

May 26-28, 2021, Cali - Colombia

CALL FOR PAPERS

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IEEE Colombia has chosen again Cali as the venue for the **14th IEEE Colombian Conference on Communications and Computing COLCOM 2021**. 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 **"New Era of AI inside ICT"**.

During the past decade, Cali has gained national and international recognition for its potential to become one of the most important cities in Latin America and the Pacific in terms of logistics, manufacturing and creative industry. Cali, main city of the Pacific 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 government, academy and industry will take active participation in IEEE COLCOM 2021. Papers will be reviewed by an international technical committee under the IEEE standard procedure. **Accepted papers must be presented in oral sessions, which 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We encourage the submission of original, unpublished research focused on (but not limited to) the following topics of interest: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, 5G, 6G 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 or Network Functions Virtualization 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
Smart Farming
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;

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);

IP mobility;
 Mobility estimation;
 Multi-channel/multi-antenna/multi-transceiver systems for vehicular communication;
 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;

Characterization of cognitive wireless networks;
 Cognitive highly time-variant networks;
 Cognitive radio networks;
 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 for pandemics
 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
 Neural Networks
 Information Technology for the business
 Video game design and development

IMPORTANT DATES

Submission Regular Papers:	March 5th, 2021
Under graduate Student papers:	March 5th, 2021
Notification:	April 17th, 2021
Camera-ready	May 8th, 2021
Author registration:	May 4th, 2021

PAPER SUBMISSION

We invite authors to submit high-quality full papers reporting original and novel research results on all above topics. Papers should be written in **English or Spanish, but at least the abstract MUST be 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://ieeex.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), and written in **SPANISH**. Accepted papers will be presented in Poster format during the Conference and papers will be published in Conference Proceedings but will not go to IEEEExplore. Best papers will be published in a national journal.

Undergraduate papers Timeline

Deadline for paper submission:	March 5th, 2021
Acceptance / rejection announcement:	April 17th, 2021
Camera Ready:	May 8th, 2021
Author registration:	May 4th, 2021