

IEEE GLOBECOM 2016

Freedom through Communications

4-8 December 2016 // Washington, DC USA

PROGRAM HIGHLIGHTS

#IEEEGC16

THE PREMIER COMMUNICATIONS EVENT

IEEE GLOBECOM 2016, the premier international event dedicated to driving innovations and technological breakthroughs in nearly every aspect of communications, will hold its 59th annual event from 4-8 December at the Washington Hilton in downtown DC.

Themed "Freedom through Communications," the program will feature over 1,500 presentations exploring next generation advancements in broadband, wireless, multimedia, Internet, image and voice communications.

The heart of the conference entails the delivery and presentation of over 900 technical, peer-reviewed papers advancing the science of telecommunications covering the latest research and industry solutions. In addition to a comprehensive technical program, IEEE GLOBECOM 2016 will host a variety of industry sessions, exhibits and demonstrations showcasing 5G, IoT, LTE, NFV, SDN, MIMO, mmWave and more.

PROGRAM AT A GLANCE

Period	Sunday 4 December	Monday 5 December	Tuesday 6 December	Wednesday 7 December	Thursday 8 December
07:00–18:00	Registration		Registration	Registration	Registration
09:00–10:30	Tutorials Workshops	Opening & Keynote Session 09:00–10:45	Keynote & Panel Session	Keynote Session	Tutorials Workshops
10:30–11:00	Coffee Break	Coffee Break 10:45–11:15	Coffee Break	Coffee Break	Coffee Break
11:00–12:30	Tutorials Workshops	Technical Sessions 11:15–12:45 Industry Sessions 11:15–12:45	Technical Sessions Industry Sessions	Technical Sessions Industry Sessions	Tutorials Workshops
12:30–14:00	Lunch Break	Awards Lunch 12:45–14:30	Lunch Break	Lunch Break	Lunch Break
14:00–15:30	Tutorials Workshops	Technical Sessions 14:30–16:00 Industry Sessions 14:30–16:00	Technical Sessions Industry Sessions	Technical Sessions Industry Sessions	Tutorials Workshops
15:30–16:00	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break
16:00–17:30	Tutorials Workshops	Technical Sessions 16:30–18:00 Industry Sessions 16:30–18:00	Technical Sessions Industry Sessions	Technical Sessions Industry Sessions	Tutorials Workshops
	Welcome Reception 19:00–21:00	IEEE Young Professionals Reception & Mixer 18:00–21:30	Conference Banquet 19:00–22:00		

PATRONS & EXHIBITORS



[HTTP://GLOBECOM2016.IEEE-GLOBECOM.ORG](http://globecom2016.ieee-globecom.org)

KEYNOTE & PLENARY PANEL SESSIONS

Monday, 5 December 2016 • 09:00 – 10:45



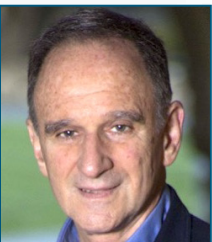
Edward
Tiedemann

Edward Tiedemann, SVP, Engineering of QUALCOMM Technologies, Inc, will speak about “Big Steps in Wireless: Applications, Spectrum, and Technology” and will provide a perspective on developments and technologies at this extraordinary time in communications.



Vahid
Tarokh

Vahid Tarokh, Professor at Harvard University, will discuss “Multimodal Data, Computation and Communications” and argues the need for new methods of characterizing, representing and processing the information content of multimodal.



Martin
Hellman

Martin Hellman, Professor Emeritus at Stanford University, will review the different methods of “Implementing Strong Cybersecurity” and how government has sometimes played a larger role than technology in determining the level of cybersecurity.

Wednesday, 7 December 2016 • 09:00 – 10:30



Sorabh
Saxena

Sorabh Saxena, SVP, Software Development & Engineering – Technology Development at AT&T, Services Inc. will detail “SDN and its Critical Role in Unlocking Human Potential” and identify the essentials needed to accelerate communication service advances.



Muriel
Médard

Muriel Médard, Cecil H. Green Professor at MIT, will talk about “Heterogeneity for Keeps” and coding and virtualization as key technologies rendering heterogeneity.



