Communication Software Technical Committee

Tuesday November 23rd, 2021

Agenda

- Welcome and Introduction by the TC Chair
- Technical Achievement Award
- Approval of minutes for meetings at ICC21
- SIG Activities
- Virtual Seminar Series
- Updates on e-Letter
- TC endorsed conferences
- Miscellanies

Welcome and Introduction by the TC Chair

2~3 Minutes

▸ Kindly state your name, affiliation and email in the chat
- e.g., First Last, Good University, first.last@gooduniversity.edu

Chair's Welcome, and Member Introductions

▸ Mission
- "The mission of this committee is to advance the state of the art in communications software and its various aspects and applications. It serves as the major forum for discussion among communications software professionals in both of the communications and computer industries."

▸ More than 378 members in the mailing list

▸ Executives for the current term (2021-2022)
- **Chair** Abdellatif Kobbane
- **Vice-Chair** Abd-Elhamid Taha
- **Secretary** Hassine Moungla

IEEE ComSoc®
CommSoft TC

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Technical Achievement Award

▸ TC-COMMSOFT Award SubCommittee

- Cheng Li

- Jalel Ben-Othman

- Adlen Ksentini

Technical Achievement Award once or Two per year in each GC meeting

IEEE COMMUNICATIONS SOCIETY
Communications Software Technical Committee

2021 TECHNICAL ACHIEVEMENT AWARD

PRESENTED TO

Lynda Mokdad

FOR PERFORMANCE EVALUATION TECHNIQUES FOR
WIRELESS NETWORKS AND WEB SERVICES

Vincent Chan

Vincent Chan, President, IEEE Communications Society

Stefano Galli, VP - Technical and Educational Activities,
IEEE Communications Society

IEEE COMMUNICATIONS SOCIETY
Communications Software Technical Committee

2021 TECHNICAL ACHIEVEMENT AWARD

PRESENTED TO

Jun Zheng

FOR ADVANCING THE FIELD OF NETWORK ARCHITECTURES AND PROTOCOLS

Vincent Chan

Vincent Chan, President, IEEE Communications Society

Stefano Galli

Stefano Galli, VP - Technical and Educational Activities,
IEEE Communications Society

Approval of minutes for meetings at ICC21

▸ Minutes were posted on the website

Update on Website

Editor: Hassine Moungla

▸ Website
- Website maintained and with all TC news and updates posted (minutes, agendas, symposium information, …)
- Open for suggestion on usability and ease of access

Special Interest Groups (SIGs)

Coordinator – Marwane Ayaida

▸ The VP on Technical Committee confirmed the need that each TC has SIGs

▸ More precisely, TCB P&Ps states "Special Interest Groups (SIGs) help the TC foster the scientific and technological development in topical emerging technologies within the scope of the TC. SIGs may be created to promote activities in well-established technologies."

CommSoft TC SIGs

Coordinator – Marwane Ayaida

▸ Special Interest Group on "ML and AI for Networking"
- Coordinator : Dr. Melike Erol-Kantarci (Melike.erolkantarci@uottawa.ca)

▸ Special Interest Group on "Communication software for Vehicular AdHoc Networks"
- Coordinator : Prof. Hacene Fouchal (Hacene.Fouchal@univ-reims.fr)

▸ Special Interest Group on "NFV and SDN technologies"
- Coordinator : Prof. Sudip Misra (smisra@sit.iitkgp.ernet.in)

▸ Special Interest Group on "Security in Software Communication"
- Coordinator : Dr. Éric Renault (eric.renault@esiee.fr)

▸ Special Interest Group on "Big Data and Communication software"
- Coordinator : Dr. Hassine Moungla (hassine.moungla@parisdescartes.fr)

▸ Special Interest Group on "Blockchains and Applications"
- Coordinator : Dr. Moayad Al-Oqaily (maloqaily@xanalytics.ca)

▸ Special Interest Group on "Performances Evaluation"
- Coordinator : Dr. Abdellatif Kobbane (abdellatif.kobbane@ensias.um5.ac.ma)

SIG on ML and AI for Networking

Head: Melike Erol-Kantarci

Delivered 5 keynotes

- "AI-Enabled Wireless Networks: A Vision for 6G", IEEE Local Computer Networks (LCN), October 2021.
- "AI-enabled Energy Trading for Microgrids and Transactive Energy Systems," at IEEE 3rd Global Power, Energy and Communication Conference, October 2021.
- "The Nexus of AI and Communications: The Frontier for 6G," at Royal Bank of Canada (RBC) Tech Expo Catalyst, September 2021. (Attended by 3000+ industry participants)
- "AI-Enabled Wireless Networks: A Bridge from 5G to 6G," at IEEE International Conference on INnovations in Intelligent SysTems and Applications (INISTA), August 2021.
- "AI-Enabled Future Wireless Networks and Security," at IEEE ICC 4th Workshop on 5G and Beyond Wireless Security (IEEE WIRELESS-SEC), June 2021.

