

2019 IEEE 10th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON 2019)

**Vancouver, British Columbia, Canada
17-19 October 2019**

Pages 1-568



**IEEE Catalog Number: CFP1979Z-POD
ISBN: 978-1-7281-2531-2**

**Copyright © 2019 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP1979Z-POD
ISBN (Print-On-Demand):	978-1-7281-2531-2
ISBN (Online):	978-1-7281-2530-5
ISSN:	2644-3155

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

Content

Sr. No.	Paper ID	Paper Title	Page No
SESSION 1: WIRELESS SENSOR NETWORKS AND ARTIFICIAL INTELLIGENCE			
01.1	1570580377	Mathematical Modeling Combined with Machine Learning for Social Networks to Match Children with Learning Disabilities and Specialists	0001
01.2	1570576132	NewPneu: A Novel Cost Effective mHealth System for Diagnosing Childhood Pneumonia in Low-Resource Settings	0005
01.3	1570587077	Internet of Things Platform for Transparency and Traceability of Food Supply Chain	0013
01.4	1570591957	Simulating Attacks for RPL and Generating Multi-class Dataset for Supervised Machine Learning	0020
01.5	1570537091	Spam Review Detection Using Deep Learning	0027
01.6	1570587380	A Smart Contract Grammar to Protect IoT Firmware Updates Using Hyperledger Fabric	0034
SESSION 2: CLOUD COMPUTING, VIRTUAL NETWORK AND IOT			
02.1	1570575724	Work-In-Progress: IoT Device Signature Validation	0043
02.2	1570580041	Smartpark: A Location-Independent Smart Park and Transfer System	0049
02.3	1570587115	Adaptive QoS-Based Real-Time Communication Framework for WSAWs	0059
02.4	1570593089	Inherited Vulnerabilities: Javascript Engine V4 Secure Coding Compared to Googles V8	0066
02.5	1570586957	IoT Embedded Computing Systems Performance Assessment: a Simple Method	0071
02.6	1570587113	A Performance Evaluation of Raspberry Pi Zero W Based Gateway Running MQTT Broker for IoT	0076
SESSION 3: CONTROL THEORY, FPGA, BIG DATA AND OTHERS			
03.1	1570560659	Implementation and Comparison of Different Tropospheric Models to Reduce Error Low-cost Real-time GPS Positioning	0082
03.2	1570581832	Sliding Mode for an All-Digital Control and Readout of MEMS Gyroscopes	0087
03.3	1570587992	Water and Ice Detection in Marine Icing by Capacitive Sensor Array and the Artificial Neural Network Model	0094
03.4	1570559929	An Indoor Environmental Visualization System (IEVS)	0098
03.5	1570562263	Facebook MySQL Performance Vs MySQL Performance	0103