Asha R.
Keddy

Asha R. Keddy, VP & GM at Intel Corporation, will discuss how “5G Needs a Transformation of Wireless Landscape” and address connectivity challenges, new applications encompassing IoT, Augmented Reality, HD Video and services that will shape future 5G offerings.

Tuesday, 6 December 2016 • 09:00 – 10:30



Julius
Knapp

Julius Knapp, Chief of the FCC’s Office of Engineering and Technology, will talk about “Perspectives Standing at the Intersection of Technology Innovation and Communications Policy” and cover the landscape of technology developments and the FCC’s innovative approaches to facilitate their introduction.

Plenary Panel: The Future of Wireless --- Image the Unimaginable

The ever increasing pace in innovation may allow us to think bolder in terms of wireless tech design, spectrum usage and enablement of unprecedented applications. This panel will discuss emerging and transformative aspects of that changing innovation landscape with specific focus on the tradeoff between evolutionary (and reliable) versus revolutionary (and truly disruptive) design approaches.

IEEE GLOBECOM 2016

2000+ ATTENDEES • FROM 70+ COUNTRIES

[HTTP://GLOBECOM2016.IEEE-GLOBECOM.ORG](http://globecom2016.ieee-globecom.org)

INDUSTRY PROGRAM

The Industry Program, specifically dedicated to Industry Practitioners, includes distinguished industry speakers, a CTO forum, moderated business panels, seminars and demonstrations designed to promote new ideas, trends and product innovations, while facilitating peer networking opportunities.

Three Day Industry Program Pass

US\$400 (before 4 Nov), US\$500 (after 4 Nov)

One Day Industry Program Pass

US\$200 (before 4 Nov), US\$300 (after 4 Nov)

Executive Forum features top industry leaders share their visions and experiences, and challenge us in exciting, new ways.

Monday, 5 December 2016 • 11:15 – 12:45
5G Network Challenges

5G is intended to impact every industry, every service provider, and every person on the planet. It promises to extend the global success of 4G-LTE to underpin new use-cases, such as the "industrial Internet" and enhanced mobile broadband. The revolution from 4G to 5G is unprecedented, it stretches the spectrum, device and network technology. This panel will discuss the business and technology challenges of 5G Network, as well as opportunities.

Moderator

Sandra Rivera, Vice President, Intel Corp.

Panelists

Charles Schroeder, VP, National Instruments
Wen Tong, VP & CTO, Huawei Technologies
Edward Tiedemann, SVP, Engineering, QUALCOMM Technologies Inc
Wonil Roh, VP, Samsung
Hossein Moïin, EVP & CTO, Nokia

Distinguished Industry Speakers include leaders from industry who have distinguished themselves as experts in their fields. Learn directly from these experienced business professionals and successful entrepreneurs who have excelled through innovation and dedication to their work.

Tuesday 6 December 2016 • 11:00 – 12:30

Keynote: Petros Mouchtaris,

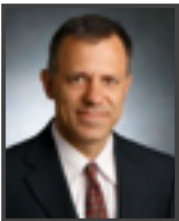
President, Vencore Labs

Peiyong Zhu, Senior Director, Huawei

Wonil Roh, VP, Samsung Electronics Co., Ltd.

Satish Dhanasekaran,

VP & GM, Keysight Technologies



Mouchtaris



Zhu



Roh



Dhanasekaran

Industry Panels are in-depth discussions led by industry leaders, innovators and researchers leading the next big wave of emerging technology in communications and networking.

Monday, 5 December 2016 • 11:15 – 12:45

IP3: Operational and Management Challenges in 5G

IP4: Machine-Type Communications (MTC) / Internet of Things (IoT) via Cellular Networks

Monday, 5 December 2016 • 14:30 – 16:00

IP1: Joint SDOs/Fora Industry Harmonization Initiative on Unified Standards, Architectures, and PoCs Programs: on SDN, NFV, Autonomics, Model-Driven E2E Service Management & Orchestration, and Information Models

Monday, 5 December 2016 • 16:30 – 18:00

IP2: Millimeter Wave vs. Below 5 GHz Massive MIMO: Which Technology Can Give Greater Value?

