2020 11th IEEE Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON 2020)

New York City, New York, USA
28 – 31 October 2020

Pages 1-478

IEEE Catalog Number: CFP20G31-POD
ISBN: 978-1-7281-9657-2

Copyright © 2020 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: CFP20G31-POD
ISBN (Print-On-Demand): 978-1-7281-9657-2
ISBN (Online): 978-1-7281-9656-5

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

CONTENT

Sr. No.	Paper ID	Paper Title	Page No
SESSION 1: AD HOC NETWORKS			
01.1	1570681392	CrowdPick: A Generic Framework for Delivering Service Specific Crowd Infrastructure	0001
01.2	1570673590	LTEOC: Long Term Energy Optimization Clustering for Dynamic IoT Networks	0008
01.3	1570678118	Development and Implementation of S-MAC Based RPL Protocol to Increase Energy Efficiency for the TelosB	0015
01.4	1570675495	Cybersecurity Analysis in Dedicated Short-Range Communications in Vehicular Networks	0021
01.5	1570681539	Multimedia Transmission for V2X Communication Over Legacy LTE-A Network Infrastructure - A Performance Evaluation	0028
SESSION 2: ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING			
02.1	1570677781	8-Bit Convolutional Neural Network Accelerator for Face Recognition	0035
02.2	1570681196	Deep Attractor with Convolutional Network for Monaural Speech Separation	0040
02.3	1570681664	Anomaly Detection and Identification Using Visual Techniques in Streaming Video	0045
02.4	1570675544	A Bfloat16 Fused Multiplier-Adder	0052
02.5	1570678388	Continuous Authentication of Smartphone Users Using Machine Learning	0056
SESSION 3: BIG DATA, DATA MANAGEMENT AND ANALYTICS			

03.1	1570675356	Interactive Visualization of 3D Terrain Data Stored in the Cloud	0063
03.2	1570681160	A Data Structure for Efficient File Deduplication in Cloud Storage	0071
03.3	1570680670	Stock Price Prediction Using Bi-Directional LSTM Based Sequence to Sequence Modeling and Multitask Learning	0078
03.4	1570681010	Central Versus Distributed Statistical Computing Algorithms- A Comparison	0087
03.5	1570675474	Energy Disaggregation Using Multilabel Binarization and Gaussian Naive Bayes Classifier	0093
SESSION 4: ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING			
04.1	1570681529	Design of Machine Learning Algorithms for Behavioral Prediction of Objects for Self-Driving Cars	0101
04.2	1570673392	Performance Analysis and Evaluation of LSTM and GRU Architectures for Houston Toad and Crawfish Frog Call Detection	0106
04.3	1570675572	Backbone Neural Network Design of Single Shot Detector from RGB-D Images for Object Detection	0112
04.4	1570682067	Automatic Numerical Question Answering on Table Using BERT-GNN	0118
04.5	1570682149	Deep Learning Enhanced BCI Technology for 3D Printing	0125
SESSION 5: AD HOC NETWORKS AND BIG DATA MANAGEMENT			
05.1	1570680869	OPSCAN: Density-Based Spatial Clustering in Opportunistic Networks	0131
05.2	1570681534	Modified PHY Layer for High Performance V2X Communication Using 5G NR	0137

05.3	1570682110	IoT Based: Air Quality Index and Traffic Volume Correlation	0143
05.4	1570675862	A Novel Framework for Data Center Risk Assessment	0148
05.5	1570675375	PAARS: Privacy Aware Access Regulation System	0155
SESSION 6: CLOUD AND VIRTUAL NETWORKS			
06.1	1570670909	LSTM for Cloud Data Centers Resource Allocation in Software-Defined Optical Networks	0162
06.2	1570679155	A New Caching Algorithm for Boosting Edge Computing Performance	0168
06.3	1570681120	A High Security Signature Algorithm Based on Kerberos for REST-Style Cloud Storage Service	0176
06.4	1570681484	Performance Analysis of Cloud Radio Access Networks with Nakagami-m Fading Channel	0183
06.5	1570681524	Remote Monitoring of Evapotranspiration from Green Roof Systems	0189
SESSION 7: ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING			
07.1	1570674935	Comparison of Machine Learning Models for Parkinson's Disease Prediction	0195
07.2	1570674744	A Noncoherent Incremental Learning Demodulator	0200

