# 2019 International Conference on Computing, Computational Modelling and Applications (ICCMA 2019)

Cape Coast, Ghana 27 – 29 March 2019



IEEE Catalog Number: ISBN: CFP19T52-POD 978-1-7281-0819-3

## 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:	CFP19T52-POD
ISBN (Print-On-Demand):	978-1-7281-0819-3
ISBN (Online):	978-1-7281-0818-6

#### 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



## 2019 International Conference on Computing, Computational Modelling and Applications ICCMA 2019

## **Table of Contents**

Preface ix	
Organizing Committee x	
Technical Program Committee xii	

### **Technical Papers**

Investigating the Actual usage of Learning Management System: From Perspectives of University Students .1 Charles Buabeng-Andoh (ICT Education Department, University of Education) and Charles Baah (IT Department, Pentecost University College Accra)
Development of Rapid-Testing Technology for the Screening of Food Safety .9 Shuo Pan (School of Electrical & Automatic Engineering, Changshu Institute of Technology Changshu), Lv Gang (School of Electrical & Automatic Engineering, Changshu Institute of Technology Changshu), and Zhu Peiyi (School of Electrical & Automatic Engineering, Changshu Institute of Technology Changshu)
Bivariate Copula Modeling of Electricity Load, Case Study of Kwame Nkrumah University of Science and Technology 1.3 Maxwell Akwasi Boateng (Department of Telecommunications Engineering, Ghana Technology University College), Francis Kwabena Oduro-Gyimah (Department of Telecommunications Engineering, Ghana Technology University College), and Daniel Kuyoli Ngala (Department of Telecommunications Engineering, Ghana Technology University College)
Impact Analysis of Induced FM Radio Interferences on Aeronautical Radio Navigation Systems: Case Study of Kotoka International Airport, Accra-Ghana .19 Amevi Acakpovi (Department of Electrical/Electronic Engineering, Accra Technical University), Isaiah Tefutor (Department of Graduate Studies, Open University Malaysia), Kester Quist-Aphetsi (Department of Computer Sciences, Ghana Technology University College), Nnamdi Nwulu (Department of Electrical Engineering, University of Johannesburg), Robert Sowah (Department of Computer Engineering, University of Ghana), and Ruhiya Abubakar (Department of Telecom Engineering, Ghana Technology University College)

Evaluation of Noise Effects on Power Line Communication in a Narrow and Wide Band Frequency Spectrum: A Case Study of Electricity Distribution Network of Ghana .27 Amevi Acakpovi (Department of Electrical/Electronic Engineering, Accra Technical University), Haruna Mohammed (Department of Graduate Studies, Open University Malaysia), Nnamdi Nwulu (Department of Electrical Engineering, University of Johannesburg), Francois-Xawier Nicolas Fifatin (Department of Electrical Engineering, Abomey-Calavi University), Télesphore Cossi Nounangnonhou (Department of Electrical Engineering, Abomey-Calavi University), and Ruhiya Abubakar (Department of Telecom Engineering, Ghana Technology University College)
Modelling an Efficient Gap Filler for DTT Network Using ADS Software <u>34</u> . <i>Francis Mensah (Department of Telecommunications Engineering, Ghana</i> <i>Technology University College), Amevi Acakpovi (Department of</i> <i>Electrical/Electronic Engineering, Accra Technical University), Futa</i> <i>Osumanu (Department of Electrical/Electronic Engineering, Accra</i> <i>Technical University), Robert Sowah (Department of Computer</i> <i>Engineering, University of Ghana), Francois-Xawier Nicolas Fifatin</i> <i>(Department of Electrical Engineering, Abomey-Calavi University), and</i> <i>Télesphore Cossi Nounangnonhou (Department of Electrical Engineering, Abomey-Calavi University)</i>
Evaluating the Effectiveness of ERP Systems in HEIs: A Proposed Analytic Framework .40 Emmanuel Peters (Department of Computer Science and Information Technology Accra Institute of Technology, (AIT)) and George Kwamina Aggrey (Department of Computer Science and Information Technology University of Cape Coast, (UCC))
Intruder Detection with Alert Using Cloud Based Convolutional Neural Network and Raspberry Pi .46 Michael Christopher Xenya (Department of Computer Engineering Ghana Technology University College), Crentsil Kwayie (Department of Computer Engineering Ghana Technology University College), and Kester Quist-Aphesti (Department of Computer Science Ghana Technology University College)
Performance Evaluation of FBMC Compared to OFDM by Simulation with Matlab .51 Thierry Blaise Taih Coffi Aka (Department of Telecommunications Engineering Ghana Technology University College), Amevi Acakpovi (Department of Electrical/Electronic Engineering, Accra Technical University), and Kester Quist-Aphetsi (Department of Computer Sciences, Ghana Technology University College)
An Innovative Technique for Analyzing Network Performance and Congestion in a Hybrid Network Topology .60 Nabare Williams Kwame (Valley View University) and Emmanuel Freeman (Ghana Technology University College)