Tuesday, 6 December 2016 • 11:00 – 12:30

IP7: Towards 5G Networking

IP8: 5G Systems: Integration of Existing and New Technologies

Tuesday, 6 December 2016 • 14:00 – 15:30

IP5: Leveraging the Full Potential of 5G Networks with Network Slicing and NFV

Tuesday, 6 December 2016 • 16:00 – 17:30

IP6: How Vertical Markets and IOT Interoperability Standards are pushing the Envelope towards the Future Connected Society

Wednesday, 7 December 2016 • 11:00 – 12:30

IP9: 5G Networks Prototyping: Entering the Next Phase of Experimentation for Future Radio Access Technologies

IP10: 5G mmWave Fixed Wireless Access

IP11: IoT Industrial Deployment

IEEE GLOBECOM 2016 INDUSTRY PROGRAM

1
EXECUTIVE FORUM

11
BUSINESS PANELS

20
DEMONSTRATIONS

7
SEMINARS &
PRESENTATIONS

<http://globecom2016.ieee-globecom.org>

Demonstrations of leading communications corporations and researchers exploring areas such as 5G, MIMO, mmWave, Next-Gen Wi-Fi, Mobile LAN, networking slicing, and multimedia services.

Sunday, 4 December 2016 • 19:00 – 21:30

Monday, 5 December 2016 • 10:30 – 17:00

Tuesday, 6 December 2016 • 10:30 – 17:00

Wednesday, 7 December 2016 • 10:30 – 14:00

- Real-time Prototyping Platform for Advanced Massive MIMO Algorithms
- Real-time Prototyping of Advanced 5G Networks using National Instruments SDR Platform
- mmWave Communications Link for Prototyping
- Network Full-Duplex System: A Compact FD MIMO and 3D Ray-tracing based Emulator
- Real-time Uplink Multi-user MIMO Testbed with Carrier Frequency Offset Pre-Correction for Next-Generation Wi-Fi
- Enabling Time-Sensitive Communication over Wi-Fi
- Mobile LAN: A Cellular Network based Dynamic Local Area Network
- Using MPTCP to Enhance the U-vMOS Performance
- In-band Full-Duplex Mobile Radio for Simultaneous Transmission and Reception
- 5G Mobile Trial Platform
- Mobile Edge mmWave Back Haul
- LTE-LWIP - WiFi Aggregation
- Network Slicing
- Massive MIMO with Beam Forming and Beam Steering
- NUBOMEDIA: The First Open Source PaaS for developing Multimedia Services
- 5G, Shared Spectrum, IoT, and Security
- 5G Applications
- Radio for All
- Slicing for New Services
- Be 5G Ready

Industry Seminars are hands-on programs on current topics targeting near-term implementations in communications and networking.

Monday, 5 December 2016 • 14:30 – 18:00

IS1: Cellular Internet-of-Things – A Deep Dive into Technology and Devices

Tuesday, 6 December 2016 • 14:00 – 17:30

IS2: Human Models for Wireless Communication and Cyber Physical Systems

Wednesday, 7 December 2016 • 14:00 – 17:30

IS3: 5G, LTE, WLAN and V2X Design with MATLAB
IS4: 5G versus 4G Waveforms Benchmarking based on Link-level Modeling Tools and SDR Hardware applied in Education and Research

Industry Presentations are a mixed of keynotes, panels and individual presentations on current topics targeting near-term implementations in communications.

Monday, 5 December 2016 • 14:30 – 18:00

IPR1: 5G Heterogeneous and Small Cell Networks

Tuesday, 6 December 2016 • 14:00 – 17:30

IPR2: Accelerate 5G Design and Test

Wednesday, 7 December 2016 • 14:00 – 17:30

IPR3: Design and Development of Emerging Low Power Wake-up Receivers

TECHNICAL PROGRAM

The Technical Program includes tutorials, workshops and a comprehensive symposia featuring oral and poster presentations grouped into 13 thematic symposia, and 18 parallel sessions. Specific presentations will target next generation research in device-to-device communications, self-organizing networks, green communications and computing, millimeter wave communications, content centric network design, vehicular networks, Internet security, video streaming, data storage, game theory, routing and reliability and big data networking, among hundreds of other topics.

