

## CALL FOR PAPERS

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### Supported by:



IEEE has chosen Barranquilla as the venue for the 12th IEEE Colombian Conference on Communications and Computing COLCOM 2019. This conference is the most important in Colombia that aims to show the progress and development of the academic, scientific and industrial usage of the different areas of telecommunications and computing. In this version, the main subject is **"Internet of Everything"**.

During the past decade, the city has gained national and international recognition for its potential to become one of the most important cities in Latin America and the Caribbean in terms of logistics, manufacturing and creative industry. Barranquilla, main city of the Caribbean region of Colombia, known as a commercial, service and cultural hub, offers a vivid and dynamic environment for creation of innovative solutions, a wide variety of economic sectors, including both small and large companies as well as agricultural industry, a growing ICT ecosystem and high quality universities.

We hope that both local academy and industry will take active participation in IEEE COLCOM 2019. Papers will be reviewed by an international technical committee under the IEEE standard procedure. **Accepted papers must be presented in oral sessions, this is mandatory to be published in the conference proceedings (IEEE Xplore database, including ISBN).**

## TOPICS FOR COMMUNICATIONS SYMPOSIUM

We encourage the submission of original, unpublished research focused on (but not limited to) the following topics of interest:

### WIRELESS COMMUNICATIONS AND NETWORKING

Cellular systems, 4G, 5G and beyond  
Wireless body area networks  
Femtocell networks and traffic offloading  
Wireless mesh networks  
Flow and congestion control  
Mobility, handoff, and location management  
Advanced equalization, channel estimation, and synchronization  
Modulation, coding, and diversity techniques  
Antennas, smart antennas, and space-time processing  
MIMO, multi-user MIMO, and massive MIMO  
Cross-layer design and physical-layer based network issues  
Radio resource allocation and interference management

### IoT AND SMART CITIES

Future Internet Research Experimentation for Internet of Things  
Machine to Machine (M2M) and cellular-based protocols for Internet of Things  
Cloud computing, Edge Computing / Fog Computing integration with Internet of Things  
Software Defined Networks for Internet of Things  
Personal Area Networks for IoT  
Smart healthcare and e-health systems  
Smart buildings and smart homes  
Smart education  
Smart environment  
Smart city for special needs  
QoS and QoE of smart city systems, applications, and services  
Sensing, Actuating and IoT for smart cities  
Industry 4.0

### CYBERSECURITY

Safety and security systems  
Anonymity, anonymous communications  
Authorization and access control  
Availability and survivability of secure services and systems  
Cloud and distributed applications security  
Computer and network forensics  
Cryptography (Cryptographic implementations for networking)  
Firewall technologies; intrusion detection, localization, and prevention  
Mobile and wireless networks security  
Operating systems and applications security and analysis tools  
Trust models and certificate handling  
Virtual private networks and group security  
Vulnerabilities, exploitation tools and virus analysis  
Web, e-commerce, and m-commerce security

### NEXT GENERATION NETWORKS

Converged networks and applications  
Optical communications and networking  
Future Internet and next-generation networking architectures  
Network and services virtualization  
Quality of Service (QoS) and Quality of Experience (QoE) Software Defined Networking (SDN)  
Network Functions Virtualization (NFV)  
Software Defined Radio (SDR) and Cognitive Radio networks  
Traffic measurement, analysis, modeling, visualization, and engineering  
Cloud, edge, fog and mist computing and networking  
Green computing, networking and energy efficiency  
Communication QoS, Reliability and Modeling

## TOPICS FOR VEHICULAR TECHNOLOGY SYMPOSIUM

### VEHICULAR COMMUNICATIONS, NETWORKS, AND TELEMATICS

Intelligent vehicle-to-infrastructure integration  
Smart traffic system operations  
Smart mobility for Pedestrian and bicyclist safety  
5G technologies for connected vehicles  
Congestion and awareness control in vehicular networks  
Security, privacy, liability, and dependability in vehicular networks  
Vehicular ad hoc networks (VANET);  
Broadband Internet services;  
Cellular/VANET interworking;  
Channel models and mobility models for vehicular networks;  
Cloud-mobility;  
Connected vehicles;  
Context aware service and applications;  
Data traffic offloading;  
DSRC;  
Information distribution services;  
Interaction between intra- and inter-vehicular communications;  
In-vehicle communication & networking;  
IP mobility;  
Mobility estimation;  
Multi-channel/multi-antenna/multi-transceiver systems for vehicular communication;

Digital maps and location technologies;  
Drive-by-wire controls;  
Electromagnetic valve controls;  
Emulation/simulation of ITS applications;  
Autonomous vehicles;  
Cooperative ITS;  
Engine control modules;  
Green ITS navigation for people and freight;  
HCCI controls;  
Human factors and human machine interface (HMI) for smart cars;  
In-car electronics and embedded integration;  
Intelligent transportation systems;  
Mobile/wireless systems for transportation logistics;  
Multimedia service provisioning and vehicle traffic management;  
Pedestrian protection via VANET;