Adoption of Smart Grid in Ghana Using Pattern Recognition Neural Networks .66 Ruhiya Abubakar (Faculty Of Engineering/ Department Of Electrical And Electronics Engi. Ghana Technology University College/PhD Scholar Of Ramaiah University Of Applied Sciences), Emmanuel K. Effah (Faculty of Engineering/ Department Of Electrical and Electronics Engi. Ghana Technology University College), Samuel Akwasi Frimpong (Faculty of Engineering/ Department of Computer Engineering Ghana Technology University College Ghana), Amevi Acakpovi (Department Of Electrical Engineering Accra Technical University), Patrick acheampong (Faculty of Computing and Information Technology Ghana Technology University College), Govind R. Kadambi (Department of Computer Engineering M.S. Ramaiah School of Advanced Studies, Bangalore), and K.M Sharath Kumar (Department of Management Studies, M. S. Ramaiah School of Advanced Studies)
Analysis of Co-Location of Telecommunication Infrastructure In Ghana .72. Joseph Kweku (Department of Telecommunication Ghana Technology University College)
Forecasting Abilities of MIMO and SISO Neural Networks: A Comparative Study using Telecommunication Traffic Data .81 Francis Kwabena Oduro-Gyimah (Department of Telecommunications Engineering, Ghana Technology University College) and Kwame Osei Boateng (Department of Computer Engineering, Kwame Nkrumah University of Science and Technology)
Modeling Total Quality Management Framework for Higher Education Institutions in Ghana .87 Nusrat-Jahan Abubakar (M.S. Ramaiah University of Applied Sciences, Bangalore, India and Ghana Technology University College) and Emmanuel Freeman (Centre for Online Learning and Teaching, Ghana Technology University College)
Evaluation of Inter-Cell Interference and BER on a Downlink PDSCH of the LTE Network .96 Owusu Agyeman Antwi (Department of Telecom Engineering, Ghana Technology University College) and Amevi Acakpovi (Department of Electrical/Electronic Engineering, Accra Technical University)
Ito Calculus-Machine Learning Projection of Forward US Dollar-Ghana Cedi Rates .1.02 Paul A. Agbodza (Department of Mathematical Sciences, University of Mines and Technology)
A Cryptographic Algorithm Based On Aes Cipher Andnondeterministic Algorithm Approach For Key Generation .1.05 Amoah Emmanuel Ofosu (CRITAC, Cyber Security Division Faculty of Computing and Information Systems, Ghana Technology University College, GTUC), Quist-Aphetsi Kester (CRITAC, Cyber Security Division Faculty of Computing and Information Systems, Ghana Technology University College, GTUC), and Attah Josephine Akosua Anyanewah (CRITAC, Cyber Security Division)
Using Bayesian Networks In Analysing Judgement .1.10. Loretta Pinamang Asamoah (Department of Information Technology), Edwin Worlawoe Amaglo (Departmentof Information Technology), and Quist-Aphetsi Kester (Department of Computer Science Ghana Technology University College (GTUC))
Markov Chain: Forecasting Economic Variables .1.15 Ephraim Nii Kpakpo Waller (Department. of Information Technology), Pamela Delali Adablah (Department. of Information Technology), and Quist-Aphetsi Kester (Department. of Computer Science Ghana Technology University College (GTUC))

A Decentralized Cryptographic Blockchain Approach for Health Information System .120
Rexford Nii Ayitey Sosu (Ghana Technology University College), Kester
Quist-Aphetsi (Department of Computer Science), and Laurent Nana
(Lab-STICC (UMR CNRS 6285), European University of Brittany)
(Lab-STICC (UMR CNRS 6285), European University of Brittany)

Nodal Authentication of IoT Data Using Blockchain .125 Bismark Tei Asare (Lab-STICC UMR CNRS 6285, Universite De Bretagne Occidentale, UBO), Kester Quist–Aphetsi (Computer Science Department, Ghana Technology University College), and Laurent Nana (Lab-STICC UMR CNRS 6285, Universite De Bretagne Occidentale, UBO)
Using Decision Tree Classification Algorithm to Predict Learner Typologies for Project-Based Learning 1.30 Esther Gyimah (Department of ICT Education, University of Education, Winneba, UEW) and Delali Kwasi Dake (Department of ICT Education, University of Education, Winneba, UEW)
Comparative Evaluation of Asymmetric Price Transmission Linear Models Using rMDL, eMDL, nMDL, gMDL, AIC and BIC Across Varying Sample Sizes .135 Irene Kafui Vorsah Amponsah (Department of Statistics, School of Physical Sciences, University of Cape Coast), Henry De-Graft Acquah (Department of Agriculture and Economics & Extension, School of Agriculture, University of Cape Coast–Ghana), and Nathaniel Kwamena Howard (Department of Statistics, School of Physical Sciences, University of Cape Coast)

Author Index 141