03.6	1570580546	Survey of Memory, Timing, and Power Management Verification Methods for Multi-core Processors	0110
SESSION 4: ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING			
04.1	1570570667	KL-Divergence as a Proxy for Plant Growth	0120
04.2	1570587903	The Time Machine: Smart Operation-Resilience in Presence of Attacks and Failures	0127
04.3	1570580567	Probabilistic Modelling of Sleep Stage and Apneic Events in the University College of Dublin Database (UCDDB)	0133
04.4	1570580591	Social Media and Sentiment Analysis: The Nigeria Presidential Election 2019	0140
04.5	1570580740	Post-exercise Electrocardiogram Identification System Using Normalized Tachycardia Based on P, T Wave	0147
04.6	1570582820	Comparison of Neural Network Architectures for Physics-Driven Deep Learning MRI Reconstruction	0155
SESSION 5: BIG DATA, DATA MANAGEMENT AND ANALYTICS			
05.1	1570576103	Data Analytics to Predict the Survivability of a Lost Person with Dementia Using R	0160
05.2	1570580563	User Modeling via Anomaly Detection Techniques for User Authentication	0169
05.3	1570581316	HMM Optimized Modeling of SSD Storage for I/O MapReduce Workloads	0177
05.4	1570581339	Automated Generation and Dynamic Rendering of Web-based Data Collection Systems	0184
05.5	1570581545	Application of Blockchain to Patient-Centric Access Control in Medical Data Management Systems	0190
05.6	1570575744	A Survey of Sound-based Biometrics for Species Recognition	0197
SESSION 6: CLOUD COMPUTING, VIRTUAL NETWORK AND ADHOC NETWORKS			
06.1	1570569888	Echo-State Networks for Network Traffic Prediction	0202
06.2	1570582854	Secure Textual Data Deduplication Scheme Based on Data Encoding and Compression	0207
06.3	1570581383	Analysis and Prediction of Breast Cancer Using AzureML Platform	0212
06.4	1570587063	Good Data? the EEG Quality Index for Automated Assessment of Signal Quality	0219
06.5	1570581465	Incorporation of Node Mobility in Data Replication Schemes in Mobile Ad Hoc Networks	0230
06.6	1570582746	Static Charging Scheduling of Electric Vehicles at Private Stations	0237
SESSION 7: BLOCKCHAIN, ARTIFICIAL INTELLIGENCE AND IOT			

07.1	1570580976	Blockchain Guided Trustworthy Interactions for Distributed Disaster Management	0241
07.2	1570581309	PeayNotes: Content Management System-based Software for Managing Academic Electronic Health Records (AEHRs)	0246
07.3	1570581414	An Effective Economical Hierarchical Control Scheme for Low-Voltage AC Microgrids	0255
07.4	1570579495	IoT and Blockchain for Smart Locks	0262
07.5	1570582541	An Observer-Based Fixed-Frequency Sliding-Mode Controller for Boost Converters	0270
07.6	1570587104	Conflict Detection in Rule Based IoT Systems	0276
SESSION 8: TELECOMMUNICATION SYSTEMS AND ELECTRONIC INSTRUMENTATION			
08.1	1570560635	Stopping Criterion for Belief Propagation Polar Code Decoders Based on Bits Difference Ratio	0285
08.2	1570587121	Optimization of a Rectangular QAM Constellation for Coded Systems	0290
08.3	1570581326	Outdoor Active Water-Harvesting and Dehumidification System	0297
08.4	1570560655	Augmented State Approach for Simultaneous Estimation of Sensor Biases in Attitude Determination System	0303
08.5	1570563621	Low-Power Circuit for Measuring and Compensating Phase Interpolator Non-Linearity	0310
08.6	1570557861	Image Reconstruction by Chebyshev-Fourier Moments	0314
SESSION 9: ARTIFICIAL INTELLIGENCE, NETWORK SECURITY AND ELECTRONIC INSTRUMENTATION			
09.1	1570582760	Latency Constrained Task Mapping to Improve Reliability of High Critical Tasks in Mixed Criticality Systems	0320
09.2	1570580555	A Trust Management Framework for Software Defined Networks-based Internet of Things	0325
09.3	1570556762	Features Quality Impact on Cyber Physical Security Systems	0332
09.4	1570580572	Capacity of EM Side Channel Created by Instruction Executions in a Processor	0340
09.5	1570585777	IoT Gas and Temperature Monitoring Interface of a Low Temperature Pyrolysis Reactor for the Production of Biochar	0346
09.6	1570587027	Identification Key Based on Optical Variable Nanostructures	0352
SESSION 10: BLOCKCHAIN, IOT, EVOLUTIONARY COMPUTATION ALGORITHMS AND OTHERS			
10.1	1570586465	User Data Sharing Frameworks: A Blockchain-Based Incentive Solution	0360
10.2	1570576731	Internet of Things Device Capability Profiling Using Blockchain	0367