07.3	1570680059	Mitigating Jamming Attacks in Uncoordinated Frequency Hopping Using Multi-Armed Bandit	0207
07.4	1570669219	Phychoacoustic Masking of Delta and Time - Difference Cepstrum Features for Deception Detection	0213
07.5	1570670908	Optimization of Regenerator Placement in Optical Networks Using Deep Tensor Neural Network	0218
SESSION 8: BIG DATA, DATA ANALYTICS AND CLOUD NETWORK			
08.1	1570681537	Performance Evaluation of TPC-C Benchmark on Various Cloud Providers	0226
08.2	1570680427	A Feasible Chinese Text Data Preprocessing Strategy	0234
08.3	1570679165	Computation of Posterior Cramer-Rao Bounds for Deep Learning Networks	0240
08.4	1570678401	Predicting COVID-19 Infection Groups Using Social Networks and Machine Learning Algorithms	0245
08.5	1570677377	Streamling Smart Cities to Create Safer Spaces	0252
SESSION 9: BIG DATA AND BODY , PERSONAL AREA NETWORKS			
09.1	1570672646	Analyzing Gun Violence in the United States	0258
09.2	1570679179	Secure Digital Service as a Utility and the Unit of Measure	0262
09.3	1570682166	Detection of Fraudulence in Credit Card Transactions Using Machine Learning on Azure ML	0268
09.4	1570674346	Knee Injury Diagnostic Device	0274

09.5	1570680289	Intelligent Mobile Electrocardiogram Monitor-Empowered Personalized Cardiac Big Data	0280
SESSION 10: ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING			
10.1	1570675510	Towards Adversarially Robust DDoS-Attack Classification	0285
10.2	1570673652	Using Deep Learning to Identify Security Risks of Personal Mobile Devices in Enterprise Networks	0292
10.3	1570675190	Automated prediction of Heart disease using optimized machine learning techniques	0298
10.4	1570677681	A Black Box Approach to Inferring, Characterizing, and Breaking Native Device Tracking Autonomy	0303
10.5	1570680425	Adversarial Input Detection Using Image Processing Techniques (IPT)	0309
SESSION 11: CLOUD COMPUTING & IOT			
11.1	1570679593	IoTBonet and Network Intrusion Detection Using Dimensionality Reduction and Supervised Machine Learning	0316
11.2	1570681451	Blockchain-Based Scheme for Authentication and Capability-Based Access Control in IoT Environment	0323
11.3	1570672160	Scheduling in IEEE 802.15.4e Time Slotted Channel Hopping: A Survey	0331
11.4	1570681542	Extending Conductive Thread Use to Unintended Microcontrollers	0337
11.5	1570673371	Agile Edge Classification of Ocean Sounds	0343
SESSION 12: BIG DATA, DATA MANAGEMENT AND ANALYTICS			
12.1	1570681396	A Provenance Meta Learning Framework for Missing Data Handling Methods Selection	0349

12.2	1570681397	An Event Detection Platform to Detect Gender Using Deep Learning	0359
12.3	1570681497	Analyzing Auction Data for Anomalous Bidding	0364
12.4	1570681503	Moving Recursion Out of the RDBMS for Transactional Graph Workloads	0371
SESSION 13: ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING			
13.1	1570673988	MINI-SSD: A Fast Object Detection Framework in Autonomous Driving	0377
13.2	1570678652	Adaptive Sliding Mode Control Based on SVR	0381
13.3	1570674693	Exploring a Plugin-Based System for Crowd and Pathogen Simulation in Unity	0387
13.4	1570673121	Interpretable Saab Subspace Network for COVID-19 Lung Ultrasound Screening	0393
13.5	1570680892	Generative Adversarial Networks in Security: A Survey	0399
SESSION 14: CLOUD COMPUTING & IOT			
14.1	1570675491	A Survey on Classification of Cyber-Attacks on IoT and IIoT Devices	0406
14.2	1570681493	Estimating Predicate Selectivities in a NoSQL Database Service	0414
14.3	1570681085	Smart Cities Digital Transformation and 5G - ICT Architecture	0421

