

Emerging Technical Subcommittees

[Emerging Technologies](#)

The Emerging Technologies Committee (ETC) is responsible for identifying and nurturing new technology directions through various activities, including the formation of subcommittees in emerging technology areas that are of high interest to ComSoc members. Members with common interest in a new technology area are strongly encouraged to form a subcommittee with the expectation that such a group may eventually evolve into a full-fledged technical committee under the Society's Technical Affairs Council (TAC).

The subcommittees organize a range of activities to promote their technical area and may also serve as technical co-sponsors for Comsoc conferences and publications. All ComSoc members are encouraged to participate in ETC subcommittees that intersect with their interests, and to propose new ones associated with emerging technologies in the field of communications.

[5G Mobile Wireless Internet](#)

Chair | [Latif Ladid](#)

Vice Chairs | [Fredrik Garneij](#) | [Pascal Thubert](#) Secretary | [Maria-Rita Palatella](#)

The **5G “Mobile Wireless Internet”** Technical Subcommittee will focus on exploring and elucidating all facets of the next generation of 5G Mobile Wireless Internet technologies, business and societal gaps and challenges between the current 3G-4G-LTE access-only Internet models and the proper vision of 5G, evolutionary or revolutionary, to go beyond just access by embracing and facilitating the upfront integration of all new technologies (IOT, SDN/NFV, Cloud Computing, ..) to be user-transparent, app-oriented, service-ready, ubiquitous and lowest cost.

The objectives of this committee are to facilitate the worldwide harmonization of industry research and best practices for deployment user scenarios of the global 5G industry ecosystem, the built-in security and privacy by design in 5G, and explore the different ways to enable next generation Internet protocols over the next generation of empowered devices in order to reach convergence and end to end transparency.

This committee will also pursue a grander collaboration with IEEE TCs and non-IEEE industry standardization organizations as well as research enrichments from academia. For this purpose, it will invite at the next GLOBECOM and ICC events 5G experts and IP designers from the IETF. This multi-discipline of the members

from this subTC will promote a common understanding to enable the convergence, governance, integration and security of 5G.

(created 2013)

Autonomic Communications

Chair | [Raouf Boutaba](#)

Vice Chair | [Marcus Brunner](#)

Secretary | [Nazim Agoulmine](#)

Standards Liaison | [Spyros Denazis](#)

Student Competition Program | [Raouf Boutaba](#)

The purpose of this sub-committee is to support the research, discussions and developments technologies, principles, and applications of Autonomic Communications - a new paradigm for new networks in the fixed as well the mobile world. This sub-committee focuses on mechanisms to achieve intelligent behavior for network control and services based on self-organization, automatic configuration, and smart network and service elements. Since network users interact with numerous, often-dynamic networks or virtual networks, these structures should also be represented in the control structure of the networks. The goals are to understand how autonomic behaviors can be provided (identified, influenced, changed, and eventually learned) and how, in turn, these affect other elements, groups and the network and its services. Such self-organizing networks will be able to sense their environment to perceive these changes to understand the meaning of these changes and to react in an adaptive manner. This facilitates new ways to perform network control, management, service creation, etc. Autonomic networking naturally also applies to mission critical distributed systems, since autonomic behavior allows for immediate corrections of any problems.

(created 2014)

Cable Networks & Services Subcommittee (Cable N&S)

Chair | [Mehmet Toy](#)

Vice Chair | [Rob Fish](#)

Its mission is to provide a platform for its members from industry, academia and research communities worldwide to exchange ideas and develop solutions for challenges of the cable industry, organize, participate and stimulate conferences, sessions, workshops, publications and standards activities to disseminate information, and contribute to the research and development of systems and applications for the cable industry.

(created 2011)

Cloud Communications & Networking

Chair - [Masum Z. Hasan](#)

Vice Chair - [Gerard Parr](#)

Vice Chair - [Ravindran Kaliappa](#)

Standards Chair - Markus Brunner

Advisory Board Chair - Doug Zuckerman

The sub-committee (herein referred to as "committee") is tasked to lead and coordinate ComSoc's efforts in various communications/networking issues related to Cloud Computing. Several of our existing Technical Committees likely have an interest in this topic. Therefore, the members of this new committee will include volunteers from the appropriate/interested Technical Committees and Communities. As part of providing a focal point in ComSoc for cloud communications/networking, the committee will contribute to IEEE-wide efforts in this area, e.g., the IEEE Cloud Computing Initiative. It will help organize conference sessions, propose keynote/guest speakers, serve on relevant conference committees and tracking/liasing with Cloud Communications/Networking related Standards organizations. It will also help encourage participation with and paper submissions to IEEE periodicals devoted to cloud computing, e.g., IEEE Transactions on Cloud Computing. Finally, it will actively endorse and help organize conferences sponsored by ComSoc in the cloud computing/networking area.