Technical Symposia features peer-reviewed papers on current research and development organized into the following 13 Symposia consisting of 910 oral and interactive sessions.

AHSN: Ad Hoc and Sensor Networks Symposium
CRN: Cognitive Radio and Networks Symposium
CISS: Communication & Information Systems Security Symposium
CQRM: Communication QoS, Reliability & Modeling Symposium
CSSMA: Communication Software, Services and Multimedia Applications Symposium
CT: Communication Theory Symposium
GCSN: Green Communications Systems and Network Symposium
MWN: Mobile and Wireless Networks Symposium
NGN: Next-Generation Networking and Internet Symposium
ONS: Optical Networks and Systems Symposium
SAC-1-ASN: Access Network & System Track
SAC-2-BD: Big Data Track
SAC-3-CN: Cloud Network Track
SAC-4-DS: Data Storage Track
SAC-5-E-HLT: e-Health Track
SAC-6-MBMC: Molecular, Biological and Multi-scale Communications Track
SAC-7-IoT: Internet of Things Track
SAC-8: SGPL: Smart Grid and Power Line Track
SAC-9-SSC: Satellite & Space Communications Track
SAC-10-SN: Social Networks Track
SPC: Signal Processing for Communications Symposium
WCS: Wireless Communications Symposium

Monday, 5 December 2016 • 11:15 – 12:45

AHSN-12-1: Vehicular Ad Hoc Networks I
CISS-14-1: Wireless and Mobile Security
CISS-14-8: Network and System Security I
CQRM-15-2: Device-to-Device (D2D) Communication and Energy Harvesting
CRN-13-1: Spectrum Sensing I
CSSMA-16-1: Multimedia Streaming and Video Delivery
CTS-17-1: Coding Theory and Practice
CTS-17-10: Modulation, Coding and Link-Layer Techniques
GCSN-23-1: Green Wireless Networks
NGN-18-1: Next Generation Wireless Networks
SAC-BD-9-2: Big Data Analytics and Processing
SAC-CN-3-1: Data Center Networks
SAC-IoT-6-1: Energy and Power
SPC-20-1: Security and Secrecy
WCS-21-1: Massive MIMO I
WCS-21-10: Non-Orthogonal Multiple Access
WCS-21-19: Performance Analysis
WCS-21-28: Emerging Wireless Technologies

Monday, 5 December 2016 • 14:30 – 16:00

AHSN-12-2: Vehicular Ad Hoc Networks II
CISS-14-3: Crowd Security and Game Theory
CQRM-15-4: Network Traffic Characterization and Modeling
CRN-13-2: Spectrum Sensing II
CTS-17-2: Cooperative Communications and Relaying
GCSN-23-2: Networks Employing Renewable Energy Sources
MWN-22-1: LTE Networks
MWN-22-3: VANET and Intelligent Transportation
MWN-22-17: Mobile Wireless Network II
NGN-18-2: Virtual Network Design
SAC-CN-3-2: Edge / FOG / Mobile Cloud
SAC-IoT-6-2: Mobility
SAC-SSC-8-1: Routing and Caching
SPC-20-2: Channel Estimation
WCS-21-2: Massive MIMO II
WCS-21-11: Cloud RAN
WCS-21-20: Spatial Modulation
WCS-21-29: Wireless Content Distribution

Monday, 5 December 2016 • 16:30 – 18:00

AHSN-12-3: Routing in WSN and Ad Hoc Networks
CISS-14-2: Cloud Security
CQRM-15-5: Wireless Physical/Link Layers and Network Coding
CRN-13-3: Spectrum Sensing III
CSSMA-16-3: Mobile Network Services I
CTS-17-3: Stochastic Geometry for Wireless Networks
GCSN-23-3: Green Cellular Networks
MWN-22-2: 5G Techniques
MWN-22-15: Mobile Wireless Networks
NGN-18-3: Content Centric Networks I
ONS-19-1: Optical Wireless Communication Techniques and Systems I
SPC-20-3: Beamforming
SAC-IoT-6-5: IoT Devices
SAC-BD-9-1: Algorithms for Big Data
WCS-21-3: Full-Duplex Communication Systems
WCS-21-12: Channel Measurements and Modeling
WCS-21-21: Receiver Design
WCS-21-30: Resource Management