14.4	1570681453	VSDM: A Virtual Service Device Management Scheme for UPnP-Based IoT Networks	0426
14.5	1570680832	A Bayesian Game Framework for a Semi-Supervised Allocation of the Spreading Factors in LoRa Networks	0434
SESSION 15: CONTROL THEORY AND APPLICATIONS			
15.1	1570680323	Ringing Test for Third-Order Ladder Low-Pass Filters	0440
15.2	1570681551	Sub-Erroneous Outlier Detection of Cyber Attacks in a Smart Grid State Estimation System	0447
15.3	1570677480	Feedback Path Delay Effect on Stability of Controlled PMSMs	0455
15.4	1570675933	An Autonomous Delivery Robot to Prevent the Spread of Coronavirus in Product Delivery System	0461
15.5	1570680336	Iterative MPC for Energy Management and Load Balancing in 5G Heterogeneous Networks	0467
SESSION 16: ARTIFICIAL INTELLIGENCE AND CONTROL THEORY			
16.1	1570680078	Maximizing Airtime Efficiency for Reliable Broadcast Streams in WMNs with Multi-Armed Bandits	0472
16.2	1570673241	Mitigation of Odometer Fraud for In-Vehicle Security Using the Discrete Hartley Transform	0479
16.3	1570681241	Sensors Based Lane Keeping and Cruise Control of Self Driving Vehicles	0486
16.4	1570680624	Optimized Approach to Improve Classification of Wrist Movements via Electromyography Signals	0492

16.5	1570677155	Identification of Food Waste Through Object Recognition	0496
SESSION 17: ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING			
17.1	1570675063	On the Development of Tools for Modelling Dynamic Beliefs Based on past Data	0500
17.2	1570672645	Clustering Algorithms and RFM Analysis Performed on Retail Transactions	0506
17.3	1570675629	Computer-Aided Ischemic Stroke Classification from EEG Data Using a Single-Tiered Spiking Neural Network Framework	0512
17.4	1570680509	Efficiency of Different Machine Learning Algorithms on the Multivariate Classification of IoT Botnet Attacks	0517
17.5	1570675580	SAS Mobile Application for Diagnosis of Obstructive Sleep Apnea Utilizing Machine Learning Models	0522
SESSION 18: DATA MINING AND MACHINE LEARNING			
18.1	1570681958	Mobile Natural Gas Concentration Intelligence Device Study for the Arctic	0530
18.2	1570674070	Performance Maintenance over Time of Random Forest-Based Malware Detection Models	0536
18.3	1570674152	Using BERT to Extract Topic-Independent Sentiment Features for Social Media Bot Detection	0542
18.4	1570675650	Latent Walking Techniques for Conditioning GAN-Generated Music	0548
18.5	1570676434	Deep Convolutional Neural Network for Decoding EMG for Human Computer Interaction	0554

SESSION 19 : ELECTRONIC INSTRUMENTATIONS			
19.1	1570676428	EMG-Based Hand Gesture Recognition by Deep Time-Frequency Learning for Assisted Living & Rehabilitation	0558
19.2	1570669064	Simple Dual Band Rectifier Based on Diplexer for Ambient RF Energy Harvesting Application	0562
19.3	1570675595	Cross-Platform for the Development Environment of Smart Home System	0566
19.4	1570679897	A 1.2-V 6-GHz Dual-Path Charge-Pump PLL Frequency Synthesizer for Quantum Control and Readout in CMOS 65-Nm Process	0570
19.5	1570674825	Multi-Level Random Sample Consensus Method for Improving Structured Light Vision Systems	0577
SESSION 20: ALGORITHMS AND FPGA DESIGN , APPLICATIONS			
20.1	1570679724	ADCR: An Adaptive Tool to Select "Appropriate Developer for Code Review" Based on Code Context	0583
20.2	1570674588	A Particle Swarm Optimization Algorithm to Meet Trust Requirements in Ridesharing Systems	0592
20.3	1570681693	Automated Portfolio Rebalancing Using Q-Learning	0596
20.4	1570680601	An Unsupervised Learning Algorithm for Deep Recurrent Spiking Neural Networks	0603
20.5	1570681763	Radar Pulse on Pulse Identification Parallel FFT and Power Envelope Algorithm	0609