SIG on ML and AI for Networking
Head: Melike Erol-Kantarci

Delivered 2 tutorials, 2 Distinguished Lectures:

Tutorials:

- ICC'21 and PIMRC'21: AI-enabled Open Virtualized Wireless Networks

IEEE ComSoc Distinguished Lectures:

- "Recent advances in Smart Grid Communications," IEEE Sacramento Valley Section Chapter, New Orleans Section Chapter, Central Texas Section Chapter, Central Texas Section Joint, 8 November 2021.
- "Deep and Reinforcement Learning in 5G and 6G," IEEE Egypt Chapter, 2 June 2021.

SIG on ML and AI for Networking
Head: Melike Erol-Kantarci

- Guest Co-Editor for the special issue "Integrated and autonomous network management and control for 6G time-critical applications" (ITU Journal) – Deadline: 13 December 2021

- Guest Co-Editor for the special issue on "AI for Open Programmable Virtualized Networks in 6G" IEEE Wireless Communications Magazine, 2021 – Deadline February 2022

- Workshop Organizer - Workshop on experimental wireless platforms and testbeds for computing, communication and networking research (Testbeds4Wireless) (in conj. With IEEE Globecom), 2021

- Track Chair - IEEE CCNC, AI/ML in Communications and Networking, 2022

SIG on Vehicular AdHoc Networks activities
Head: Hacene Fouchal

▸ Guest Editor : Hacène Fouchal
- Applied Science (MDPI - IF: 2,74)
- Special issue on Cooperative Intelligent Transport Systems
- The call is now posted on: https://www.mdpi.com/journal/applsci/special_issues/Cooperative_Intelligent_Transport_Systems
- Deadline delayed to : March 25, 2022

▸ TITS Special Issue on **Deployment of Connected and Automated Vehicles in Mixed Traffic Environment and the Implications on Traffic Safety and Efficiency**

- Guest Editors: Haneen Farah, Johan Olstam, and Zuduo Zheng.
- Submission: ~~October 2021~~ 31 January 2022
- Publication: ~~October 2022~~ 31 January 2023

▸ TITS Special Issue on **Internet of Things in Ingelligent Transportatoin Infrastructure**

- Guest Editors: Haibin Lv, Jaime Lloret, Houbing Song
- Submission: 30 mai 2022
- Publication: 30 juin 2023

Short courses/Invited talks/Tutorials:

▸ **Invited Speaker**: **Sudip Misra** spoke on "Introduction to IoT and Cross-Domain Convergence in IoT with Sensor-Cloud", E&ICT FDP on Machine Learing for IoT Applications, June 7, 2021.

▸ **Tutorial**: **Sudip Misra** and **Arijit Roy**, on "Sensors-as-a-Service for Internet of Things" at the IEEE Globecom, Madrid, Spain / Hybrid: In-Person and Virtual Conference, 2021

▸ **Tutorial**: **Arijit Roy** on Enabling "Sensors-as-a-Service for IoT" at theSCS SPECTS, Virginia, USA / Hybrid On-line Conference, 2021

▸ **Tutorial**: **Sudip Misra** and **Arijit Roy**, on "Programmability for Context-Aware Smart IoT Applications" at the IEEE WCNC, Nanjing, China / Hybrid On-line Conference, 2021
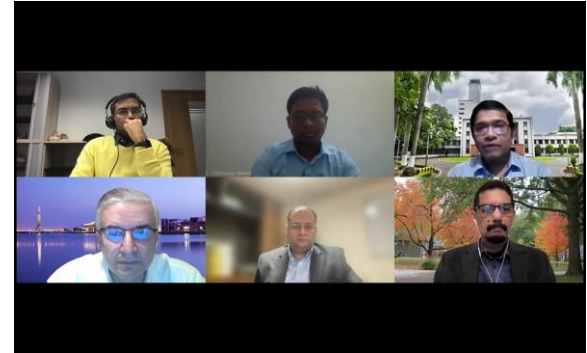
SIG organized International Webinars

‣ Webinar on "**Next Generation IoT**" organized by TC CommSoft: SIG on SDN/NFV held on November 15, 2021 (https://ieee-webinar.github.io/sdn_nfv/).

