

# Emerging Technical Subcommittees

## Applications of Nanotechnologies in Communications

**Chair** | [Dilip Krishnaswamy](#)

The subcommittee aims to support the emerging community of engineers, academics, scientists and others who are interested in, and benefit from, nanotechnology in the telecommunications discipline. 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. This will also reinforce the necessary network between the different players in the field; from technology and device scientists, to circuit and subsystem designers as well as system integrators and service providers. Joint events, special journal issues and ultimately dedicated topical meetings will also be organized with other relevant IEEE societies.

Technologies and devices that help enhance the performance of existing infrastructure as well as others which offer new and useful functionality are all included in the scope of the subcommittee. The ultimate goal is to guide some of the developments in this rapidly developing field to cater for the communication applications' needs. The dialogue generated amongst the community through the activities described here will ensure the fulfillment of these goals

## Autonomic Communications

**Chair** | [rboutaba \[at\] uwaterloo \[dot\] ca](mailto:rboutaba@uwaterloo.ca) (Raouf Boutaba)

Vice Chair | [marcus \[at\] brubers \[dot\] org](mailto:marcus@brubers.org) (Marcus Brunner)

Secretary | [nazim \[dot\] agoulmine \[at\] iup \[dot\] univ-evry \[dot\] fr](mailto:nazim.agoulmine@iup.univ-evry.fr) (Nazim Agoulmine)

Standards Liaison | [sdena \[at\] ece \[dot\] upatras \[dot\] gr](mailto:sdena@ece.upatras.gr) (Spyros Denazis)

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.

## **Cable Networks & Services Subcommittee (Cable N&S)**

**Chair** | Mehmet\_Toy [at] cable [dot] comcast [dot] com (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.

(aligns under [Transmission, Access, & Optical Systems Technical Committee](#))

## **Cloud Communications & Networking**

Aligns under the VP-TA

*(to deal with cloud communications and networks issues)*

**Chair** - masumzh [at] gmail [dot] com (Masum Z. Hasan)

## **Green Communications & Computing**

**Chair** | wujs [at] ieee [dot] org (Jinsong Wu)

Vice-Chairs | Rod Tucker | Stephen (Steve) McLaughlin | Yu Cheng

Industrial Liaisons | Chih-Lin I | Daniel C. Kilper | Juergen Quittek

Advisors | Tariq Durrani | John Cioffi | Gee Rittenhouse | Zhisheng Niu | Leonid Kazovsky

The goal of the TSCGCC (Technical Subcommittee on Green Communications and Computing), IEEE Communications Society, is to provide a platform for its members, and the whole research, development, standardization, and service community of energy- and/or resource- efficient and/or environment-maintainable communications and computing, to interact and exchange technical ideas, to identify major research & development challenges, and to collaborate and investigate solutions in the development of energy-sustainable, resource-saving, and environment-friendly green communications and computing technologies.

## **Human Centric Sensing & Communications**

**Chair** | buford [at] samrg [dot] org (John Buford)

Vice-Chair Context-Awareness | Eunsoo Shim

Vice Chair Human-Centered eHealth | Mario Kolberg

Vice Chair Human-Centered Sensing | Raghu Ganti

Advisors | Chang Wen Chen | Rob Fish | Nelson Fonseca | Alex Gelman | Phillip Sheu

Today, the field of human centric communications, a shifting from machine centered to human centric communications where technologies are made more and more transparent to the human users, has emerged from the recent advances in pervasive, seamless, and convergent communications. The dramatic effect is the elimination of the frustrations many users are facing today. Furthermore, the impact of computing and communications technologies on human living environment is on the top list of technology challenges and research directions worldwide. This multidisciplinary subject area inherits the complexity of designing pervasive and seamless communication systems, modeling of human behavior, the communication environment as well as naturalized human – human/machine/data interactions, understanding social, cultural, and environmental issues, and creating contextual and semantic aware computational tools. It requires the understanding and development of abreast of technologies from theoretical concepts to solutions that can resolve real-world situations.

The goal of the HCCTC is to provide a platform for its members, and the human centric networking and communications research, development, and standardization community at large, to interact and exchange technical ideas, to identify major R&D challenges, and to collaborate and investigate solutions in the development of human centric and naturalized communications technologies. The technical issues addressed by the committee will include all aspects of human centric and naturalized networking and communications related research issues (e.g., seamless human centric communications, self-aware and self-configurable human centric networks, cognitive theory for human centric computing and communications, human centric computing and communications design theories, flexible and intuitive communications approaches, convergent networking architecture, protocol, and interfaces for intuitive communications, human centric content access and distribution, human centric network security and privacy issues, social, ethical, educational and economical issues in HCC, etc.), implementation technologies, industry standardization activities, and economic considerations.

