

# **2018 UKSim-AMSS 20th International Conference on Computer Modelling and Simulation (UKSim 2018)**

**Cambridge, United Kingdom  
27 – 29 March 2018**



**IEEE Catalog Number: CFP1889D-POD  
ISBN: 978-1-5386-5879-6**

**Copyright © 2018 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:	CFP1889D-POD
ISBN (Print-On-Demand):	978-1-5386-5879-6
ISBN (Online):	978-1-5386-5878-9
ISSN:	2158-1657

**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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# 2018 UKSim-AMSS 20th International Conference on Modelling & Simulation UKSim 2018

## Table of Contents

Message from General Chairs .x.....	
Conference Organization .xii.....	
Keynotes .xiii.....	
International Technical Program Committee .xix.....	
International Reviewers .xx.....	
Sponsors, Patrons, Promoters and Supporters .xxi.....	

### Track 01.A.Neural Networks

Dynamic Routing Using Inter Capsule Routing Protocol between Capsules .1.....	
<i>Sanjib Kumar Sahu (Guru Gobind Singh Indraprastha University), Pankaj Kumar (Guru Gobind Singh Indraprastha University), and Amit Prakash Singh (Guru Gobind Singh Indraprastha University)</i>	
Smart X-Ray Scanners Using Artificial Neural Networks .6.....	
<i>Roger Achkar (American University of Science and Technology), Johnny Narcis (American University of Science and Technology), Wael Abou Awad (American University of Science and Technology), and Karim Hitti (University of Balamand)</i>	

### Track 02.B.Fuzzy Systems

Reduction of Ping-Pong Effect In Cognitive Radio Spectrum Handoffs Using Fuzzy Logic Based Inference.9.....	
<i>Sarah Javed (Balochistan University of Information Technology Engineering and Management Sciences) and Bushra Naeem (Balochistan University of Information Technology Engineering and Management Sciences)</i>	

### Track 06.F.Bioinformatics and Bioengineering

Measurement of Rater Consistency by Chance-Corrected Agreement Coefficients .14.....	
<i>Zheng Xie (School of Engineering University of Central Lancashire Preston), Chaitanya Gadepalli (University Department of Otolaryngology), and Barry M.G. Cheetham (School of Computer Science University of Manchester)</i>	

## Track 08.H.Data and Semantic Mining

- Application of Principle Component Analysis in Resolving Influential Factor Subject to Industrial Motor Failure .21.....  
*Nurfatihah Syalwiah Binti Rosli (Universiti Teknologi Petronas),  
Rosdiazli Bin Ibrahim (Universiti Teknologi Petronas), and Idris  
Ismail (Universiti Teknologi Petronas)*
- Using PCA and K-Means to Predict Likeable Songs from Playlist Information .26.....  
*Caroline Langensiepen (Nottingham Trent University), Adam Cripps, and  
Richard Cant (Nottingham Trent University)*

## Track 10.J.Emergent Technologies

- Optimal Machine Learning Algorithms for Cyber Threat Detection .32.....  
*Hafiz M. Farooq (Saudi Aramco) and Naif M. Otaibi (Saudi Aramco)*

## Track 11.K.Intelligent Systems and Applications

- Using Intelligent Cooperative System for Travel Flow Management in Autonomous Vehicle Networks .38.....  
*Jamal Raiyn (Computer Science Department Al Qasemi Academic College)*
- Binary Biogeography-Based Optimization Applied to Gene Selection for Cancer Classification Using Artificial Neural Network .43.....  
*Dilwar Hussain Mazumder (National Institute of Technology Nagaland)  
and Ramachandran Veilumuthu (Anna University)*

## Track 13.M.Systems Intelligence and Intelligence Systems

- ConfMVM: A Hardware-Assisted Model to Confine Malicious VMs .49.....  
*Zirak Allaf (University of Portsmouth), Mo Adda (University of  
Portsmouth), and Alexander Gegov (University of Portsmouth)*

## Track 16.P.Robotics, Cybernetics, Engineering, Manufacturing and Control

- Software Supporting Parameter Optimization of Finite Element Models .55.....  
*Burkhard Hensel (Technische Universität Dresden) and Klaus Kabitzsch  
(Technische Universität Dresden)*

## Track 17.Q.Methodologies, Tools and Operations Research

- Syntax Recovery for Uniface as a Domain Specific Language .61.....  
*Majd Zohri Yafi (University of Essex) and Arooj Fatima (Anglia Ruskin  
University)*

## Track 18.R.Discrete Event and Real Time Systems

- Scheduling Jobs in Multi-grid Environment .67.....  
*Albana Roci (Stavanger University) and Reggie Davidrajuh (Stavanger University)*
- Handling Global and Local Time and Energy Constraints of Sequence Diagrams .73.....  
*Vinícius Camargo Andrade (Federal Technology University Paraná),  
Letícia Mara Peres (Federal University of Paraná), and Marcos Didonet  
Del Fabro (Federal University of Paraná)*

