symposium: 176 have been submitted and have been reviewed. The number of accepted papers was 70 with 39.8% acceptance rate.

Forthcoming flagship conferences

ICC 2023

Next IEEE ICC will be held in Rome, Italy, on May 28 – June 1, 2023, with TPC chairs:
- Meixia Tao, Shanghai Jiao Tong University, PRC
- Michele Zorzi, University of Padova, Italy
- Walid Saad, Virginia Tech, USA

https://icc2023.ieee-icc.org/

SPCC sponsors this conference and appointed the following representatives:

- Junqing Zhang (University of Liverpool, UK): Signal Processing for Communications Symposium
- Mingyue Ji (University of Utah, USA): Wireless Communications Symposium
- Arsenia Chorti (ENSEA, France): Wireless Communications Symposium

The number of active submissions is 115 and the review process has not yet started.

GLOBECOM 2023

Next IEEE GLOBECOM will be held in Kuala Lumpur, Malaysia on December 2023.

SPCC sponsors this conference and nominated the following Symposium Co-Chairs:

- Lingjia Liu (Virginia Tech, USA) Signal Processing for Communications Symposium

- Fang Fang (Durham University, UK), Signal Processing for Communications Symposium

- Yuanwei Liu (Queen Mary University of London, UK), Communication Theory Symposium

ICC 2024

Next IEEE ICC will be held in Denver, Colorado, on June 2024.

SPCC sponsors this conference and since now nominated the following Symposium Co-Chair:

- F. Javier López Martínez, University of Granada, Spain.

GLOBECOM 2024

Next IEEE GLOBECOM will be held in Cape Town, South Africa, on December 2024.

Other related conferences/special issues

SPCC sponsors the following conferences:

- 11th Advanced Satellite Multimedia Conference and 17th Signal Processing for Space Communications Workshop, September 6–8, 2022, Graz, Austria, https://asmsconference.org/

  SPCC representatives:

  - Tomaso de Cola, DLR, Germany
  - Giovanni Geraci, University Pompeu Fabra, Spain
  - Andrea Conti, University of Ferrrara, Italy
  - Tomoaki Ohtsuki, Keio University, Japan

- **ITU Kaleidoscope 2022**, December 7-9, 2022, Accra, Ghana

  https://www.itu.int/en/ITU-T/academia/kaleidoscope/2022/Pages/default.aspx

  SPCC representatives:

  - Jingxian Wu, University of Arkansas, USA
  - Ana Garcia Armada, Universidad Carlos III de Madrid, Spain
  - Richie Leo, ZTE Corporation, China

- **CommNet 2022**, December 12-14, 2022, Hybrid In-person/Virtual Conference

  http://www.commnet-conf.org/

  SPCC representatives:

  - George K. Karagiannidis, Aristotle University of Thessaloniki, Greece
  - Mohamed-Slim Alouini, KAUST, Kingdom of Saudi Arabia
  - Faissal El Bouanani, Mohammed V University, Morocco

- **ICSPCS 2023**, 16th International Conference on Signal Processing and Communication System, 6 - 8 September 2023, Bydgoszcz, Poland

  http://icspcs.io.pbs.edu.pl/

  SPCC representatives:

  - Tadeusz Wysocki
  - Octavia Dobre
  - Lajos Hanzo

Special Interest Groups

More information about the SIGs may be found in our web page:
http://spcc.committees.comsoc.org/special-interest-groups/

SIG on Signal Processing Techniques in 6G Communication Systems

The SIG has the following activities:

Journal Special Issues

- IEEE Wireless Communications, Special Issue on Wireless Big Data: Technologies and Applications, Feb 2018.
- IEEE Wireless Communications, Special Issue on NOMA, April and May, 2018.
- IEEE Journal of Selected Topics in Signal Processing, Special Issue on hybrid analog-digital signal processing for hardware-efficient large scale antenna arrays, May and June, 2018.

- IEEE Wireless Communications, Special Issue on Intelligent Radio: When Artificial Intelligence Meets Radio Network, vol.27, no.1, Feb. 2020
- IEEE Wireless Communications, Special Issue on Intelligent Radio: When Artificial Intelligence Meets Radio Network, vol.27, no.1, Feb. 2020

To appear
- IEEE Access, Special Section on Network Resource Management in Flying Ad Hoc Networks: Challenges, Potentials, Future Applications, and Way forward, to appear.
- IEEE Access, Special Section on Urban computing and intelligence, to appear.
- Springer Neural Computing and Applications Journal, Special Issue on Multi-access Edge Computing Enabled Internet of Intelligences, to appear.
- IEEE/CIC China Communications Journal, Special Issue on Quality of Experience for multimedia communications, to appear.