Speakers: Professor Mohamed-Slim Alouini, *IEEE Fellow*, Distinguished Professor, King Abdullah University of Science and Technology (KAUST), Saudi Arabia ; Professor Walid Saad, *IEEE Fellow*, Virginia Tech, USA ;

Professor Deep Medhi, *IEEE Fellow*, University of Missouri, Kansas City and Program Director, Computer & Network Systems (CNS) Division, National Science Foundation (NSF), USA

Principal Host: Sudip Misra

Co-Host: Dr. Arijit Roy, Dr. Ayan Mondal

Ongoing and recently awarded research projects:

▸ **Prof Sudip Misra** is currently the principal investigator (**PI**) of the following ongoing and recently funded research projects:

- AI for Agriculture and Food Sustainability (2020-2023), Sponsor : Ministry of Electronic and Information Technology, India
- AI and Virtual Reality Modelling and Collaborative Learning of Risk and situational Awareness in the Socio-Technical System Under Disruptions (2021-2024), Sponsor : SERB, Department of Science and Technology, India
- TribeConnect: Integrated Smart Tribal Eco-Platform -- A Proof of Concept in Chhattisgarh (2020-2023) Sponsor : Ministry of Electronic and Information Technology, India
- Unified Software-Defined Architecture for Industrial Internet of Things (2019-2022) Sponsor : SERB IMPRINT-II, India

Reports on conference/workshop/SI activity:

▸ **Sudip Misra, Arijit Roy, Ayan Mondal**, **Workshop Co-Chairs,** IEEE INFOCOM 2022, "AI/ML for Edge/Fog Networks (A4E)"

▸ **Sudip Misra, Arijit Roy and Ayan Mondal, Workshop Co-Chair,** IEEE GLOBECOM 2021 Workshop, "SIGNIS: Softwarized Next Generation Networks for IoT Services Workshop", December 2021 (https://signis2021.github.io/).

▸ **Abdulhalim Dandoush** was the **Local Arrangements Chair** of the 18th Annual IFIP International Conference on Network and Parallel Computing (IFIP NPC) November 03-05, 2021, Paris (https://npc2021.dnac.org/)

▸ **Sudip Misra** is the Guest Editor of IEEE Journal on Selected Areas in Communications, Edge-Based Wireless Communications Technologies to Counter Communicable Infectious Diseases", 2021-2022.

▸ **Sudip Misra** is the Lead Guest Editor of IEEE Internet of Things Journal, Special Issue on "Artificial Intelligence-Based Systems for Industrial Internet of Things and Industry 4.0", 2021.

Relevant publication highlights:

‣ N. Saha, **S. Misra**, S. Bera "Q-Flag: QoS-Aware Flow-Rule Aggregation in Software-Defined IoT Networks", IEEE Internet of Things Journal (Manuscript ID: ID IoT-10584-2020.R2; Accepted on September 11, 2021)..

‣ T. Ghosh, R. Saha, **A. Roy, S. Misra** "AI-based Communication Virtualization for Network Management in Society 5.0", IEEE Transactions on Network and Service Management (Manuscript ID: TNSM-2021-04011; Accepted on September 8, 2021).

‣ N. Ahmed, **S. Misra** "Collaborative Flow-Identification Mechanism for Software-Defined Internet of Things", IEEE Internet of Things Journal (Manuscript ID: IoT-17271-2021.R1; Accepted on July 12, 2021).

‣ C. Roy, R. Saha, **S. Misra**, D. Niyato, "Soft-Health: Software-defined Fog Architecture for IoT Applications in Healthcare", IEEE Internet of Things Journal (Manuscript ID: IoT-15555-2021.R1; Accepted on July 12, 2021).

Relevant publication highlights:

‣ **A. Roy**, **S. Misra**, S. Bandyopadhyay, "Mobile Sensor-Cloud for Rendering Sensors-as-a-Service", IEEE Systems Journal (Manuscript ID: ISJ-RE-20-09729.R1; Accepted on June 12, 2021)

‣ R. Saha, C. Roy, **S. Misra**, "Soft-Safe: Software Defined Safety-as-a-Service for Intelligent Transportation System", IEEE Transactions on Intelligent Transportation Systems (Manuscript ID: T-ITS-20-06-1378.R2; Accepted on May 29, 2021).