SESSION 21: FPGA DESIGN , APPLICATIONS AND ARTIFICIAL INTELLIGENCE			
21.1	1570681112	Reusable Spiking Neural Network Architecture	0614
21.2	1570680625	An FPGA-Based Implementation Method for Quadratic Spiking Neuron Model	0621
21.3	1570680454	A Machine Learning Approach to Temporal Traffic-Aware Energy-Efficient Cellular Networks	0628
21.4	1570673095	An FPGA-Based Optimized Memory Controller for Accessing Multiple Memories	0635
SESSION 22: ARTIFICIAL INTELLIGENCE AND IMAGE PROCESSING			
22.1	1570680904	An Empirical Analysis of Generative Adversarial Network Training Times with Varying Batch Sizes	0643
22.2	1570681714	Coronavirus Outburst Prediction in India Using SEIRD, Logistic Regression and ARIMA Model	0649
22.3	1570676486	Three-Dimensional Down-View Imaging Based on MIMO Through-Wall-Radar	0656
22.4	1570677444	Implementation and Performance Evaluation of Overlay End System Multicast (ESM) for Stable and Fast Streaming of Multimedia Applications over Satellite Networks	0662
22.5	1570681866	Facial Expression Recognition and Recommendations Using Deep Neural Network With Transfer Learning	0668
SESSION 23: GREEN WIRELESS NETWORKS AND MOBILE AND WIRELESS COMPUTING			
23.1	1570677700	Localization Methods Based on Error Analysis and Modeling in One Dimension	0674

23.2	1570680420	Design and Implementation of a Heterogeneous Multi-Hop OWC/RF Relay Architecture for Opportunistic Ultra-Dense Wireless Networks	0684
23.3	1570677702	Localization Methods Based on Error Analysis and Modeling in Two Dimensions	0690
23.4	1570681144	IEEE 802.11ad Communication Quality Measurement in In-Vehicle Wireless Communication with Real Machines	0700
23.5	1570680744	Performance Evaluation for Tracking a Malicious UAV Using an Autonomous UAV Swarm	0707
SESSION 24: MOBILE AND WIRELESS COMPUTING AND OTHERS			
24.1	1570675623	Radio-Factor Authentication: Identity Management over the 900MHz Band	0713
24.2	1570681122	Prediction of Dengue Infected Areas Using A Novel Blockchain Based Crowdsourcing Framework	0720
24.3	1570681194	Enforcing Location-Based Access Policies Using the Existing IEEE 802.11 Infrastructure	0727
24.4	1570681779	A Critical Review of Credit Card Fraud Detection Techniques	0732
24.5	1570677920	Non-Orthogonal Multiple Access for Terahertz Communication Networks	0737
SESSION 25: IMAGE PROCESSING AND INFORMATION SECURITY			
25.1	1570674325	Autonomous Ripeness Detection Using Image Processing for an Agricultural Robotic System	0743

25.2	1570678231	Enhanced Security Architecture for Visual Cryptography Based on Image Secret Sharing	0749
25.3	1570681527	Towards Contactless Monitoring of Blood Pressure at Rest and During Exercise Using Infrared Imaging	0756
25.4	1570670860	The Capacity of Multi-User Private Information Retrieval for Computationally Limited Databases	0759
25.5	1570677813	Cyber Fraud: Detection and Analysis of the Crypto-Ransomware	0764
SESSION 26: INFORMATION SECURITY AND ARTIFICIAL INTELLIGENCE			
26.1	1570681205	Healthcare Security Based on Blockchain Within Multi- Parameters Chaotic Map	0770
26.2	1570682003	Detection of Undesired Events on Real-World SCADA Power System Through Process Monitoring	0779
26.3	1570670704	Creating and Using Secure Software	0786
26.4	1570680278	A Comparison of Blockchain-Based Wireless Sensor Network Protocols	0793
26.5	1570681876	Computer Vision Based License Plate Detection for Automated Vehicle Parking Management System	0800
SESSION 27: NATURAL LANGUAGE PROCESSING AND NETWORK SECURITY AND OTHERS			
27.1	1570674682	Alexa Eldercare Toolbox: A Smarthome Solution for the Elderly	0806
27.2			0813