Recently Closed Calls

- "Digital Twin for Industrial Internet of Things" [Deadline: 30 May 2022]
  http://www.ieee-ies.org/images/files/tii/ss/2022/Digital_Twin_for_Industrial_Internet_of_Things_2022-1-22.pdf?v=2
- Pervasive, Efficient and Smart Signal Processing for IoT [Deadline: 15 Aug 2022]
  https://www.comsoc.org/publications/magazines/ieee-internet-things-magazine/cfp/pervasive-efficient-and-smart-signal
- Digital Twin for 6G Networks [Deadline: 15 Oct 2022]
  https://www.comsoc.org/publications/magazines/ieee-network/cfp/digital-twin-6g-networks

SIG Son Signal Processing Techniques for Big Data and Wireless Edge Intelligence

Its mission is to provide a platform to exchange ideas, initiate collaboration, and promote research activities that are broadly related to signal processing for big data and machine learning in wireless networks.

The SIG has the following activities:

Conferences
- TPC co-chair for IEEE International Conference on Computer Communications 2023, 2nd Workshop on Distributed Machine Learning and Fog Networks.
- Co-organizing IEEE International Conference on Communications 2023, 4th Workshop on Edge Learning for 5G Mobile Networks and Beyond.
- Co-organizing the special session "Machine Learning for Wireless Communications and Networking" in Asilomar 2022.
- Co-organizing the 8th SIGKDD Workshop on Mining and Learning from Time Series.

Journal activities
- Guest Editor for IEEE Open Journal of the Communications Society Special Issue on Rate-Splitting and Multiple Access Techniques for 6G
- Guest Editor for IEEE Open Journal of the Communications Society Special Issue on Distributed Edge Learning in Wireless Networks
- Guest Editor for IEEE Transactions on Green Communications and Networking Special Issue on Energy Efficient Distributed AI over Wireless Networks

SIG on REconFigurabLE Intelligent Surfaces for Signal Processing and CommunicatIONS (REFLECTIONS)

Its mission is to provide a research and networking platform to collaborate, exchange ideas, and promote initiatives on Reconfigurable Intelligent Surfaces for Signal Processing and Communications.

The SIG has the following activities:

Conferences
- GLOBECOM 2022: Selected Area in Communications Symposium on Reconfigurable Intelligent Surfaces
- ICC 2023: Workshop on Holographic MIMO Communications

Tutorial
- ICC 2022, EUSIPCO 2022, VTC-Fall 2022, GLOBECOM 2022: "Reconfigurable Intelligent Surfaces: Electromagnetic Models, Design, and Future Directions", by A. Zappone, M. Di Renzo

New Horizon Europe Project
- INTEGRATE: Doctoral Network on the use of RIS for joint communication and sensing (to start in March 2023)

SIG on Signal Processing Techniques for Next Generation Multiple Access (NGMA)

Its mission is to provide a research and networking platform to collaborate, exchange ideas, and promote initiatives on advanced signal processing on Next Generation Multiple Access (NGMA) in wireless networks.

The SIG has the following activities:

Journal Special Issues
- IEEE Network Special Issue on "Next Generation Multiple Access for 6G", September 2022.
- IEEE JSAC Special Issue on "Next Generation Multiple Access", August 2021.
- IEEE OJ-COMS Special Issue on "NOMA for 5G and Beyond", January 2021.
- IEEE Wireless Communications Special Issue on "Massive Machine-Type Communications for IoT", November 2020.

- IEEE Internet-of-Things Journal Special Issue on "Enabling Massive IoT with 6G: Applications, Architectures, Challenges and Research Directions", October 2020.
- IEEE JSAC Special Issue on "Massive Access for 5G and Beyond", January 2020.
- IEEE Access Special Issue on "Advances in Signal Processing for Non-Orthogonal Multiple Access", May 2019
- IEEE JSTSP Special Issue on "Signal Processing Advances for Non-Orthogonal Multiple Access in Next Generation", September 2018.
- The IEEE Wireless Communications Special Issue on "Non-Orthogonal Multiple Access for 5G", 2018.

