

2016 International Conference on Advances in Computing and Communication Engineering (ICAACCE 2016)

**Durban, South Africa
28 – 29 November 2016**



**IEEE Catalog Number: CFP1697X-POD
ISBN: 978-1-5090-2577-0**

**Copyright © 2016 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:	CFP1697X-POD
ISBN (Print-On-Demand):	978-1-5090-2577-0
ISBN (Online):	978-1-5090-2576-3

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

2016 Third International Conference on Advances in Computing, Communication and Engineering

ICACCE 2016

Table of contents

Message from General Chair.....	IX
Message from Conference Chair.....	X
Message from Organizing Chairs.....	XI
Conference Organization.....	XII
Technical Program Committee.....	XIV
Reviewers.....	XV

Communication & Networks

AirCycle Proof-Of-Concept: Work Towards Using Gamification and IoT to Fight the Global Obesity Crisis.....	2
-Laurie Butgereit and Laura Martinus.	
Exploring RSSI Dependency on Height in UHF for Throughput Optimization.....	7
-Richard Maliwatu, Albert Lysko and David Johnson.	
Analysis of Bluetooth and Wi-Fi Interference in Smart Home Networks.....	13
-Suvendi Rimer, Ndihuwo Tshiluna, Hardy Mathevula, Jonathan Pinifolo, Chomora Mikeka, Babu Sena Paul and Shastri Jayram.	
Priority Based Data Scheduling in VANETs.....	19
- Vishal Kumar, Kunwar Singh Vaisla and S D Sudarsan.	
Location Based Analysis of AODV Performance in the Presence of Black Hole Nodes.....	23
-Thomas Fogwell and Elisha Ochola.	
An MPLS-Based Fat Tree Network-on-Chip Systems	29
-Azeddien Sllame and Nagwa Salama.	

Semi-Autonomous Vehicles: Towards a Conceptual Model of Compliance with Owner Manual Standards.....	37
-Nokubonga Msibi and Michael Kyobe.	
Implementing A Compact Data Format For Bluetooth And 3g Communication To Monitor Remote Pipelines.....	45
-Hartmut Ilgner and Stephan Pienaar.	
Factors Influencing the Migration of Agile Developers to Cloud Environment in South Africa.....	51
-Gardner Mwansa and Ernest Mnkanla.	
A User Scheduling Scheme in LTE/LTE-A Networks for a Mixed Traffic Environment.....	57
-Gbola Aiyetoro and Fambirai Takawira.	
Design Considerations of a Topology Control Prototype for Wireless Mesh Networks.....	64
-Pragasen Mudali, Matthew Olusegun Adigun and Ntsibane Ntlatlapa.	
Optimized Survivability Scheme to Safeguard End to End QoS in the Next Generation Optical Networks.....	70
-Tom Zimba and Velempini Mthulisi.	
Performance Analysis of Extended Weighted Cumulative Expected Transmission Time (xWCETT) Routing Protocol in Cognitive Radio Wireless Mesh Network.....	75
-Lesiba Morries Kola and Mthulisi Velempini.	
Modeling And Theoretical Analysis Of Cooperative Spectrum Sensing Performance.....	81
-Joseph Tlouyamma, Mthulisi Velempini and Sabelo Dlamini.	
The Feasibility of A WLAN Based Power Subsation Monitoring Platform.....	85
-Mambwe Sydney Kasongo, Chunling Du and Seleman Medson Ngwira.	
Congestion Mitigation in a Vehicular Network Using DBSMA.....	91
-Etienne Alain Feukeu and Seleman Medson Ngwira.	
Pattern Recognition Technique to Eliminate Multipath and Radio-Frequency Interference in an Automated Antenna Measurement System.....	96
-Imtiaz Haniff, SD Mac Pherson and O Sokoya.	
Evaluation of End-to-End Latency for Segmented Bursts in OBS Networks.....	99
-Masimba Gomba and Ndunga Ngeama.	
Optimal Power Control Strategy of a Distributed Energy System Incorporating Demand Response.....	103
-Oliver Dzobo and Sun Yanxia.	
A Cluster Network Based Distributed Resource Management Scheme For OBS Networks.....	109
-Beverly Pule, Andrew Mutsvangwa and Bakhe Nleya.	
Variation of Altitude on the Variance of Angle of Arrival Fluctuations for Optical Beam Propagation in Free Space Optical Communications.....	117
-Okikiade Layioye, Thomas Afullo and Pius Owolawi.	
Traffic Flow Prediction in Cloud Computing.....	123
-Sello Prince Sekwatlakwatla, Tranos Zuva and Maredi Mphahlele.	

