2018 IEEE International Conference on Service Operations and Logistics, and Informatics (SOLI 2018)

Singapore
31 July – 2 August 2018

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

Technical Programme

Session	S1A Smart Antenna Systems and Circuits
Date/Time	Tuesday, 31 July 2018, 13:20 - 15:20 hrs
Venue	Venus II
Chairs	Mei Yang, *Nanjing University of Posts and Telecommunications, P. R. China* Yu Luo, *National University of Singapore, Singapore*

Ultra-wideband Pulse Radiation Characteristics of the Step Discontinuity in Microstrip Line.....1
Mei Yang, Shunli Li, Xiaoxing Yin and Hongxin Zhao

Wireless Light Delivery for Photodynamic Therapy.....5
John S. Ho

Theoretical Analysis on the Characterization of Imaging Systems using Euclid Distance.....7
Qiuyi Zhang, Shunli Li, Mei Yang, Xiaoxing Yin and Hongxin Zhao

Wideband Differentially-Fed Substrate Integrated Waveguide (SIW) Back Cavity Antenna.....12
Teng Li and Zhi Ning Chen

Millimeter Wave Planar Full-range Switched Beam Grid Array Antenna and its Smart Car Radar Applications.....15
Mei Sun, Xianming Qing, Nasimuddin, Xiaoming Peng and Zhi Ning Chen

A Scanning Angle Range Enhanced Phased Array Antenna using Concave-Convex Lens.....17
Yu Luo and Zhi Ning Chen

Session	S1B Student Paper Contest I
Date/Time	Tuesday, 31 July 2018, 13:20 - 15:20 hrs
Venue	Venus III
Chair	Kam-Weng Tam, *University of Macau, P. R. China*

Video Analytics for Indoor Crowd Estimation.....21
Ryan Tan, Indriyati Atmosukarto and Wee Han Lim

Faster Number Theoretic Transform on Graphics Processors for Ring Learning with Errors based Cryptography.....26
Ahmad Al Badawi, Bharadwaj Veeravalli and Khin Mi Mi Aung

Blockchain-base Structures for a Secure and Operate Network of Semi-autonomous Unmanned Aerial Vehicles.....32
Alexander Kuzmin and Evgeny Znak

High-Isolated Coplanar-Fed Circularly Polarized 2×2 Curl Antenna for MIMO Applications.....38
Yuanyan Su and Zhi Ning Chen

Automated Multi-Plant Scheduling of Ready-Mixed Concrete Trucks.....43
Biman D. Hettiarachchi, H.M.N. Dilum Bandara and Nishal A. Samarasekera

An Advanced Firewall Rule Matching Algorithm.....49
Elvira Febiani, Huaqun Guo and Wang Ling Goh

Session	S2A Communication and Sensing Networks for Smart City
Date/Time	Tuesday, 31 July 2018, 16:00 - 17:40 hrs
Venue	Venus II
Chairs	Francois Chin, *Institute for Infocomm Research, A*STAR, Singapore* Terry Tao Ye, *Southern University of Science and Technology, P. R. China*

Cross-Correlation based Efficient Technique for Vehicle Occupancy Detection using Magnetoresistive Sensors.....55
Tengku Khalaf, Woei Seng How, Neelakantam Venkatarayalu and Khiam Beng Ow

Analysis of Pure Collective Aloha MAC Protocol with Multilevel Powers.....59
David Tung Chong Wong, Qian Chen, Xiaoming Peng and Francois Chin

An Automatic Survey System for Paved and Unpaved Road Classification and Road Anomaly Detection using Smartphone Sensor.....65
Frederico Soares Cabral, Mateus Pinto, Fernao A. L. N. Mouzinho, Hidekazu Fukaia and Satoshi Tamura

G/T Study for Conformal Antenna Array.....71
Yijun Zhou, Xianming Qing, Nasimuddin, Terence Shie Ping See, Sim Chan Kuen and Zeng Yunjia

Satellite Spot Beam and Decollision Algorithm for Pure Collective Aloha MAC Protocol.....74
David Tung Chong Wong, Qian Chen, Xiaoming Peng and Francois Chin

Session	S2B Student Paper Contest II
Date/Time	Tuesday, 31 July 2018, 16:00 - 17:40 hrs
Venue	Venus III
Chair	Justin Dauwels, *Nanyang Technological University, Singapore*

The Study for Refurbishing Process of Packaging Material in E-commerce Logistics.....80
Hsin Chen, Su-Chuan Liu and Teng-Sheng Su

Sustainable value Stream Mapping and Technologies of Industry 4.0 in Manufacturing Process Re-configuration: A Case Study in an Apparel Company.....85
Ngo Anh Phuong and Ing. Thomas Guidat

Optimization of Truck and Driver Scheduling using Simulated Annealing.....91
N.A. Chami.M. Keerthisinghe, H.M.N.D Bandara and N.A. Samarasekera

Ranking of Influential users based on User-Tweet Bipartite Graph.....97
Radia EL Bacha and Thi Thi Zin

UN SDGs Shaping Sustainable Supply Chains : The Case of Apparel Manufacturers in Developing Countries.....102
Jayani Ishara Sudusinghe, R Pradeepa Jayaratne and Amal S Kumarage