## Track 19.S.Image, Speech and Signal Processing

- Hu Li Moments for Low Resolution Thermal Face Recognition .79.....  
*Naser Zaeri (Arab Open University)*
- Automated Volume Analysis of Open Pit Mining Productions Based on Time Series Aerial Survey .84.....  
*Daniel Stojcsics (Óbuda University), Zsolt Domozi (Óbuda University),  
and Andras Molnar (Óbuda University)*
- Random Forest Feature Selection for SAR-ATR .90.....  
*Pouya Bolourchi (Final International University), Masoud Moradi  
(Eastern Mediterranean University), Hasan Demirel (Eastern  
Mediterranean University), and Sener Uysal (Eastern Mediterranean  
University)*
- Alzheimer's Disease Detection by Utilizing Key Slice Selection in 3D MRI Images .96.....  
*Masoud Moradi (Eastern Mediterranean University), Hasan Demirel  
(Eastern Mediterranean University), and Pouya Bolourchi (Final  
International University)*

## Track 20.T.Industry, Business, Management, Human Factors and Social Issues

- Quality Culture Management Model of Chinese Manufacturing Enterprises: A Grounded Theory Study .102....  
*Ying Liu (Tsinghua University) and Su Wu (Tsinghua University)*

## Track 21.U.Energy, Power, Transport, Logistics, Harbour, Shipping and Marine Simulation

- Design and Simulation of Solar Grid-Connected Charger for Electric Vehicles .108.....  
*Muhammad Akmal (Abu Dhabi University), Amna Jawad (Abu Dhabi  
University), and Anas Al Tarabsheh (Abu Dhabi University)*

## Track 23.W. Internet Modelling, Semantic Web and Ontologies

- Security Analysis of the Workload Distribution and Resource Pooling Architecture in Cloud Systems .114.....  
*Mubarak Banisakher (Saint Leo University), Derek Mohammed (Saint Leo University), and James Simeon (Saint Leo University)*

## Track 24.X.Mobile/Ad Hoc Wireless Networks, Mobicast, Sensor Placement, Target Tracking

- A New Two Level Cluster-Based Routing Protocol for Vehicular Ad Hoc NETwork (VANET) .121.....  
*Parisa Saraj Hamedani (Shahid Chamran University of Ahvaz) and Arshin Rezaadeh (Shahid Chamran University of Ahvaz)*
- Dynamic Resource Scheduling Algorithm for Public Safety Network .127.....  
*Hyunwoo Kim (Korea Telecom), Junho Jo (Korea Telecom), Chanyong Park (Korea Telecom), Sangkwon Ahn (Korea Telecom), Hosub Chin (Korea Telecom), Pyoungsoo Park (Korea Telecom), and Youngsik Kim (Korea Telecom)*
- Build or Merge: Locational Decisions in Mobile Access Networks .133.....  
*Maurizio Naldi (University of Rome Tor Vergata), Andrea Pacifici (University of Rome Tor Vergata), Alessio Tagliacozzo (University of Rome Tor Vergata), and Gaia Nicosia (Roma Tre University)*
- SDN Architecture for Intelligent Vehicular Sensors Networks .139.....  
*Ousmane Sadio (Ecole Supérieure Polytechnique), Ibrahima Ngom (Ecole Supérieure Polytechnique), and Claude Lishou (Ecole Supérieure Polytechnique)*
- Smart University Utilising the Concept of the Internet of Things (IOT) .145.....  
*Simon Downes (University of Wales Trinity Saint David) and Carlene Campbell (University of Wales Trinity Saint David)*
- Performance Analysis of Denial-of-Sleep Attack-Prone MAC Protocols in Wireless Sensor Networks .151.....  
*Ekereuke Udoh (University of Westminster) and Vladimir Getov (University of Westminster)*

## Track 25.Y.Performance Engineering of Computer & Communication Systems

- Approach to Label Distribution Protocol Signaling Using Multimedia Services for Bandwidth Allocation.157...  
*Oba Zubair Mustapha (University of Bradford), Yim Fun Hu (University of Bradford), Raed A. Abd-Alhameed (University of Bradford), and Halimatu S. Abdullahi (University of Bradford)*
- Bagging Estimation of Availability in Public Cloud Storage .163.....  
*Maurizio Naldi (University of Rome Tor Vergata)*

## Track 26.Z.Circuits, Sensors and Devices

Demagnetization Analysis of Mechanical Manipulation on Permanent Magnets .169.....	
<i>Marcelo Ribeiro (Carinthian Tech Research AG), Leonardo Martins (Carinthian Tech Research AG), and Michael Ortner (Carinthian Tech Research AG)</i>	
Mini-computer PDP-8 ISA Simulator Design and Verification .175.....	
<i>Tarek Elarabi (Penn State Behrend), Ranjith Kumar (Penn State Behrend), and Rajath Mavathur Basavaraj (Penn State Behrend)</i>	
Simulating Optical Behavior of Nano Dimensional InAlAs/InGaAs HEMT for IoT Applications .181.....	
<i>Pritam Sharma (University of Delhi South Campus), Neetika Sharma (University of Delhi South Campus), R. S. Gupta (Maharaja Agrasen Institute of Technology), and Jyotika Jogi (University of Delhi South Campus)</i>	
A Multiple Quantum Well Structure Simulator .186.....	
<i>Becer Zoubir (University of Northampton), Abdeldjalil Bennecer (University of Northampton), and Nouredine Sengouga (University of Biskra)</i>	
<b>Author Index 193.</b> .....	