‣ N. Ahmed, **A. Roy**, **A. Mondal**, **S. Misra** "SDN-Based Link Recovery Scheme for Large-Scale Internet of Things", IEEE HPSR 2021, , Paris, France, June 7-9, 2021 (Invited Paper)

‣ N. Ahmed, **A. Roy**, **S. Misra** "Programmable IEEE 802.11ah Network for Internet of Things", IEEE ICC 2021, Montreal, Canada, June 14-23, 2021.

‣ O. Fares, **A. Dandoush** and N. AITSAADI, "SDN-based Platform Enabling Intelligent Routing within Transit Autonomous System Networks", IEEE CCNC 2022
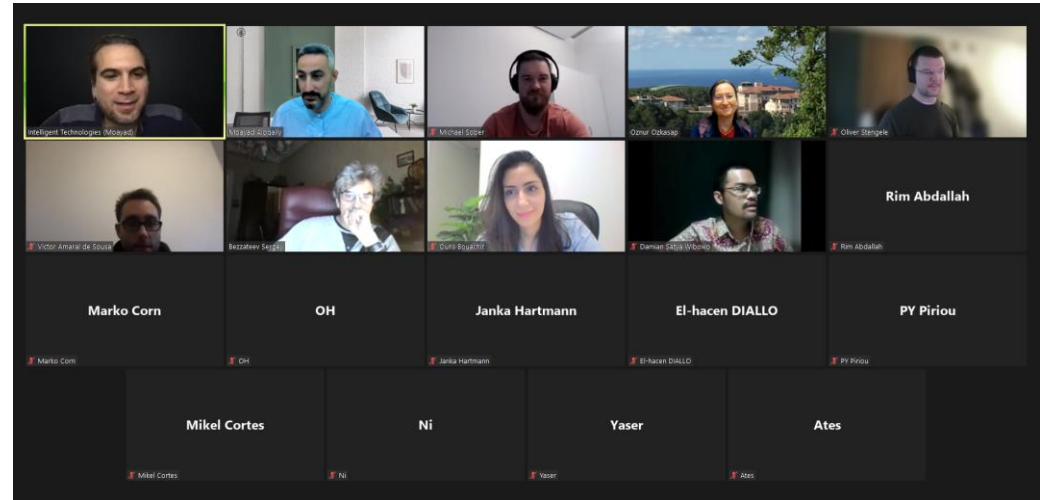
SIG on Security

Head: Éric Renault

SIG on Blockchains and Applications
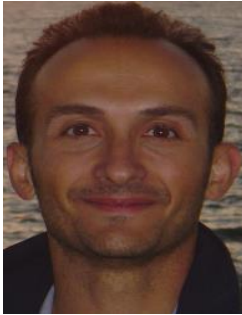*Head: Moayad Aloqaily*

▸ Blockchain Computing and Applications (BCCA 2021) Conference
  - *NOV 15 – NOV 16, 2021 – TARTU, ESTONIA*
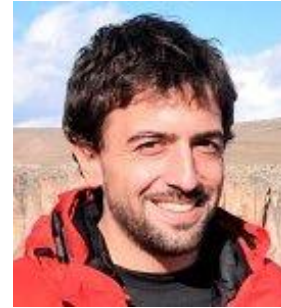 - *IEEE Estonia Section*
  - *University of Tartu*
  - *Next: Texas, USA!*

▸ Blockchain Computing and Applications (BCCA 2021) Conference

Professor Giancarlo Fortino
University of Calabria, Italy

Dr. Javier Arroyo
Complutense University of
Madrid, Spain

SIG on Blockchains and Applications
Head: Moayad Aloqaily

- Special Issues
  - IEEE Robotics and Automation (RA) Magazine
    - Blockchain Applications in Robotics and Automation
    - https://www.ieee-ras.org/publications/ram/special-issues/special-issue-on-blockchain-applications-in-robotics-and-automation
  - Springer Cluster Computing (CC) Journal
    - Blockchain and Applications
    - https://www.springer.com/journal/10586/updates
  - Wiley Engineering Reports
    - Blockchain Applications for Engineering Systems
    - https://onlinelibrary.wiley.com/page/journal/25778196/homepage/callforpaper
- Book
  - Blockchain Applications in Systems and Engineering Applications
    - Fabio Bonsignorio and Önder Gürcan

SIG on Blockchains and Applications
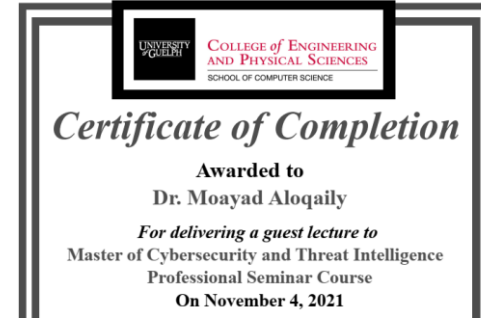*Head: Moayad Aloqaily*

‣ Keynote:
- Master of Cybersecurity, University of Guelph, Canada, Nov., 2021
- Blockchain for Security in Cyber Physical Systems, IEEE ICC 2021

‣ Panlest
- Huawei Energy Conference | 5G, Cloud, AI reshaping the Energy industry, Nov. 2021.

