

## CALL FOR PAPERS

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In this version, IEEE Computational Intelligence Society Colombian Chapter and IEEE Colombia Section have chosen Barranquilla as the venue for the IEEE Colombian Conference on Applications of Computational Intelligence ColCACI 2019. As previous version, the conference seeks to become the most important event in computational intelligence and related fields in Colombia, putting together academic, scientific and industry.

During the past decade, the Barranquilla 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 local academy and industry will take active participation in IEEE ColCACI 2019. Papers will be reviewed by an international technical committee under the IEEE standard procedure and accepted papers must be presented in oral session. This process is mandatory for the paper to be published in the conference proceedings (IEEE Xplore database, including ISBN). Also, extended version of best quality papers will be requested for publication in acknowledge national journals and Springer through its Computer in Computer and Information Sciences (CCIS) series.

## TOPICS

We encourage the submission of original, unpublished research focused on (but not limited to) the following topics of interest:

### NEURAL NETWORKS AND LEARNING MACHINES

Cognitive models  
Neural control and planning  
Self-organization  
Deep learning  
Neural networks theory  
Bayesian networks  
Bayesian learning and approximate inference  
Kernel methods  
Generative models  
Information theoretic learning  
Reinforcement learning  
Feature extraction and manifold learning  
Data mining  
Pattern recognition and machine learning

### EVOLUTIONARY AND SWARM ALGORITHMS

Memetic and collective intelligence  
Artificial Immune Systems  
Metaheuristics and hyper-heuristics  
Ant colony for neural networks optimization  
Bio-inspired computing and Evolutionary algorithms  
Chaos theory in genetic algorithms  
Genetic fuzzy systems  
Genetic neural systems  
Multi-objective optimization  
Hybrid optimization techniques  
Hybrid intelligent systems for pattern recognition  
Nature-inspired smart hybrid systems  
Neuro-Fuzzy-Genetic approaches  
Neural Agents

### FUZZY SETS AND SYSTEMS

Fuzzy control, robotics, sensors, hardware and architectures  
Fuzzy data analysis  
Fuzzy clustering  
Classification and pattern recognition  
Fuzzy systems with big data and cloud computing  
Fuzzy systems design and optimization  
Fuzzy decision analysis  
Fuzzy logic and its application in Industrial engineering  
Fuzzy modelling, identification and fault detection  
Fuzzy information processing  
Fuzzy web engineering  
Fuzzy image, speech and signal processing  
Fuzzy sets and soft computing in social sciences  
Fuzzy logic applications in civil engineering, geographical information systems

### OTHER APPLICATIONS OF CI

Industry 4.0  
Robotics  
Internet of things  
Artificial Intelligence  
Biomedical engineering applications  
Image and signal processing  
Natural language processing  
Big data and scalable algorithms/applications  
Smart grid applications  
Intelligent transportation  
Smart traffic system operations  
Bioinformatics  
Brain computer interfaces  
Neurosciences  
Neural hardware

## IMPORTANT DATES

Submission: February 17<sup>th</sup>, 2019

Notification: April 7<sup>th</sup>, 2019

Camera-ready: May 3<sup>rd</sup>, 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 Spanish or 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://ieee-colcaci.org/authors.html>. Maximum 6 pages are allowed for each paper, including all illustrations and references. The EasyChair system is being used for submission with web page in the link <https://easychair.org/conferences/?conf=ieeecolcaci2019>. Extended versions of best quality papers will be requested for publication in national journals and Springer through its Computer in Computer and Information Sciences (CCIS) series, after approval.