### SPECTRUM SHARING, SPECTRUM MANAGEMENT, AND COGNITIVE RADIO

Algorithms for TV whitespace usage;  
Applications of cognitive radio networks (e.g., for 5G, heterogeneous networks);  
Characterization of cognitive wireless networks;  
Cognitive highly time-variant networks;  
Cognitive radio networks;

Multimedia applications and messaging;  
Multimedia over VANETs, and infotainment;  
Network design for V2X communications;  
OBU and RSU communication systems;  
Prototype, measurements, and field tests;  
Quality-of-experience;  
Ultra-low latency and ultra-high reliability communications for road safety applications;  
V2X communications, V2X for automated driving, applications, and security.

### ELECTRIC VEHICLES, VEHICULAR ELECTRONICS, AND INTELLIGENT TRANSPORTATION

Heterogeneous network infrastructures for ITS;  
Smart mobility and transportation  
Unmanned aerial vehicles (UAVs);  
Vehicle power systems;  
Vehicle stability controls;  
Vehicle traction power control/conversion;  
Wireless charging;  
Wireless/mobile system applications for transportation control and routing;  
Wireless/mobile systems for multi-modal transportation.  
Autonomous driving technologies;

Cognitive radio protocols and algorithms;  
Cognitive radio prototypes;  
Cooperative sensing;  
Co-existence of primary and secondary radio networks; Dynamic spectrum access;  
Economic aspects of spectrum sharing (e.g., pricing, auction) in cognitive radio networks;  
Energy-efficient spectrum sensing;  
Game theory for cognitive radio networks;  
Interference management;  
Light-licensing;  
Machine learning techniques for cognitive radio systems; MIMO/OFDM-based cognitive radio;  
Radio environment modeling;  
Spectrum aggregation;  
Spectrum database (or geolocation database);  
Spectrum measurements and monitoring;  
Spectrum mobility;  
Spectrum policies; Spectrum sensing;  
Unlicensed and licensed shared access.

## TOPICS FOR COMPUTERS SYMPOSIUM

### BIG DATA

Big data models, theories, algorithms, approaches, solutions  
Machine learning, data mining, web mining, and graph mining  
Big data for communications and networking  
Big data integration and visualization  
Big data architecture, infrastructure and platforms  
Big data storage and management  
Privacy protection, trust in Big Data  
Big data for smart cities and smart homes  
Image and signal processing  
Artificial intelligence  
Data privacy  
Location based Information Systems

### HIGH PERFORMANCE COMPUTING

Performance evaluation and modeling  
Cluster computing  
GPGPUs and FPGAs acceleration  
Simulation  
Computer architecture  
Applications (e.g. Bioinformatics, neuroscience, astrophysics)

### COMPUTER AND SOFTWARE ENGINEERING

Agile Methodologies  
Methods and software process  
Quality and assessment of products and processes  
Software Testing  
Software Product Line  
Ontologies applied to software engineering  
Software architectures  
Information Retrieval  
Global Software Development  
Model-driven software engineering  
Information security  
Knowledge management in software engineering  
Requirements engineering  
Simulation  
Governance and Organizational Aspects of Computing  
Social impact of Computing  
UX - UI  
Virtual, Augmented and Mixed Reality  
Educational Software  
Computer-Aided Software Development

## IMPORTANT DATES

Submission Regular Papers:	March 17th, 2019
Under graduate Student papers:	March 17th, 2019
Notification:	April 9th, 2019
Camera-ready	May 9th
Author registration:	May 3rd, 2019

## PAPER SUBMISSION

We invite authors to submit high-quality full papers reporting original and novel research results on all above topics. Papers must be written in **English**, unpublished and not submitted elsewhere. Full papers must be formatted as the standard IEEE double-column conference template and submitted exclusively using the link <http://iee-colcom.org/authors.html>. Maximum 6 pages are allowed for each paper, including all illustrations and references.

## CALL FOR UNDERGRADUATE STUDENT PAPERS

We encourage the submission of original, unpublished results of undergraduate projects focused on (but not limited to) the topics of the conference, using a short paper format (4 pages maximum). Accepted papers will be presented in Poster format during the Conference and papers will be published in Conference Proceedings but will not go to IEEEXplore. Best papers will be published in a national journal.

### Undergraduate papers Timeline

Deadline for paper submission:	<b>March 17th, 2019</b>
Acceptance / rejection announcement:	<b>April 9th, 2019</b>
<b>Camera Ready</b>	<b>May 9th</b>
<b>Author registration:</b>	<b>May 3rd, 2019</b>