Tuesday, 6 December 2016 • 11:00 – 12:30

AHSN-12-4: Sensing and Social-Aware Networking
AHSN-12-10: Medium Access Control
CISS-14-4: Jamming
CISS-14-9: Network and System Security II
CQRM-15-6: Resource Allocation in 5G Mobile Networks
CRN-13-4: Resource Management I
CTS-17-4: Caching and Latency-constrained Systems
MWN-22-4: Device-to-Device (D2D) Communications
MWN-22-16: Wireless Network and Traffic Management
NGN-18-4: Software Defined Networks I
SAC-CN-3-3: Optimization of Resource Allocation
SAC-ANS-2-2: Wired Access Networks
SAC-ehealth-5-2: Algorithms and Learning Systems for e-health
SAC-SGPLC-7-1: Smart Grid and Power Line Communications I
SPC-20-9: Multi-Cell and Relay Networks
WCS-21-4: Millimeter-Wave Communications I
WCS-21-13: Device-to-Device Communications
WCS-21-22: MIMO I

Tuesday, 6 December 2016 • 14:00 – 15:30

AHSN-12-5: Wireless Sensor Networks
AHSN-12-11: Energy Efficiency and Performance Evaluation
CISS-14-5: Privacy
CQRM-15-7: Quality, Scalability and Performance for Network and Services
CRN-13-5: Resource Management II
CSSMA-16-2: Information-centric Services
CTS-17-5: Multiantenna Systems
GCSN-23-4: Green Communications and Computing
NGN-18-5: Next Generation Networks I
ONS-19-2: Optical Wireless Communication Techniques and Systems II
SAC-CN-3-4: Performance of Cloud networks
SAC-IoT-6-3: Performance
SPC-20-4: Massive MIMO
MWN-22-5: Cloudlet and Mobile Edge Computing
MWN-22-6: Cognitive Radio Networks
WCS-21-5: Millimeter-Wave Communications II
WCS-21-14: Wireless Network Security
WCS-21-23: MIMO II

Tuesday, 6 December 2016 • 16:00 – 17:30

AHSN-12-6: Privacy and Security
AHSN-12-12: Coverage, Topology Control, and Resource Allocation
CISS-14-6: Secure Smart Grid and MIMO Systems
CQRM-15-8: Resource Allocation and Scheduling in Communication Networks
CRN-13-6: Spectrum Access I
CTS-17-6: Interference in Wireless Networks
MWN-22-7: Security and Privacy
MWN-22-8: Location-Based Techniques
NGN-18-6: Switching and Routing
NGN-18-9: Software Defined Networks II
ONS-19-3: Optical Data Center Networking
SAC-ehealth-5-1: Network protocols and Mobile Applications
SAC-SSC-8-2: System
SAC-SN-11-2: Structure, Resiliency and Privacy
SPC-20-5: Interference Management and Modeling
WCS-21-6: Millimeter-Wave Communications III
WCS-21-15: Energy Efficient Communications
WCS-21-24: Transceiver Design

IEEE GLOBECOM 2016

910
PRESENTATIONS

THEMATIC
13
SYMPOSIA

TECHNICAL PROGRAM

Wednesday, 7 December 2016 • 11:00 – 12:30

AHSN-12-7: Energy Harvesting in Wireless Networks
AHSN-12-13: Positioning, Localization, and Security in Mobile Networks
CISS-14-7: Cryptography and Network Security
CISS-14-11: Physical Layer Security II
CQRM-15-1: Cloud/Edge Networking and Internet of Things (IoT)
CRN-13-7: Spectrum Access II
CSSMA-16-4: Mobile Network Services II
CTS-17-7: Source Coding and Estimation
GCSN-23-5: Energy Harvesting and Wireless Power Transfer I
MWN-22-9: Energy Efficiency and Green-Power Communications
MWN-22-10: IEEE 802.11 Networks
NGN-18-7: Content Centric Networks II
SAC-ANS-2-1: Wireless and Cellular Access Networks
SAC-DS-4: Data Storage
SPC-20-6: Signal Detection and Decoding I
WCS-21-7: Energy Harvesting I
WCS-21-16: Small Cells and Heterogeneous Networks I
WCS-21-25: Broadband Communications

