ColCom 2021

IEEE Colombian Conference on Communications and Computing

IEEE COLOMBIA

IEEE ComSoc IEEE Communications Society

IEEE computer society Colombia Chapter

IEEE Colombia VTS Connecting the Mobile World

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. Accepted & presented papers will be submitted to IEEE Xplore.**

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We encourage the submission of original, unpublished research focused on (but not limited to) the following topics of interest: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

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;
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;
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;
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.

IMPORTANT DATES

Submission Regular Papers:	**March 5th, 2021**
Undergraduate 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 https://ieee-colcom.org/colcom/2021/authors/. A maximum of 6 pages is 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 the Conference Proceedings but will not go to IEEE Xplore. The 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**