## **Innovation and Standards in Information and Communication Technologies (ISICT)**

**Chair** | hasan [at] ge [dot] com (SM Hasan)

Vice-Chair | TBD

Secretary | Dinesh Datla

Scope of technical activities to be pursued:

- To foster and promote research related to theory and methodology of innovation and standardization in information and communication technologies
- Foster contributions from academic and industrial research organizations to global standards activities
- Foster undergraduate and graduate academic curricula and continuing education in innovation and standardization areas

Some of the current activities are summarized below:

- Currently ISICT committee is operating under IEEE Communications Society Standardization Programs Development Board (CSPDB)
- Recruited more than 30 members who are actively participating in this committee. The membership represents a good mixture of IEEE and ComSoc members from different IEEE regions, from academia, and industry.
- ISICT members organized a workshop at ICC'2012 on Telecommunications Standards – From Research to Standards. The Workshop was recognized as the best workshop at ICC'2012. A CFP has been already issued for the second such workshop in conjunction with ICC'2013.
- ISICT members helped to acquire for IEEE and presently participate in the steering committee of IEEE-SIIT (Innovation and Standardization in Information Technologies) Conference which is now sponsored by IEEE-SA. AA technical co-sponsorship by ComSoc is under discussion.
- Members of ISICT have organized standards-related Feature Topics in Communications Magazine - September'2012 issue.
- Member of ISICT committee, Ken Krechmer, recently received the first prize in the global paper competition - The IEC-IEEE challenge. Ken's paper is related to standardization in the area of cloud computing.

Proposed activities of ISICT include:

- Create a venue to bring academic researchers and industry researchers/practitioners together for discussions on Innovation and Standards in Information and Communications Technologies
- Organize innovations and standards related conferences and workshops
- Organize Feature Topics on innovations and standards in IEEE Communication Magazine
- Create an IEEE journal to publish scholarly articles on innovations and standards
- Create tutorials and courses as well as ComSoc Distinguished Lecture Tours on Innovation and Standards Education

## Integrated Fiber & Wireless Technologies (TCFiWi)

**Chair** | mouftah [at] site [dot] uottawa [dot] ca (Hussein Mouftah)

Vice-Chair | Sudhir Dixit

Secretary | Gangxiang (Steven) Shen

Standards Liaison | Steve Weinstein

### **Advisory Board**

Chair | Chunming Qiao

Member | Ting Wang

The Sub-TC 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 Sub-TC 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.

## Internet of Things

**Chair** | latif [at] ladid [dot] lu (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 through IPv6 (For this purpose, this TC will be supported by IPv6 Forum [www.ipv6forum.org](http://www.ipv6forum.org)).

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 TC will promote a common understanding to enable harmonization and convergence on governance, integration and security of the Internet of Things.

## **Nano-Scale, Molecular, & Quantum Networking**

**Chair** | aeckford [at] gmail [dot] com (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](http://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.

## **Peer-to-Peer Networking**

**Chair** | xshen [at] bbcr [dot] uwaterloo [dot] ca (Sherman Shen )

VC Sister TC Relations & Membership | Madjid Merabti

VC Industry Standard | John Buford

VC Conferences | Gary Chan

VC Publications | Jie Li

Secretary | Heather Yu

The goal of the Peer-to-peer Networking and Communications Subcommittee ( <http://ewh.ieee.org/cmte/p2ptc> ) is to provide a platform for its members, and the peer-to-peer networking and communications research, development, and standardization community at large, to interact and exchange technical ideas, to identify major R&D challenges, and to collaborate and investigate solutions in the development of P2P technologies.

The technical issues addressed by the committee will include all aspects of P2P networking and communications related research issues (e.g., P2P overlay networks, P2P content access and distribution, P2P media streaming, and P2P security issues), implementation technologies, industry standardization activities, and economic considerations.

## **Smart Grid Communications**

Aligns under the VP-TA

**Chair** - petarp [at] es [dot] aau [dot] dk (Petar Popovski)

Vice Chair - Stephen Bush

Vice Chair - Lutz Lampe

Secretary - George Michailidis

Mentor - Mark Karol

Activities - [SmartGridComm 2010](#)

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.

## **Social Networks**

**Chair** | chenkc [at] cc [dot] ee [dot] ntu [dot] edu [dot] tw (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 in 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 1-2011)

## **Vehicular Networks & Telematics Applications (VNTA)**

**Interim Chair** | thsing [at] telcordia [dot] com (T. Russell Hsing)

Interim Officers | CK Toh | Tao Zhang | Daniel Wong

(Note: The first term of officers will be elected at the 2011 ICC in Kyoto, Japan.)

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.

The proposed Technical Committee (TC) addresses the confluence of transportation technologies with communications technologies. Hence, this TC touches on an interdisciplinary topic. The formation is in line with the trends, focus, attention and progress made by industries in this field. Also, there is momentum from the academia undertaking research in this area.

(created 6-2010)

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