Wednesday, 7 December 2016 • 14:00 – 15:30

AHSN-12-8: D2D Networking, Relay and Cooperative Transmission
CISS-14-10: Physical Layer Security I
CQRM-15-9: Network Efficiency and TCP/IP Performance
CRN-13-8: Spectrum Sharing
CTS-17-8: Information Theory
GCSN-23-7: Green Network Function Virtualization
MWN-22-11: Caching and Offloading
MWN-22-12: IOT and M2M
NGN-18-8: Next Generation Network II
ONS-19-4: Elastic Optical Networks
SAC-ANS-2-3: Interactive Session
SAC-BD-9-3: Big Data Storage and Communications
SAC-SGPLC-7-2: Smart Grid and Power Line Communications II
SPC-20-7: Signal Detection and Decoding II
SPC-20-8: Energy Efficiency and Energy Harvesting
WCS-21-8: Energy Harvesting II
WCS-21-17: Small Cells and Heterogeneous Networks II
WCS-21-26: Wireless Networks I

Wednesday, 7 December 2016 • 16:00 – 17:30

SAC-IoT-6-4: Security and Privacy
SAC-SSC-8-3: Signal Processing
SAC-MBMC-10: Molecular, Biological and Multi-scale Communications
SAC-SN-11-1: Optimization and Analysis
CRN-13-9: Privacy and Security
CQRM-15-3: Software-Defined Networking (SDN) and Network Virtualization
NGN-18-10: Next Generation Networks III
ONS-19-5: Optical Network Virtualization
GCSN-23-6: Energy Harvesting and Wireless Power Transfer II
AHSN-12-9: Capacity and Performance Analysis
CTS-17-9: Multiuser techniques
SPC-20-10: Resource Allocation and Scheduling
WCS-21-9: Energy Harvesting III
WCS-21-18: Interference Characterization and Interference Management
WCS-21-27: Wireless Networks II
MWN-22-13: Resource Allocation and Scheduling
MWN-22-14: Cellular Networks
MWN-22-18: Software Defined Wireless Network and Virtualization

Technical Tutorials are half day lectures on current topics in communications and networking.

A FULL conference registration includes ONE FREE tutorial.

Sunday, 4 December 2016 • 09:00 – 12:30

TUT01: Computer Networks, Present, and Future: Something Old, Something New, Something Borrowed
TUT02: Breaking the RF Spectrum Crunch: Recent Advances in Optical Wireless
TUT03: 5G Wireless Communications: Enabling Technologies and Resource Management
TUT04: The Massive MIMO Paradigm: Fundamentals and State-of-the-Art
TUT05: Dynamic Spectrum Sharing Framework in CBRS/3.5GHz Band through Spectrum Access System
TUT06: Network Localization and Navigation: From Theory to Practice

Sunday, 4 December 2016 • 14:00 – 17:30

TUT07: Wireless Communications and Networking with Unmanned Aerial Vehicles
TUT08: Practical Software Radio: Leveraging the SDR Revolution for Wireless Communications Applications
TUT09: Stochastic Point Process Techniques to Model Time Dependent Problems in Broadband Wireless Networks
TUT10: Energy-Neutral System-Level Analysis and Optimization of 5G Networks
TUT11: Heterogeneous Statistical QoS Provisioning for CRNs Based Multimedia 5G Mobile Wireless Networks
TUT12: Quantum Communications

Thursday, 8 December 2016 • 09:00 – 12:30

TUT13: Stochastic Geometry-Based Modeling and Analysis of 5G Cellular Networks
TUT14: On Network Softwarization
TUT15: Hands-on 5G: From Theory to Practice
TUT16: Signal Processing for Millimeter Wave Wireless Communications
TUT17: Dedicated Short Range Vehicular Communications: Overview, Technical Challenges, and Applications
TUT18: Next Generation Satellites: An Interference limited Paradigm