10.3	1570574783	Reward-based Markov Chain Analysis of Slicing Flows for Inter-Cloud Virtual Resources Allocation in 5G Cellular Network	0375
10.4	1570580288	A SAR Image Enhancement Algorithm Using the Discrete Wavelet Transform	0382
10.5	1570580093	An Overview of Active Power Filters for Harmonics Mitigation of Renewable Energies Resources	0386
10.6	1570580294	Humanitarian Microwave Imaging Enhancement and Classification of Shallowly Buried Objects	0394
SESSION 11: DISTRIBUTED SYSTEMS, IOT AND OTHERS			
11.1	1570564109	A Market Place Solution for Energy Transaction on Ethereum Blockchain	0398
11.2	1570573611	Optimizing the Business Value of Digital Transformation by Aligning Technology with Strategy, Work Practices and Stakeholder Interests	0403
11.3	1570586390	Adaptation of an Embedded Architecture to Run Hyperledger Sawtooth Application	0409
11.4	1570580820	Strong Password Generation Based on User Inputs	0416
11.5	1570568162	A Contribution to Publish-Subscribe Based Communication in Industrial Applications	0424
11.6	1570580998	RPC Based Framework for Partitioning IoT Security Software for Trusted Execution Environments	0430
SESSION 12: ELECTRONIC POWER CONVERTER, MOBILE COMPUTING AND OTHERS			
12.1	1570575536	3D Shape Reconstruction Based on Directional LED Lights	0436
12.2	1570564837	Dynamic Power Allocation for Non-Orthogonal Multiple Access with User Mobility	0442
12.3	1570579133	An Active-Forced-Commutated Thyristor-Based Multilevel Converter for HVDC Transmission	0447
12.4	1570579112	An Average Value Model of Hybrid Cascaded Multilevel Voltage Source Converter for Accelerated EMT Simulation	0454
12.5	1570587271	Enhancing Mobile Strategy Consultancy Using a Conceptual Cognitive Model of Mobile Moments	0461
12.6	1570584021	Design and Performance Analysis of an Industrial IoT-based Mobility for Smart Manufacturing	0471
SESSION 13: BIG DATA ANALYTICS AND ARTIFICIAL INTELLIGENCE			
13.1	1570561936	Data-Mining Opportunities in E-Government: Agriculture Sector of Afghanistan	0477
13.2	1570580886	A New Fuzzy Belonging-based Multi-view K-means Clustering Algorithm	0482
13.3	1570575088	A Deep Learning CNN and AI-Tuned SVM for Electricity Consumption Forecasting: Multivariate Time Series Data	0488

13.4	1570588729	Automatic Detection of Parking Violation and Capture of License Plate	0495
13.5	1570580178	Multi-Interval Data Mining of At-A-Station Hydraulic Geometry to Quantify Temporal Stability	0501
13.6	1570580373	Building Your Kingdom: Imitation Learning for a Custom Gameplay Using Unity ML-agents	0509
SESSION 14: EVOLUTIONARY COMPUTATION ALGORITHMS, DATA MINING AND BIG DATA ANALYTICS			
14.1	1570581588	Extending a Generative Adversarial Network to Produce Medical Records with Demographic Characteristics and Health System Use	0515
14.2	1570583353	HD-sEMG for Human Interfacing Devices	0519
14.3	1570587134	Particle Swarm Optimization for Feature Selection: A Review of Filter-based Classification to Identify Challenges and Opportunities	0523
14.4	1570586842	Enhanced LMS for Online Frequency Estimation Under Wide Spectrum Disturbances	0530
14.5	1570587909	Predict Lightning Location and Movement with Atmospherical Electrical Field Instrument	0535
14.6	1570595039	Aster: An Adaptive Step Recognition Algorithm	0538
SESSION 16: ARTIFICIAL INTELLIGENCE, CLOUD COMPUTING AND IOT			
16.1	1570582199	Discovering Crime Trends and Patterns Using Three-Dimensional Visual Analytics	0545
16.2	1570582657	Balancing Consistency and Plot Structure in Computational Storytelling	0550
16.3	1570587204	Agent-Based Behavioral Model and Simulation of Fire Egress	0556
16.4	1570563738	Visualization of MRI Datasets for Anatomical Brain Segmentation by Pixel-level Analysis	0562
16.5	1570586221	A Dynamic Plane Partition Method for DPDK in Smart Dust Environment	0569
16.6	1570587202	Detecting Possible Lone Wolf Terrorist's Locations	0575
SESSION 17: MOBILE COMPUTING, FPGA AND TELECOMMUNICATION SYSTEM			
17.1	1570586938	Block Diagonalization Based Interference Cancellation in Uplink Multi User Cooperative Communication System	0582
17.2	1570580921	Case Study on Design and Evaluation of a Multi-Soft-Core Processor	0589
17.3	1570580056	Scenarios for the Evaluation of the Energy Efficiency of Mobile Applications	0595
17.4	1570580827	A Framework for QoS-aware Class Mapping in Multi-domain SDN	0602
17.5	1570582894	A Spectrum Analyzer Based on a Low-Cost Hardware-Software Integration	0607