Mobile Public Cloud Computing, Merits and Open Issues.....	128
-Confidence Hlatshwayo and Tranos Zuva.	
An Empirical Analysis of Semantic Web Mechanisms for Storage and Query of Ontologies in Relational Databases.....	132
-Kwuimi Raoul, Fonou Dombeu Jean Vincent and Tranos Zuva.	
The Influence of External Actors in the Formulation of National Information and Communications Technology Policies in Developing Countries: Case of Swaziland.....	137
-Andile Metfula, Gregory Kunyenje and Wallace Chigona.	
Optimal Fusion Techniques for Cooperative Spectrum Sensing in Cognitive Radio Networks.....	146
-Edwin Kataka and Tom Walingo.	
Capacity Improvement for VoIP based Two-Tier CRN Using Space-Time Spectrum Sensing.....	153
-Vineet Kumar and Aditya Trivedi.	
The Economics of Cloud Computing.....	159
-Happy Sithole, Promise Mvalase, Thipe Modipa and Sizakele Mathaba.	
Standardization Requirements for Self-Quantification Services Over Internet of Things.....	167
-Hongki Cha, Joo-Chul Lee, Wonsuk Lee and Jonghong Jeon.	
Feedback-Based Service Selection in Ad-Hoc Mobile Cloud Computing.....	172
- Ayotuyi Tosin Akinola.	
Load Balancing Algorithm in a Virtualized Cloud Environment.....	178
-Ivans Kigwana and Bukohwo M. Esiefarienre	
Comparative Evaluation of QoS Routing in VANET.....	183
-Francis L. Lugayizi, Bukohwo M. Esiefarienre and Akakanelwa Warren	
Performance Analysis of Mesh Portal Points Placement Schemes for Rural Settlement Patterns.....	189
- Olukayode Oki, Pragasen Mudali and Matthew Adigun.	
A Theoretical framework for the adoption of electronic patients' record management system in South Africa.....	196
-IA Popela and R. Dagada	
Data Re-sequencing Delays in Smart Grids.....	202
-Nompilo Miya, Bakhe N and Philani Khumalo	
The Impact of Mobility Models on the Performance of Mobile ad-hoc Network (MANET).....	208
-Martin Appiah	
Security, Privacy and Trust	
Reporting Cyber Threats in South African High Schools.....	215
-Naume Sonhera, Elmarie Kritzinger and Marianne Loock.	
Analysis Of The Effects Of The Random Weights Of Particle Swarm Optimization.....	219
-Yanxia Sun.	

A Theory-Based Literature Review On Information Security Behavior In The Organization And Home Context.....	225
-Joseph Omidosu and Jacques Ophoff.	
A Secured Model For Changing a Vehicle's Ownership.....	232
-Deon Tshabalala and Robert Hans.	
The Design of a Defence Mechanism to Mitigate the Spectrum Sensing Data Falsification Attack in Cognitive Radio ad-hoc Networks.....	237
-Issah Ngomane, Mthulisi Velempini and SabeloVelemseni Dlamini.	
A Conceptual Framework For Integrated Information Privacy Protection.....	242
-Hanifa Abdullah, L. Labuschagne and J. Young.	
Biogas System Fault Detection and Control.....	249
-Liston Matindife and Zenghui Wang.	
Software Defect Prediction on a Search Engine Software Using Process Metrics.....	254
-Bongeka Mpofu and Ernest Mnkandla.	
Is There A Room For Security And Privacy In IoT?.....	260
-Elias Tabane and Tranos Zuva.	
Users' Perceptions Of Mobile Computing System In South Africa: The Case For Further Research.....	265
-Fhatuwani Vivian Mapande and Rabelani Dagada.	

Big Data Analytics and Data Mining

A Context-Aware Proactive Recommender System for Tourist.....	271
-Ebunoluwa Ashley-Dejo, Tranos Zuva and Seleman Ngwira.	
A Survey on Recommender Systems.....	276
-Motlatsi Liphoto, Chunling Du and Seleman Ngwira.	
Predicting the Risk of Diabetes in Big Data Electronic Health Records by using Scalable Random Forest Classification Algorithm.....	281
-Sreekanth Rallapalli and Suryakanthi T.	
MK-means Clustering Applied to User Authentication.....	285
- Rajiv Kumar, Sivakumar M. and Arthanari M.	
Intelligent Supply Chain Management System	296
- Vivudh Fore, Ravi Tomar and Amit Mishra.	
Text-based Language Identification for Some of the Under-resourced Languages of South Africa.....	303
- Tshephisho Joseph Sefara, Madimetja Jonas Manamela and Promise Tshepiso Malatji.	
Work in Progress – Design and Development of a Project Management Intelligence (PMInt) Tool.....	308
- Robert Hans and Ernest Mnkandla.	
A Context-Sensitive Trust Model for Online Social Networking.....	314
-Muziga Ngenzi Danny, Okuthe P. Kogeda and Jabu Mtsweni	