Thursday, 8 December 2016 • 14:00 – 17:30

TUT19: Leveraging Big Sensed Data in the IoT: Challenges and Future Outlook
TUT20: Understanding Key Technologies for Customer Experience Management in 5G
TUT21: Challenges and Solutions for Networking in the Millimeter-wave Band
TUT22: Low-Cost Massive MIMO: From Theory to Practice
TUT23: Wireless Proactive Caching for 5G
TUT24: Wireless Powered Communication: From Theory to Applications

<http://globecom2016.ieee-globecom.org>

Technical Workshops are in-depth half or full day programs on the latest technical and business issues in communications and networking, and include a mix of regular papers, invited presentations and panel discussions.

Sunday, 4 December 2016 • 09:00 – 17:30

WS01: ETS5G: Emerging Technologies for 5G Wireless Cellular Networks
WS03: LION: Localization and Tracking: Indoors, Outdoors, and Emerging Networks
WS04: IOE: Internet of Everything
WS05: MCHFB: Mobile Communications in Higher Frequency Bands
WS06: CCSNA: Cloud Computing Systems, Networks, and Applications
WS07: NETCOD: Network Coding and Applications

Sunday, 4 December 2016 • 09:00 – 12:30

WS02: IOTLINK: Low-Layer Implementation and Protocol Design for IoT Applications
WS07: SGSR: Cyber-Physical Smart Grid Security and Resilience

Sunday, 4 December 2016 • 14:00 – 17:30

WS09: 5GMW: 5G Millimeter-Wave Channel Models
WS24: BDWN: Big Data and Wireless Networks

Thursday, 8 December 2016 • 09:00 – 17:30

WS10: QCIT: Quantum Communications and Information Technology
WS15: 5GDES: 5G RAN Design
WS17: ICNSRA: Information Centric Networking Solutions for Real World Applications
WS18: TCPLS: Trusted Physical Layer Security
WS22: FDWC: Full Duplex Wireless Communications
WS23: WEHCN: Wireless Energy Harvesting Communication Networks

Thursday, 8 December 2016 • 09:00 – 12:30

WS13: URLLC: Ultra-Reliable and Low-Latency Communications in Wireless Networks
WS14: WI-UAV: Wireless Networking, Control & Positioning for Unmanned Autonomous Vehicles

Thursday, 8 December 2016 • 14:00 – 17:30

WS19: QOEMC: Quality of Experience for Multimedia Communications
WS21: 5GSON: Trends of Future Mobile Networks

Self-organization Networks for 5G Wireless Communications and Internet of Things

IEEE GLOBECOM 2016

-24- TUTORIALS

-20- WORKSHOPS

SPECIAL EVENTS

Sunday, 4 December 2016 • 09:00 – 18:00

Third Women's Workshop on Communications and Signal Processing (WICE)



IEEE WICE Workshop 2016 will feature state-of-the-art technical seminars, technical interactions of participants with common research interests, as well as career panels addressing questions about all career phases. No registration fee for IEEE GLOBECOM attendees. Register at <https://ieewiceworkshop2016.splashthat.com>.

Sunday, 4 December 2016 • 18:30 – 20:30

Welcome Reception & Exhibits Opening

Come join your colleagues for an evening of networking and fun at the IEEE GLOBECOM 2016 Opening Reception. Join us in the Columbia Ballroom where you can tour the exhibitions and sample some of DC's best food and music.



Monday, 5 December 2016 • 12:45 – 14:30

Awards Ceremony & Lunch

The Awards Ceremony honors the achievements of IEEE and IEEE Communications Society members. The Society's Career & Service Awards pay tribute to technical professionals whose exceptional achievements and outstanding contributions have made a lasting impact on technology, society, the engineering profession and humanity. Event is included in a full conference registration.