17.6	1570592911	Analysis and Design of high-K Material Nanowire Transistor for Improved Performance	0613
SESSION 18: ROBOTICS, AUTONOMOUS SYSTEM AND ADHOC NETWORK			
18.1	1570581432	A Model of Computing and Communication for Public Safety Integrating FirstNet, Edge Computing and Internet of Things	0619
18.2	1570587525	Use Case Extraction Through Knowledge Acquisition	0624
18.3	1570578592	Advanced Spectrum Management for Next-Generation Vehicular Communication: An AI Approach	0632
18.4	1570580731	Design and Analysis of Modified Pythagorean Fractal Tree Patch Antenna for Multiband Applications	0638
18.5	1570573997	A Comprehensive Study of Performance Parameters Used for Adhoc Networks: MANET, VANET and FANET	0643
SESSION 19: BLOCKCHAIN, CYBERSECURITY AND IOT			
19.1	1570586633	A Novel Multi-Angular LTP and MLDA Based Face Recognition Using Modified Feed Forward Neural Network	0647
19.2	1570568333	A Real-time School Bus Tracking and Monitoring System	0654
19.3	1570586767	Smart Concrete Transportation in Semi-Automated Construction Sites	0661
19.4	1570589380	Improving Load Forecasting and Renewable Energy Management for Green Computing Using FIS, PSO and Catfish	0668
19.5	1570564108	Secured Electronic Voting System Using the Concepts of Blockchain	0675
19.6	1570562575	A Robust Hybrid SVD-based Image Watermarking Scheme for Color Images	0682
SESSION 20: CONTROL THEORY, TELECOMMUNICATION SYSTEM AND IOT			
20.1	1570581338	Low Complexity Detection for an AF Relay Assisted MIMO QSM System	0689
20.2	1570581480	A Methodology for Validation of a Distributed Cloud Reservation Model	0695
20.3	1570581332	Gain Optimization of Novel Raman-Parametric Hybrid Amplifier for Narrow Channel Wavelength Division Multiplexed Systems	0703
20.4	1570579636	Design of PIDA Controller Employing Current Differencing Buffered Amplifiers	0709
20.5	1570585785	A Financial Evaluation Framework for Blockchain Implementations	0715
20.6	1570579126	Unknown Exogenous Input Estimation for Infinitely Observable Complex Biological Descriptor Systems	0723
SESSION 22: CYBERSECURITY SYSTEMS			
22.1	1570569117	PAC-GAN: Packet Generation of Network Traffic Using Generative Adversarial Networks	0728

