2016 World Congress on Industrial Control Systems Security (WCICSS 2016)

London, United Kingdom 12 – 14 December 2016



IEEE Catalog Number: ISBN:

CFP16E22-POD 978-1-5090-2544-2

Copyright © 2016, Infonomics Society **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.

CFP16E22-POD IEEE Catalog Number: ISBN (Print-On-Demand): 978-1-5090-2544-2 ISBN (Online): 978-1-908320-63-6

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



Contents Page

| Welcome Message | 3 |
|--|----|
| Contents Page | 4 |
| Executive Committees | 6 |
| Keynote Speakers and Track Speaker | 7 |
| Keynote Speaker 1: Martin Visser | 8 |
| Keynote Speaker 2: Dr Julius Ayodeji Fapohunda | 9 |
| Track Speaker: Professor Charles Kim Title: Cyber-Resilient Industrial Control System with Diversified Architecture and Bus Monitoring (Author: Charles Kim) | 10 |
| PhD and Doctorate Consortium (Organiser: Charles A. Shoniregun) | 17 |
| Sessions | 18 |
| Session 1: Control Theory and Engineering | 19 |
| Machine Learning Algorithms for Process Analytical Technology (Authors: Niall O'Mahony, Trevor Murphy, Krishna Panduru, Daniel Riordan, Joseph Walsh) | 20 |
| Fixed Structure Control of Couple Tank System and Anti-Integral Windup Pid Control Strategy for Actuator Saturation (Authors: Muhammad Zia Ur Rahman, Inam Ul Hassan Shaikh, Ahsan Ali, Nasir Ahmad) | 27 |
| Session 2: Cyber Security | 33 |
| SCADA-SST: A SCADA Security Testbed (Authors: Asem Ghaleb, Sami Zhioua, Ahmad Almulhem) | 34 |
| Towards Distinguishing Between Faults and Cyber-Attacks in the Networked Control System (Authors: Amer Atta Yaseen, Mireille Bayart) | 40 |
| Quaternion Public Key Cryptosystems (Authors: Maheswara Rao Valluri, Shailendra Vikash Narayan) | 48 |
| Session 3: Intelligent Control Theory and Applications | 52 |
| Carbon Displacement Analysis Possibilities When Changing From Fossil Fuel Domestic Heating Systems To Biomass Domestic Heating Systems (Authors: E. O'Connor, B. O'Donnell, J. Walsh) | 53 |
| PLC Access Control: A Security Analysis (Authors: Haroon Wardak, Sami Zhioua, Ahmad Almulhem) | 56 |

Resilience of Logistics Network: Analysis and Design (Author: C.Y. Lam)

62