

2021 Conference on Information Communications Technology and Society (ICTAS 2021)

**Virtual Conference
10 – 11 March 2021**



IEEE Catalog Number: CFP21G16-POD
ISBN: 978-1-7281-8082-3

**Copyright © 2021 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:	CFP21G16-POD
ISBN (Print-On-Demand):	978-1-7281-8082-3
ISBN (Online):	978-1-7281-8081-6

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

CURRAN ASSOCIATES INC.
proceedings
.com

Table of Contents

<hr/>	
Cloud computing	
<hr/>	
Optimizing Utilization of Cloud Computing Resources Using Virtual Desktop Infrastructure	1
<i>Timothy Adeliyi and Oludayo Olugbara</i>	
<hr/>	
Computer networks	
<hr/>	
Intelligent Handover using User-Mobility Pattern Analysis for 5G Mobile Networks	5
<i>Masoto Chiputa, Peter Chong and Monica Uttarwar</i>	
An Energy-Efficient Impairment-Aware Routing Algorithm For Optical Transport Networks	11
<i>Mlungisi Molefe, Bakhe Nleya, Richard Chidzonga, Lebogang Bopape and Khulekani Sibiya</i>	
<hr/>	
Cybercrime	
<hr/>	
Towards a harm-based framework to evaluate Cyberhate	16
<i>Joseph Omidosu and Michael Kyobe</i>	
<hr/>	
Cybersecurity	
<hr/>	
Anti Money Laundering: Rule-Based Methods to Identify Funnel Accounts	21
<i>Laurie Butgereit</i>	
Secure Key Exchange by NFC for Instant Messaging	27
<i>Castello Govender and Brett van Niekerk</i>	
Design challenges of developing a blockchain-enabled smart home	34
<i>Kristiina Valtanen</i>	
Joint Effects of Neutralisation Techniques and the Dark Triad of Personality Traits on Gender	40
<i>Keshnee Padayachee</i>	
<hr/>	
Data analysis methods	
<hr/>	
PLS-SEM technique and phases of analysis – implications for information systems’ (IS) exploratory design researchers	46
<i>Anass Bayaga and Michael Kyobe</i>	
<hr/>	
e-Health	
<hr/>	
Micro-spatial modelling of malaria cases and environmental risk factors in Buhera rural district, Zimbabwe	52
<i>Elliot Mbunge, Richard C Millham, Nokuthula M Sibiya and Sam Takavarasha Jr</i>	
m-health framework for improving malaria information dissemination in Buhera rural district amid COVID-19 and beyond.....	59
<i>Elliot Mbunge, Richard C Millham, Nokuthula M Sibiya and Sam Takavarasha Jr</i>	

<hr/>	
ICT4D	
<hr/>	
Haven't We Been Here Before? A Critical Analysis of the Fourth Industrial Revolution.....	67
<i>Godwin Kaisara, Admire Mare and Clayton Peel</i>	
Design of an Integrated Real-time Information System for Public Commuting in South Africa.....	73
<i>Aphiwe Hlophe, Olawande Daramola and Ayodeji Afolayan</i>	
A mobile survey for collecting data from Deaf people who use sign language for communication.....	79
<i>Andre Henney and Prangnat Chininthorn</i>	
On the Role of Blockchain in Evolving the Online Business Landscape	85
<i>Sabin Simionescu, Amelia Badica, Costin Badica, Maria Ganzha and Marcin Paprzycki</i>	
<hr/>	
Image processing	
<hr/>	
Classification of Thermite Welding Defects using Local Binary Patterns and K Nearest Neighbors	91
<i>Mohale Molefe and Jules-Raymond Tapamo</i>	
Automatic Switching of Electric Locomotives in Neutral Sections.....	97
<i>Christopher Thembinkosi Mcineka and Serendra Reddy</i>	
Sparse noise minimization in image classification using Genetic Algorithm and DenseNet .	103
<i>Ibomoye Domor Mienye, Priye Kenneth Ainah, Ebenezer Esenogho and Ikiomoye Douglas Emmanuel</i>	
<hr/>	
Internet of Things	
<hr/>	
Real Time Milk Condition Surveillance System	109
<i>Nayem Abdullah, Ahnaf Shahriyar Chowdhury and Md. Mehedi Hossain</i>	
Internet of Things Based Multi-Sensor Fusion For Assistive Mobility Devices.....	115
<i>Oladele Ayo Daniel, Elisha Markus and Adnan Abu-Mahfouz</i>	
<hr/>	
Natural language processing	
<hr/>	
isiZulu Word Embeddings.....	121
<i>Sibonelo Dlamini, Edgar Jembere, Anban Pillay and Brett van Niekerk</i>	
Transformer-based Machine Translation for Low-resourced Languages embedded with Language Identification.....	127
<i>Tshephisho Joseph Sefara, Skhumbuzo Zwane, Nelisiwe Gama, Phillemon Senoamadi, Hlawulani Sibisi and Vukosi Marivate</i>	

Smart energy	
<hr/>	
Digital Twin Framework for Holistic and Prognostic Analysis of the Nigerian Electricity Supply Industry: A Proposal.....	133
<i>Hamzat Olanrewaju Aliyu, Shefiu Ganiyu, Ignace Djitog and Ishaq Oyefolahan</i>	
<hr/>	
Social media	
<hr/>	
Factors Influencing Cyberbullying on Social Media Among University Students: The case of Instagram.....	139
<i>Anthonia Oladimeji and Michael Kyobe</i>	
<hr/>	
Author Index	145
<hr/>	