22.2	1570581315	Intelligent Service Mesh Framework for API Security and Management	0735
22.3	1570584060	Mobile Bully-victim Behaviour on Facebook: The Case of South African Students	0743
22.4	1570575473	CGSPA: Comprehensive Group Similarity Preference Aggregation Algorithm for Group Itinerary Recommendation System	0750
22.5	1570580487	Mobile Ticket Purchase Model Construction and Customer Preference Analysis Based on Technology Acceptance Model	0757
22.6	1570583665	Consumers' Role in the Survival of E-commerce in Sub Saharan Africa: Consequences of E-Service Quality on Engagement Formation	0763
SESSION 23: WIRELESS SENSOR NETWORKS, CYBER SECURITY AND OTHERS			
23.1	1570587030	RSSI-based Localization in an Emulated Active RFID System	0771
23.2	1570563617	Prototype Resilient Command and Control (C2) of C2 Architecture for Power Outage Mitigation	0779
23.3	1570576157	Improving Response Time Prediction for Stack Overflow Questions	0786
23.4	1570574063	Comprehensive Review of Routing Protocols in Adhoc Network: MANET	0792
23.5	1570574146	Monitoring System Implement of Marine Electric-powered Driven	0798
23.6	1570574784	HIDALS: A Hybrid IoT-based Decentralized Application for Logistics and Supply Chain Management	0802
SESSION 24: WIRELESS NETWORKS AND MOBILE COMPUTING			
24.1	1570580690	An Improved Neighbor Discovery Process in BLE 5.0	0809
24.2	1570574772	Cost-Reward-based Carrier Aggregation with Differentiating Network Slicing for Optimizing Radio RB Allocation in 5G New Radio Network	0813
24.3	1570585866	Mobile Health Monitoring Systems Model for Chronic Diseases Patients in Developing Countries	0820
24.4	1570587172	An Evaluation of LoRa Communication Range in Urban and Forest Areas: a Case Study in Brazil and Portugal	0827
24.5	1570584022	Multicasting-based Mobility Management Scheme in Industrial Fast PMIPv6 Networks	0833
24.6	1570567085	Trade-Offs Between Efficiency and Output Voltage of a Single Boost DC-DC Converter for Photo-Voltaic Low Power Harvesting Applications	0839
SESSION 25: IOT, WIRELESS SENSOR NETWORK AND CYBER SECURITY SYSTEMS			
25.1	1570581382	Multiservice Heavy Traffic Performance of Small Cells	0843
25.2	1570580594	Mitigation of Thermal Stress Accelerants on Key Components of an Electric Grid	0851

25.3	1570580809	Blind Mode Detection for AMR Speech Data	0859
25.4	1570587140	A New Approach for EPLL-based Frequency Estimation Under Severe Disturbances	0862
25.5	1570587198	On the Design of Antenna Using Osgood Curve Fractal Geometry for Wireless Applications	0870
25.6	1570580310	The Subsurface Objects Classification Using a Convolutional Neural Network	0874
SESSION 26: ARTIFICIAL INTELLIGENCE, SOFTWARE ENGINEERING AND BLOCKCHAIN			
26.1	1570575215	On Reducing Effect of Acoustic Feedback in Hearing Aids by Employing Lattice Prediction and Hybrid Adaptive Filtering	0878
26.2	1570581347	A UML Profile for Software Requirements Prioritization	0885
26.3	1570585987	Blockchain-based Threat Registry Platform	0892
26.4	1570586759	Characterization of Term and Preterm Deliveries Using Electrohysterograms Signatures	0899
26.5	1570586780	ECG-based Biometric Authentication Using Empirical Mode Decomposition and Support Vector Machines	0906
26.6	1570586862	Incentive for Historical Block Data Sharing in Blockchain	0913
SESSION 27: SILICON PHOTONICS II			
27.1	1570587101	Silicon Photonics for 5G Passive Optical Networks	0920
27.2	1570573213	Optical Add-drop Filters Using Cladding-modulated Sub-wavelength Grating Contra-directional Couplers for Silicon-on-Insulator Platforms	0926
27.3	1570576006	Effect of Lithography on SOI, Grating-Based Devices for Sensor and Telecommunications Applications	0932
SESSION 28: IOT, BLOCKCHAIN AND ARTIFICIAL INTELLIGENCE			
28.1	1570582568	A Minimalist Model of IoT Based Sensor System for Sewage Treatment Plant Monitoring	0939
28.2	1570576387	Sparse Data Proxy Actuation for the Electrical Grid: Proxy Utilization with a Q-Input Harmonization Method for System Estimation	0946
28.3	1570587366	PACEX: PATient-Centric EMR eXchange in Healthcare Systems Using Blockchain	0954
28.4	1570580875	Analysis of CT Scan Images to Predict Lung Cancer Stages Using Image Processing Techniques	0961
28.5	1570586940	Periocular Region Based Biometric Identification Using SIFT and SURF Key Point Descriptors	0968
28.6	1570586739	Image Pattern Classification for Plant Disease Identification Using Local Tri-directional Features	0973