(created 2013)

Innovation & Standards in Information & Communication Technologies (ISICT)

Chair | [SM Hasan](#)

Vice-Chair | TBD

Secretary | Dinesh Datla

The goal of this subcommittee is to foster and promote research related to theory and methodology of innovation and standardization in information and communication technologies; to foster contributions from academic and industrial research organizations to global standards activities; and to foster undergraduate and graduate academic curricula and continuing education in innovation and standardization areas. The subcommittee organizes conferences and workshops, articles for journals and magazines, as well as tutorials, short courses, and Distinguished Lectures on the topic of innovations and standards in Information and Communication Technologies.

(created 2013)

Integrated Fiber & Wireless Technologies

- request change to Fiber-Wireless Integration (FIWI) (*pending*)

Chair | [Hussein Mouftah](#)

Vice-Chair | Sudhir Dixit

Secretary | Gangxiang (Steven) Shen
Membership Development | Wai-Pang Ng
Standards Liaison | Steve Weinstein
Workshop Chair | Nathan Gomez
Past Chair | Chunming Qiao

The subcommittee on Fiber-Wireless Integration addresses architectures, techniques, and interfaces for the integration of fiber and wireless network segments in a unified wired-wireless infrastructure. Such integration could be at access, metro and long-haul scales and includes end-to-end connectivity. Its objective is to enhance interoperability and resource sharing among wired and wireless segments so that mixed wired and wireless networks can provide better support for converged multimedia services irrespective of users' locations, terminal device capabilities, and access media. It does not address architectures or techniques specific to individual optical or wireless networks.

The subcommittee FiWi organizes, sponsors, and promotes conferences, workshops, tutorials, publications, standardization activities and other forms of information exchange in the multi-disciplinary field of mixed wired and wireless networking, and collaborates for mutual benefit with technical committees focused on the individual wired or wireless networks that are components of an integrated wired-wireless infrastructure.

(created 2006)

[Internet of Things](#)

Chair | [Latif Ladid](#)
Vice-Chairs | [Antonio Jara](#) | [Antonio Skarmeta](#) | [Sebastien Ziegler](#)
Secretary | [Yunchuan Sun](#)

The objective of this subcommittee is to facilitate a global definition of IOT architecture and governance; investigate the sensitive security and privacy issues; and explore the different technology scenarios and impacts when enabling Internet protocols over the emerging generations of IoT devices and networks in order to reach harmonization and end to end transparency.

This subcommittee will pursue a global collaboration with IEEE ComSoc and non- IEEE organizations from academia and industry. For this purpose, current members from the TPCs in the GLOBECOM 2013 IoT Symposium track will be invited as well as members from industrial alliances such as IPSO Alliance, Open Mobile Alliance (OMA) and standardization groups such as ETSI M2M, oneM2M and IETF. The worldwide research community such as the European IERC community will be invited (<http://www.internet-of-things-research.eu/>). This multi-discipline of the members from this subcommittee will promote a common understanding to enable harmonization and convergence on governance, integration and security of the Internet of Things.

(created 2013)

[Nano-Scale, Molecular & Quantum Networking](#)

Chair | [Andrew Eckford](#)

Co-Chairs Bio | Tatsuya Suda | Sasitharan Balasubramaniam

Co-Chair Quantum | Alexander Sergienko

Co-Chairs Neuromorphic | Alexandre Schmid | Wei Lu | Wei Wang

Vice-Chairs | Sanjay Goel | Maggie Cheng | Alhussein Abouzeid | Tadashi Nakano | Lei Liu | Jian-Qin Liu | Danilo Gligoroski | Yu Wei

The scope of this subcommittee is communication on the nano-scale, including nano-scale media and wireless nano-scale media in support of nano-robotics. Example media include carbon nanotubes, quantum dots, biological structures, and harnessing the advantages of quantum and hybrid classical/quantum effects for applications such as security and coding. This includes the goal of aiding the development of smart materials, nanoscale bio-medical applications, and nano-robotics.

This subcommittee exists to support the emerging community of engineers, academics, scientists and others who are developing communications on the nano-scale. Activities such as special sessions, symposia, tutorials and workshops in leading conferences will be vastly expanded to help provide the community with continuing updates about the burgeoning field of nanotechnology and nano-scale telecommunications in particular. For an example, see www.nanonets.org.