‣ Awards
- Master Thesis Award

UNIVERSITY OF GUELPH
COLLEGE *of* ENGINEERING AND PHYSICAL SCIENCES
SCHOOL OF COMPUTER SCIENCE

Certificate of Completion

Awarded to
Dr. Moayad Aloqaily

For delivering a guest lecture to
Master of Cybersecurity and Threat Intelligence
Professional Seminar Course
On November 4, 2021

KOÇ ÜNİVERSİTESİ

Prof.Dr.Öznur Özkasap — Faizan Safdar Ali

IEEE Computer Society Türkiye Yüksek Lisans Tezi İkincilik Ödülü

SIG on Big Data and Communication software

Coordinator – Hassine Moungla

▸ Delivered 2 invited talks on Data and Communication software in 2021
- Invited talk at B.I.T. China
- Invited talk at University of Tlemcen, Algeria
- Invited talk at Capital Normal University. China
- Invited talk at Institut Polytechnique de Paris. France

▸ Appointed as a guest editor Elsevier Future Generation Computer Systems journal
- Special Issue on "Information-Centric Network enabler Communication for Internet of Things and communication software ".

▸ Elsevier journal
- Special Issue on "Communication software big data analytic beyond 5G and 6G, ". Postponed for February 2022.

SIG on Big Data and Communication software

Coordinator – Hassine Moungla

- ‣ IEEE HPSR 2021 - TPC chair
- ‣ IEEE GLOBECOM 2021 - Symposium Chair for CSSMA.
- ‣ IEEE CAMAD 2022 – Chairing & Organization
- ‣ Workshop around Big Data, AI, IoT, Vehicular Communications and Communication software in junction with the IEEE ICC 2022.

- ‣ Will feed active members in the SIG Big Data and Communication software to participate in the CommSoft TC Webinar Series
- ‣ Call for Interest, Track organization on areas of joint interest between the Data and Communication software SIG and endorsed conferences. (Not yet finalized).

SIG on Performances Evaluation

Coordinator – Abdellatif Kobbane

▸ **Upcoming events**

- Invited talk in WNSN'22, Morocco, « Ressources management and performances evaluation in communication networks » in January 2022
- School in game theory applied to communication networks in march 2022
- Chair of WINCOM 2022
- Virtual seminar series

SIG on Performances Evaluation

Coordinator – Abdellatif Kobbane

▸ **Significant publications:**

- Mabrouk, A., Naja, A., Oualhaj, o.A, Kobbane, A., Boulmelf, M., « A cooperative game based mechanism for autonomous organization and ubiquitous connectivity in VANETs », **Simulation Modlling Practice and Theory** 2021, 107, 102213

- Ben-Aboud, Y., Ghogho, M. Pollin, S., Kobbane, A. « Electro-Smog Monitoring Using Low-Cost Software-Defined Radio Dongles » **IEEE Access Journal**, 2021, 9, pp. 107149–107158, 9499043

CommSoft TC Virtual TC Seminar Series

Abd-Elhamid M. Taha

▸ Aimed at TC scope and interest of its members.

▸ Set to take place at a reasonable pace, and to engage other ComSoc elements.

▸ In inception, the series is supported by ComSoc Saudi Arabia and ComSoc office in NY.