Conferences
- VTC 2022-Fall: Workshop on Next Generation Multiple Access (NGMA) for Future Wireless Communications
- GLOBECOM 2022: Workshop on Next Generation Multiple Access (NGMA) for Future Wireless Communications

Tutorials
- IEEE GLOBECOM 2022 Tutorial on "Evolution of NOMA Toward Next Generation Multiple Access", December 2022.
- IEEE/CIC ICCC 2021 Tutorial on "Application of NOMA in 6G Networks: Future Vision and Research Opportunities for Next Generation Multiple Access", July 2021.
- The 2021 Joint EuCNC & 6G Summit Tutorial on "B5G: A New Frontier for Non-Orthogonal Multiple Access", June 2021.
- IEEE ICC 2021 Tutorial on "Recent Techniques for Massive Grant-free Access for Future IoT", May 2021.
- IEEE VTC 2021 Spring Tutorial on "Intelligent Massive NOMA for Next Generation Wireless Networks", April 2021.
- IEEE GLOBECOM 2020 Tutorial on "Massive Machine-Type Communications for IoT: Recent Progress and Future Directions", December 2020.
- IEEE PIMRC 2020 Tutorial on "Intelligent Massive NOMA towards 6G", August 2020.
- IEEE WCNC 2020 Tutorial on "NOMA-Based Random Access for Massive MTC in 5G", May 2020.
- IEEE WCNC 2020 Tutorial on "B5G: A New Frontier for Non-Orthogonal Multiple Access", May 2020.

Seminars

https://sites.google.com/view/comsoc-spcc-sig-ngma/seminar-series

SIG on Orthogonal Time Frequency Space (OTFS)

Its aim is to provide a platform to bring together academic and industrial researchers in an effort to identify and discuss the major technical challenges, recent breakthroughs, and new applications related to OTFS.

The SIG has the following activities:

Journal Special Issues
- China Communications Special Issue on OTFS (34 submissions, published in Jan., 2023)
- IEEE Communications Magazine Special Issue (35 submissions)
- IEEE ComSoc Best Readings

Conferences
- IEEE VTC 2022-Spring two tutorials (June 2022)
- IEEE ICC 2022 Workshop on OTFS (May 2022)
- IEEE ICC 2023 Workshop on OTFS
- IEEE WCNC 2023 Workshop on Delay Doppler Communications

OTFS Seminar Series

SIG Mailing list: otfs-sig@comsoc.org

Subscribe at http://comsoc-listserv.ieee.org/cgi-bin/wa?SUBED1=OTFS-SIG&A=1

Standardization activities

Standard development is critical for deployment of communication technologies and also has a complex interplay between the academic and industrial sectors. SPCC TC welcomes its members to become part of the IEEE standard activities. It also welcomes all volunteers from standardization groups to participate to the SPCC TC activities.

SPCC has our representative monitoring the most recent standard development: Richie Leo, ZTE Corporation

3GPP news
- Radio Access Networks (RAN): Next meeting information and previous meeting reports and documents are available here.
- Services & Systems Aspects (SA): Next meeting information and previous meeting reports and documents are available here.
- Core Network & Terminals (CT): Next meeting information and previous meeting reports and documents are available here.
- 3GPP Latest Releases: Release 17, Release 18
    - o There are currently several work items approved by 3GPP to be included in Release 18 and a list of WIs can be found here.
- 3GPP newsletters https://www.3gpp.org/news-events/3gpp-newsletters
- Some hot topics: AI/ML, security (through blockchain), metaverse

Recent news in ITU
- Vision report to be finalized by ITU-R WP5D in June 2023.
- Security is becoming a popular topic across different SGs (ITU-T SG17 is dedicated to security).

Recent news in ETSI

ETSI Research Conference *Maximizing the Impact of European 6G Research through Standardization* will be organized in Sophia Antipolis, France during Feb 6-8, 2023. https://www.etsi.org/events/2130-etsi-research-conference

Others

Nov 15-16, 2022: The Global 6G development conference was held in Shanghai, China, organized by the IMT-2030 Promotion Group.

SPCC Student Activities

The **ComSoc Student Competition** recognize students who demonstrate the capacity to improve the lives of people through the application of communication technology.
- **Eligibility**: A team led by a Student Member or Graduate Student Member of IEEE Communications Society
- **Award**: US$ 2,000.
- **Details at**: https://www.comsoc.org/membership/ieee-comsoc-student-competition