SESSION 29: SOFTWARE ENGINEERING, ARTIFICIAL INTELLIGENCE AND BLOCKCHAIN			
29.1	1570581350	A UML Profile for Prediction of Significant Software Requirements	0979
29.2	1570587401	Blockchain Decision Matrix for IoT Systems	0985
29.3	1570587871	Towards Blockchain-based Multi-controller Managed Switching for Trustworthy SDN Operation	0991
29.4	1570593055	Threat Recognition from Gait Analysis	0999
29.5	1570587378	Model-Based Scaffolding Code Generation for Cross-Platform Applications	1006
29.6	1570579943	Weight and Cluster Based Test Case Prioritization Technique	1013
SESSION 30: BIG DATA ANALYTICS, DATA MINING AND IOT			
30.1	1570581232	Design and Implementation of Financial Smart Contract Services on Blockchain	1023
30.2	1570571156	An Improved Differential Privacy-Preserving Truth Discovery Approach in Healthcare	1031
30.3	1570588767	Development and Application of a Software Tool/Package for Pan-Genomic Analysis	1038
30.4	1570585435	Fault Diagnosis in Vehicular Networks Using Do-Calculus	1043
30.5	1570585107	Detection of Communities in Large Scale Networks	1051
30.6	1570575033	Autonomous Vehicle for Industrial Supervision Based on Google Assistant Services & IoT Analytics	1061
SESSION 31: WIRELESS SENSOR NETWORK AND ADHOC NETWORK			
31.1	1570587834	Planning of AdHoc and IoT Networks Under Emergency Mode of Operation	1071
31.2	1570588055	Performance and Complexity Analysis of MAC Protocol for VANETs	1081
31.3	1570587168	A Cloud-Based System Architecture for Advanced Metering in Smart Cities	1087
31.4	1570587095	Solving MAX-SAT Problem by Binary Biogeography-based Optimization Algorithm	1092
31.5	1570597371	Partitioned network with Adaptive Mobile Sinks	1098
SESSION 32: ARTIFICIAL INTELLIGENCE, WIRELESS COMPUTING, NETWORK SECURITY AND IOT			
32.1	1570579338	Bird's Eye Navigation (BEN) - A Pixelwise Mapping System Used in Swarming of Vehicular Robots	1104
32.2	1570587170	Proposal for a Real-time On-Board Monitor to Evaluate the Comfort Level in Scholar Transportation	1113
32.3	1570571124	A Low Power Concurrent Dual-Band Low Noise Amplifier for WLAN Applications	1118

32.4	1570596598	Intelligent Traffic Control System: Towards Smart City	1124
SESSION 33: BIG DATA, DATA MANAGEMENT AND OTHERS			
33.1	1570597363	Countermeasure of Attack Vectors using Signature-Based IDS in IoT Environments	1130
33.2	1570598588	Generalised Differential Cryptanalysis Check for Block Ciphers	1137