	1570680956	An Efficient Accelerated Learning Algorithm for Tracking of Unknown, Spatially Correlated Signals in Ad-Hoc Wireless Sensor Networks	
27.3	1570676787	Eldercare Robotics – Alexa	0820
27.4	1570680689	Estimating Attack Risk of Network Activities in Temporal Domain: A Wavelet Transform Approach	0826
27.5	1570680580	The Largest QWI in the InGaP/InAlGaP Laser Structure Using High Compressive Strain at Elevated Temperatures	0833
SESSION 28: NETWORK SECURITY AND ROBOTICS			
28.1	1570674412	Performance Evaluation of Machine Learning for Prediction of Network Traffic in a Smart Home	0837
28.2	1570672000	Social Engineering Attacks A Reconnaissance Synthesis Analysis	0843
28.3	1570680779	Implementing Asymmetric Cryptography in High-Speed Data Transmission over Power Line	0849
28.4	1570676615	Smart Real-Time Autonomous Navigation System Using Integration of MEMS-Based Low-Cost IMU/GPS	0855
28.5	1570682098	Crowdsensing Strategies Inspired by Choir Management Analyzed via Game Theory	0862
SESSION 29: ARTIFICIAL INTELLIGENCE AND ROUTING, QOS			
29.1	1570682063	Movie Success Prediction Using ML	0869
29.2	1570674814	Adaptive Modulation Regenerator and Distance Aware Algorithm for Dynamic Routing in Elastic Optical Networks	0875

29.3	1570682072	Effects of Lockdown and Post Lockdown on Covid19 Cases Across India Using Supervised Learning Techniques	0881
29.4	1570677031	On Efficient Candidate Path Selection for Dynamic Routing in Elastic Optical Networks	0888
29.5	1570682069	Forecasting of COVID-19 in India Using ARIMA Model	0894
SESSION 30: VLSI AND TELECOMMUNICATION SYSTEMS			
30.1	1570669072	A 250 MHz-to-1.6 GHz Phase Locked Loop Design in Hybrid FinFET-Memristor Technology	0900
30.2	1570681499	Optimal Labeling with Cyclic Gray Codes for Generalized 16PAM Constellations	0906
30.3	1570673986	Assertion and Coverage Driven Test Generation Tool for RTL Designs	0913
30.4	1570681129	QoS Control for Mission-Critical Communication on Vehicles with IEEE802.11 Wireless LAN Under Dynamic Interference	0917
SESSION 31: ALGORITHMS,THEORY AND ROUTING			
31.1	1570672322	Analysis and Synthesis of Respiratory Rate for Male Patients	0923
31.2	1570674014	Comparison of Convolutional Neural Network Architectures on Dermastopic Imagery	0928
31.3			0932

	1570674386	HC-LEACH: Huffman Coding Based Energy-Efficient LEACH Protocol for WSN	
31.4	1570676483	DCCORONA: Distributed Cluster-Based Coordinate and Routing System for Nanonetworks	0939
SESSION 32: CLOUD COMPUTING,IOT AND OTHERS			
32.1	1570681804	Pulse Separation Using Independent Component Analysis	0946
32.2	1570682126	Robust Cellular Connectivity-Based Smart LED Street Lighting System: A Platform for Innovative Mission Critical Smart City IoT Applications	0951
32.3	1570682106	Conceptual Neuroadaptive Brain Computer Interface for Autonomous Control of Automobile Brakes	0958