A goal of this committee will be to provide a network for required diverse specialties, some of which are in fields typically found outside the IEEE, to come together to advance nano-scale communications. Joint events, special journal issues and dedicated topical meetings will also be organized with relevant IEEE societies.

(created 2008)

[Situation Management](#)

Chair | [Gabriel Jakobson](#)

Vice Chair | Mitch Kokar

Vice Chair | Kristin Schaefer

Vice Chair | Scott Fouse Secretary | Galina Rogova Web Master | Jacob Whitney

The aim of this subcommittee is to sponsor research, engineering, standards and educational activities of collaborative man-machine systems whose behaviors depend on real-time situations, events and goal-directed actions. Examples of such systems include complex terrestrial, marine and satellite communication networks, physical and cyber security systems, humanitarian assistance and disaster recovery systems, Earth observation and operations support systems, intelligent transportation systems, and tactical battlefield command and control systems. Common to these systems is the need to adequately sense, perceive, reflect and act according to the situational changes that are happening the surrounding environment and within the systems themselves.

The subcommittee sees its mission in fostering cross-domain ideas and solutions among different scientific and engineering communities, including situation awareness, decision support, cognitive situation modeling, situation control, semantic information fusion, human factors modeling, and social networking.

(created 2013)

Smart Grid Communications

Chair - [Petar Popovski](#)

Vice Chair | [Stephen Bush](#)

Vice Chair | [Lutz Lampe](#)

Secretary | George Michailidis

Mentor | Mark Karol

The goal is to provide technical support to the IEEE Smart Grid Initiative and secure ComSoc's position in the development and promotion of Smart Grid related technologies, and particularly, in Smart Grid Communications. The activities include conferences and journal publications, standardization and policies, industry outreach programs, academic curriculum development, realization of an IEEE ComSoc Smart Grid portal.

(created 2013)

Social Networks

Chair | [Kwang-Cheng Chen](#)

Vice Chairs | Symeon Papavassiliou | Steven Wicker Secretary | Chunting Chou

The Social Networks sub-committee promotes interdisciplinary researches among social science, information theory and computer science. The main scope of the subcommittee is to encourage study and research activities that answer the very fundamental questions in human and telecommunication networks including:

- Formation and evolution of human social network
- Information propagation and dissemination un human social network
- Small world phenomenon and its implication in telecommunication networks
- Convergence of telecommunication networks and human social networks
- New applications and services

(created 2010)

Software Defined Networking & Network Function Virtualization

Chair | [Ciprian Popoviciu](#)

Vice Chairs | Adam Johnson | Dan Torbet | Latif Ladid | Zoltán Lajos Kis

Secretary | Jeffrey Handal

The Software Defined Networks (SDN) and Network Function Virtualization (NFV) Technical Sub-committee will focus on exploring next generation networking technologies enabling software defined service delivery, network virtualization, network function virtualization, and the enablement of mobility. The subcommittee will analyze and drive integration around the touch points with all the other major IT inflexion points such as next generation IP, compute and storage virtualization, cloud, mobility and the next generation applications. The key challenge to be addressed is to support multivendor networks in a software defined infrastructure that meets the demands of the next generation IT environments.

Topics addressed by the subcommittee will include network architecture, protocols and implementations that fully leverage the SDN/NFV concepts, strengths and weakness of current standards such as OpenFlow, alignment with cloud standards and IPv6 concepts, security considerations of SDN/NFV, innovative architectures, operations and service assurance in SDN/NFV-enabled environments; and education to develop the engineering talent needed to design, deploy and operate SDN/NFV environments. This committee will harmonize its work with the Open Networking Foundation (ONF), IEEE and non-IEEE organizations from academia and industry including the academic research community, SDN/NFV and next-generation infrastructure projects, and standardization bodies.

(created 2013)

[Vehicular Networks & Telematics Applications \(VNTA\)](#)

Chair | [Tao Zhang](#)

Vice Chairs | [Xiang Cheng](#) | [C.K. Toh](#) | [Daniel Wong](#)

Student Competition Program | [Tao Zhang](#)

The subcommittee addresses the confluence of transportation technologies with communications technologies. Its charter is to actively promote technical activities in the field of vehicular networks, V2V, V2R and V2I communications, standards, communications-enabled road / vehicle safety, real-time traffic monitoring, intersection management technologies, and future telematics applications, and ITS-based services.

(created 2010)

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