An Evaluation To Determine The Extent And Level Of Agile Software Development Methodology Adoption And Implementation In The Botswana Software Development Industry.....	320
-Lavanya Balasubramanian, Ernest Mnkandla	
Information Systems Innovation Adoption In Higher Education: Big Data And Analytics.....	326
-Fezile Matsebula and Ernest Mnkandla	
A Big Data Perspective of Current ETL Techniques.....	330
-K V Phanikanth and Sithu D. Sudarsan	

Software Defined Networking

Stochastically Resonant Interference Managing Ontological Cognitive Radio for TV White Space.....	336
- Shastri Jayram, Khmaies Ouahada, Suvendi Rimer and Fisseha Mekuria.	
Classification of SDN distributed controller approaches: a brief overview.....	342
- Mpho Nkosi, Albert Lysko, Thulani Nyandeni, Lusani Ravhuanzwo and Andries Engelbrecht.	
SDN-enabled Dynamic WDM Networks to address Routing Information Inaccuracy.....	345
- Lusani Ravhuanzwo, Albert Lysko, Thulani Nyandeni and Mpho Nkosi.	
Using SDN and Reinforcement Learning for Traffic Engineering in UbuntuNet Alliance.....	349
- Josiah Chavula, Hussein Suleman and Melissa Densmore	

Software Development

Why Do Software Developers Practice Test-Driven Development?.....	357
- Patrick Kayongo, Wallace Chigona and ZwelithiniMabhena.	
A Stepwise Framework Towards Ict Integration In Education: A South African Perspective.....	362
-Keshnee Padayachee.	
Exploring The Educational Potential Of QR Codes.....	368
-Roopesh Kevin Sungkur, Vasheel Neermul and Varsha Tauckoor.	
Flash To HTML5 Adaptations : A Case-Study ForUpToTen.com.....	375
-Mohammad Issack Santally, Roopesh Kevin Sungkur and Nargis Sooltangos.	
An investigation into agile development methodologies in use by small, medium and micro enterprises in South Africa.....	381
-Gardner Mwansa	
Understanding ICT Innovation Strategies in South Africa: Development of a Context-Specific Research Instrument	387
-Hendrik Zwarts and Shawren Singh	

e-Learning, e-Commerce, e-Society, e-Governance etc

Leveraging Predictive Analytics for Business Value: Theoretical Foundations.....	395
- Rutendo Mushore and Michael Kyobe.	

Teaching Recursion Through Games, Songs, Stories, Directories and Hacking.....	401
- Laurie Butgereit.	
Implementing An Immersive Environment: A Critical Review of literature	408
- Rene van Eck and Tranos Zuva.	
d-Government Management - The Use of Limited Resources.....	412
- Shawren Singh.	
Optimal Incentivized Demand Response And Building Retrofits.....	418
- Nnamdi Nwulu and Yanxia Sun.	
e-Learning: Crowdsourcing as an Alternative Model to Traditional Learning.....	423
- Tshepiso H. Nkoana	

Smart City, Databases and IoTs

The Use, Benefits And Challenges Of Using The Internet of Things (IoT) in Retail Businesses: A Literature Review.....	430
- Nomusa Nomhle Dlamini and Kevin Johnston.	
Survey Of Smart City Initiatives Towards Urbanization.....	437
- Elias Tabane and TranosZuva.	
Design and Realization of a Compact Low Cost System-on-Chip Based Digital Audio Oscilloscope.....	442
- Liberty Mutauranwa and Malvin Nkomo.	
Location Obfuscation Using Smart Meter Readings.....	449
- Kiran Maharaj and Patrick Hosein.	

Biomedics and M-Health

Complexity Based Ranking of Biomedical Ontologies.....	455
- Yannick Kazela Kazadi and Jean Vincent Fonou Dombeu.	
A Mobile Application for Health Information Dissemination: a Namibian Context.....	461
- Nikodemus Angula and Nomusa Dlodlo.	