ISSPIT 2020

IEEE

SCHEDULE

	Wednesday	Thursday	Friday
11:00		Detecting Rules-Related Attacks in RPL-Based Resource-Constrained Wireless Networks	Identifying Sound Source Node Locations Using Neural Networks Trained with Phasograms
11:20		Utilization of Spectrum Database for Power Control in Micro Operator Based Small Cell System by Two-Stage Stochastic Design	A Derivative-Based MUSIC Algorithm for Two-Dimensional Angle Estimation Employing an L-Shaped Array
11:40		Deployment of Multiple Computing Systems in Underwater Wireless Sensor Networks	Spectral Refinement with Adaptive Window-Size Selection for Voicing Detection and Fundamental Frequency Estimation
12:00	**Welcome and Greetings ISSPIT - 2020**	Keynote Speaker: Juan Guillermo Lalinde **Quantum Computing: A very short introduction**	**Lunch Break**
13:00	Machine Learning Algorithms for Forecasting COVID 19 Confirmed Cases in America	Time- vs. Frequency-Domain Channel Estimation in MIMO LOS Frequency-Selective Channels	MulKINet: Multi-Stage Key-Invariant Convolutional Neural Networks for Accurate and Fast Cover Song Identification
13:20	Aging Estimation of an AC Adapter from Generated Electromagnetic Noise	A Modified K-Medoids Algorithm for Deploying a Required Number of Computing Systems in a Three Dimensional Space in Underwater Wireless Sensor Networks	Resolution, Sidelobe, and Contrast Analysis of Ultrasound Fourier Based High Frame Rate Imaging
13:40	eSail: A Body Tracking Interactive Game for Elderly and Patients with Locomotor System Problems	Unsupervised Wavelet-Feature Markov Clustering Algorithm for Remotely Sensed Images	Pulse Separation Using Time-Frequency Mask and Machine Learning
14:00	SEADNet: Deep Learning Driven Segmentation and Extraction of Macular Fluids in 3D Retinal OCT Scans	Single Channel QRS Detection Using Wavelet and Median Denoising with Adaptive Multilevel Thresholding	Object-Removal Forgery Detection Through Reflectance Analysis
14:20	Determining Fall Direction and Severity Using SVMs	A Hybrid Physics/Data Driven Modeling Approach for Virtual Sensors	Qiskit n-Bitstring Quantum Half-Adder and Half-Substractor
14:40	Sentiment Analysis Using an Ensemble Approach of BiGRU Model: A Case Study of AMIS Tweets	Performance Study of CFD Pressure-Based Solver on HPC	Queue Analysis for Probabilistic Cloud Workflows
15:00	**Break**		
15:20	Machine Learning Applied to Diabetes Dataset Using Quantum Versus Classical Computation	A Robust Estimation Method for Nonlinear Model Coefficients Using Ridge Regression	Cost Minimization Algorithm for Provisioning Cloud Resources
15:40	Development and Integration of Serious Games with Focus in the Training of Different Cognitive Abilities in Elderly People to Improve Their Quality of Life	Opinion Dynamics and Consensus Achievement Strategy Based on Reinforcement Learning	Vector Quantizer with Fuzzy Equivalence Relations Clustering
16:00	RRI-Net: Classification of Multi-Class Retinal Diseases with Deep Recurrent Residual Inception Network Using OCT Scans	A Joint Detection-Classification Model for Weakly Supervised Sound Event Detection Using Multi-Scale Attention Method	DOAV Estimation Using Special Antenna Array Structure
16:20	Accurate Detection of Heart Rate and Blood Oxygen Saturation in Reflective Photoplethysmography	Anti-Gan: Discriminating 3D Reconstructed and Real Faces for Robust Facial Identity in Anti-Spoofing Generator Adversarial Network	On the Performance of Low Complexity DSI Suppression Techniques Using Satellite Transmitters
16:40			DOAV Estimation Using L-Shaped Antenna Array Configuration

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Keynote Speaker:

Juan Guillermo Lalinde

Quantum Computing: A very short introduction

Abstract:

Research on Noisy Intermediate Scale Quantum devices, known as NISQ, is becoming a predominant area of study in quantum computing. The research done on these devices is to produce algorithms and simulations for the current technology and hardware development state. The advent and development of NISQ devices has increased interest in quantum technologies applications within the research community. These technologies will have a massive impact across science and engineering once quantum computers outperform classical computing. Nonetheless, practical applications are yet to be explored. Although a large-scale noise free quantum computer seems beyond the horizon, there are several quantum algorithms that can be executed with current technologies. Therefore, in the foreseeable future a quantum computer will be able to demonstrate what is known as quantum supremacy. Quantum supremacy is the term coined for the outperformance of a classical computer by a quantum computer; further, quantum supremacy will occur when a classical computer cannot perform a problem/task in a meaningful amount of time but given the same problem a quantum computer is successful. In this Keynote talk we will talk about the realities and perspectives of Quantum Computing, and how it could be exploited to implement efficient machine learning techniques, taking into account the limitations imposed by the current NISQ devices such as the reduced number of qubits available and the coherence time.

Short Bio:

Systems Engineer from the EAFIT University, Mathematician from the National University and Doctor in Telecommunications from the Polytechnic University of Valencia (Spain). He is a research professor at the EAFIT University. He has been a visiting researcher at the Institute for Human and Machine Cognition (IHMC), in Pensacola (United States) and at Purdue University, in Indiana (United States). He was a director of the Electronics, Telecommunications, and Information Technology (ETI) program of Colciencias (2005-2011). He is currently a researcher at the Center of Excellence and Appropriation in Big Data and Analytics (Caoba), IBM Skills Academy Instructor in Quantum Computing, scientific director of the APOLO scientific computing center (EAFIT), responsible for the technology component in Project 50 and Coordinator of the Master's Degree in Data Sciences and Analytics.