▸ Two instances in the second half

- Sep 1; Nelson Fonseca; "Federated Learning: State of the Art, Current Trend and Challenges "

- Nov 8; Ekram Hossain ; "Computation Offloading and Activation of Mobile Edge Computing Servers Using Minority Game Models "

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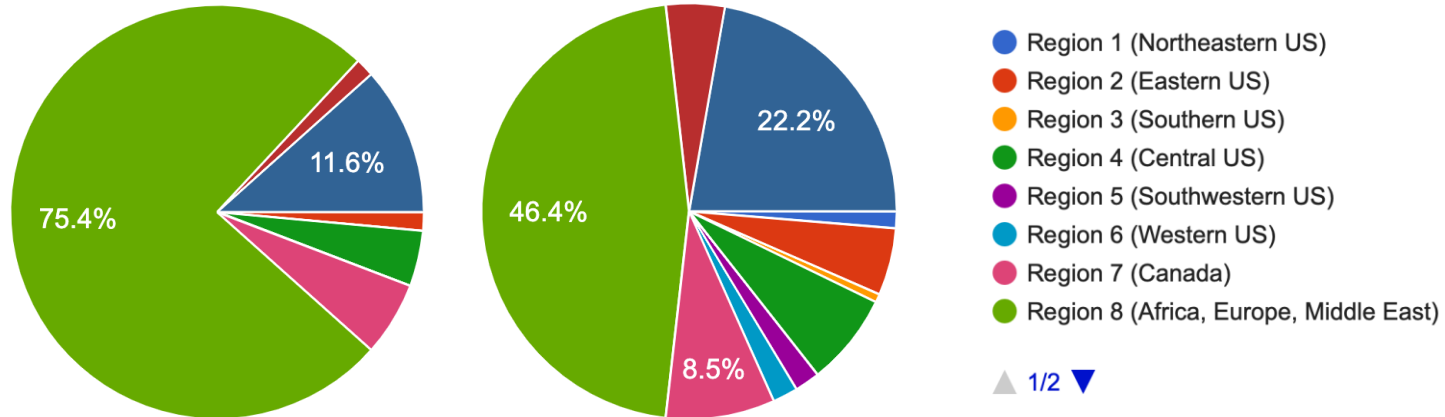◆**IEEE**

CommSoft TC Virtual TC Seminar Series

Abd-Elhamid M. Taha

- ▸ Upcoming events for 2021
  - – Dr. Michele Nogueira. (Dec)
- ▸ For 2022, we welcome ideas for speakers, engagement with other TCs or other chapters.
- ▸ Support needed in reaching out to Region 9 (Latin America) and Region 10 (Asia and Pacific)

CommSoft TC Virtual TC Seminar Series

Abd-Elhamid M. Taha

▸ Support needed in reaching out to Region 9 (Latin America) and Region 10 (Asia and Pacific)

● Region 1 (Northeastern US)
● Region 2 (Eastern US)
● Region 3 (Southern US)
● Region 4 (Central US)
● Region 5 (Southwestern US)
● Region 6 (Western US)
● Region 7 (Canada)
● Region 8 (Africa, Europe, Middle East)

▲ 1/2 ▼

eLetter – Fall 2021

Moayad Aloqaily and Aiman Erbad

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COMMUNICATIONS SOFTWARE

FALL 2021

Communications Software technical Committee

CommSoft TC

Chair: Abdellatif Kobbane
Vice-Chair: Abd-Elhamid M. Taha
Secretary: Hassine Moungla
Co-EiCs: Moayad Aloqaily
Aiman Erbad

https://commsoft.committees.comsoc.org/

TC Endorsed Conferences

- ICC'22, Seoul
  - Marwane Ayaida for CSM symposium (confirmed)

- GC'22, Rio de Janeiro
  - Sameh Sorour for CSM symposium (confirmed)
  - Ayman Merwan for NGNI (nominated)

- ICC'23, Rome (Nomination)

  - Ahmed Refaey, Hyunbum Kim, Mervat Abu-Elkheir for CSM symposium

  - Hassine Moungla, Najah Abu Ali, Sudip Misra for NGNI symposium

  - Mohamed El Kamili for IoT & Sensor networks symposium

- GC'23, (Nomination) ?

TC Endorsed Conferences

▸ CommSoft TC is seeking **highly motivated** candidates to be nominated as symposium chairs for CSM and NGNI

▸ The TC has one chair for CSM, and may nominate one chair for the NGNI symposium

TC Endorsed Conferences

▸ Communication Software, and Multimedia symposium (CSSMA), ICC 2022
  - **Submissions: 55**

▸ Communication Software, and Multimedia symposium (CSSMA), GC 2021
  - **Submissions: 99**

CSSMA Considerations

▸ Submissions trend GC 19 onward …

CSSMA@?	ICC 17	GC 17	ICC 18	GC 18	ICC 19	GC 19	ICC 20	GC 20	ICC21	GC21	ICC 22
Submissions	68	91	84	104	82	121	87	71	70	99	55

▸ We need to put more efforts to increase the submission number

Miscellanies

Thank you for your time