Monday, 5 December 2016

IEEE Young Professionals Reception • 18:30 – 19:30

IEEE Young Professionals Network Mixer • 19:45 – 21:00

Join us for an evening devoted to advancing young professionals. IEEE Young Professionals will host a reception, ComSoc Young Professionals awards ceremony, panel discussions on the "Trends in Communications and opportunities for Young Professional," lightning talks and a mixer. Separate registration from the conference but no additional fee. Register at <http://www.cvent.com/d/8fqr5r/4W>.



Tuesday, 6 December 2016 • 19:00 – 22:00

Conference Banquet at the Library of Congress

The IEEE GLOBECOM 2016 Organizing Committee welcomes you to an exclusive private evening tour of the Library of Congress. Enjoy special access to the Library of Congress' millions of items including books, recordings, photographs, maps and manuscripts in its collections while dining on local cuisine. Event is included in a full conference registration.



The LIBRARY
of CONGRESS

<http://globecom2016.ieee-globecom.org>

3-DAY IN-PERSON COURSE

IEEE COMSOC TRAINING

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Monday, 5 December – Wednesday 7, December 2016

INTENSIVE WIRELESS COMMUNICATIONS ENGINEERING: CURRENT PRACTICES

*Join us for a 3-Day in-person course, taught by
Lee Vishlo (PEng, IEEE WCP).*

The course covers seven key areas in which every professional working in wireless should be proficient. Get up to date on RF Engineering, Propagation and Antennas; Wireless Access Technologies; Network and Service Architectures; Wireless Network Management and Security; Infrastructure and Wireless Communication; Agreements, Standards, Policies and Regulations; as well as your basic fundamental knowledge.

You will come away with:

- understanding of current practices in wireless communications
- deeper appreciation of wireless network management and security, including industry standards
- broadened knowledge of wireless access technologies

This course is not included in the conference registration fee.
You will earn 20 IEEE CEU credits.

<http://globecom2016.ieee-globecom.org>

REGISTRATION & VENUE

FULL and LIMITED TECHNICAL PROGRAM REGISTRATION (Does not include Tutorials or Workshops)	ON/BY 4 NOVEMBER	AFTER 4 NOVEMBER
Full IEEE ComSoc Member	US\$940	US\$1080
Full IEEE Member or Sister Society	US\$975	US\$1115
Full Non Member	US\$1265	US\$1450
Limited IEEE ComSoc Member	US\$690	US\$830
Limited IEEE Member or Sister Society	US\$725	US\$865
Limited Non Member	US\$1015	US\$1200
ONE DAY TECHNICAL PROGRAM REGISTRATION		
1 Day IEEE ComSoc Member	US\$485	US\$580
1 Day IEEE Member or Sister Society	US\$520	US\$615
1 Day Non Member	US\$730	US\$850
INDUSTRY PROGRAM REGISTRATION		
3 Day Industry Program (Does not include Tutorials or Workshops)	US\$400	US\$500
1 Day Industry Program	US\$200	US\$300
OTHER REGISTRATIONS		
IEEE Student Member (FULL TIME STUDENTS ONLY)	US\$345	US\$415
Student Non-Member	US\$385	US\$460
IEEE Life Member	US\$50	US\$50
Workshop Full Day (Sunday or Thursday)	US\$400	US\$500
Workshop Full Day – Student (Sunday or Thursday)	US\$200	US\$250
Workshop Half Day (Sunday or Thursday)	US\$200	US\$250
Workshop Half Day – Student (Sunday or Thursday)	US\$100	US\$150
Tutorial (Sunday or Thursday)	US\$200	US\$250
Tutorial – Student (Sunday or Thursday)	US\$125	US\$150
3 Day In-Person Course ComSoc Member	US\$1350	US\$1550
3 Day In-Person Course IEEE Member	US\$1500	US\$1700
3 Day In-Person Course Non Member	US\$1800	US\$2000



The Washington Hilton in downtown DC is the conference headquarters hotel, and will hold keynotes, technical and industry sessions, tutorials, workshops, demonstrations, special events, exhibits & ComSoc committee meetings.

Group rate is available through 12 November 2016.

REGISTER AT [HTTP://GLOBECOM2016.IEEE-GLOBECOM.ORG](http://GLOBECOM2016.IEEE-GLOBECOM.ORG)