Session	S3A RFID Technology and Applications
Date/Time	Wednesday, 1 August 2018, 13:20 - 15:20 hrs
Venue	Venus II
Chairs	Pui Yi Lau, *Laxcen Technology Limited, P. R. China* Hua Zhu, *University of Posts and Telecommunications, P. R. China*

Beam Scanning UHF RFID Reader Antenna Design for Metal Environment Application.....108
Xiuping Li, Hua Zhu, Quanping Li and Weiwei Feng

Design and Fabrication of Embroidered RFID Antennas for Wearable Applications (Invited).....118
Lulu Xu, Yulong Liu, Yi Li, Pui Yi Lau, Haitao Si and Terry Tao Ye

An Inductive Perforated Ground Backed Thin Electrically Large Zero-Phase-Shift Line Loop Antenna for UHF Near-Field RFID Reader 123
Wei E. I. Liu, Zhi Ning Chen, Edna Ng Kai Yin , Yunjia Zeng and Xianming Qing

Wideband Circularly Polarized UHF RFID Reader Antenna.....127
Nasimuddin and Xianming Qing

Session	S3B Smart Scheduling, Planning and Knowledge Management
Date/Time	Wednesday, 1 August 2018, 13:20 - 15:20 hrs
Venue	Venus III
Chairs	Renuga Kanagavelu, *Data Storage Institute, Singapore* Songjie Wei, *Nanjing University of Science and Technology/Silictec Co. Ltd., China*

A Solution for Internet of Things based on Blockchain Technology.....112
Bing Mo, Kuiren Su, Songjie Wei, Cai Liu and Jianping Guo

TOSS: Traffic-aware Distributed Object-based Storage using Software-defined Networks.....131
Renuga Kanagavelu, Zhu Yongqing and Khin Mi Mi Aung

Inter-organizational Knowledge Flow and R&D portfolio of Patent Citation Network - The Case of the Socket Wrench Industry.....137
Hwa-Nan Chang, Su-Chuan Liu, Charlie Zhen-Wei Chiang, Kei-Kei Lai and Chin-Lung Tsai

NFC-based Smart Notification System for Hospital Discharge Process and Bed Management.....143
Wei Jie Phua, Malcolm Yoke Hean Low, Neelakantam Venkatarayalu and Jared Koh

Real-time Electric Vehicle Load Forecast to Meet Timely Energy Dispatch.....148
Thomas Ho Chee Tat and Pasi Fränti

A Flexible Printed Sensor Tag for Cold-Chain Applications.....154
Pui Yi Lau, Terry Tao Ye and Haitao Si

Session	S4A Intelligent Transportation Systems
Date/Time	Wednesday, 1 August 2018, 16:00 - 17:20 hrs
Venue	Venus II
Chairs	Ta-Yin Hu, *National Cheng Kung University, Taiwan* Indriyati Atmosukarto, *Singapore Institute of Technology, Singapore*

Automatic Conversion of Road Networks from OpenDRIVE to Lanelets.....157
Matthias Althoff, Stefan Urban and Markus Koschi

An ε-Constraint Multi-objective Algorithm for Transit Route Design with Subsidy Consideration.....163
Li-Wen Chen, Ta-Yin Hu, Le-Chi Shih and Tsai-Yun Liao

Integrated Systems Analysis Software for Interdependency Analysis of Railway Systems.....169
Muhd Sharil Reiza Ismail, Andrew Keong Ng, Sin Hin Oh and Chuan Heng Tan

A Routing Model for Emergency Vehicles using the Real Time Traffic Data.....175
Nikki Rathore, Pramod Kumar Jain and Manoranjan Parida

Session	S4B Supply Chain Management
Date/Time	Wednesday, 1 August 2018, 16:00 - 18:00 hrs
Venue	Venus III
Chairs	Frank Y. Chen, *City University of Hong Kong, P. R. China* Su-Chuan Liu, *Chaoyang University of Technology, Taiwan*

Heuristics and Bounds for an Inventory System with an all-or-nothing Yield Pattern and Lead-times.....180
Frank Y. Chen, Fei Hu, Candace Arai Yano and Quan Yuan

Vessel Spare Parts Distribution Center Location Decision Model for Ship Maintenance Supply Chain.....185
H. Oalumali Sirisena and Nishal A Samarasekera

Analysis of Key Dimension and Sub-dimension for Supply Chian of Industry to Fourth Industry Performance Measurement.....191
Banthita Methavitakul and Salinee Santiteerakul

Effect of Governance and Policy on the Management of a Sustainable Agri-Supply Supply Network: An Example from the Sri Lankan Tea Industry.....196
Pradeepa Jayaratne

Economic Impacts of Applying Green Supply Chain Management Practices in Organizations in Sri Lanka.....202
G.A.D.T.Lakmali

Session	S5A Cyber Security and Data Privacy
Date/Time	Thursday, 2 August 2018, 09:00 - 10:20 hrs
Venue	Venus II
Chairs	Luying Zhou, *Institute for Infocomm Research, Singapore* Huaqun Guo, *Institute for Infocomm Research, A*STAR, Singapore*

Anomaly Detection Methods for IIoT Networks.....214
Luying Zhou and Huaqun Guo

Predicting Vulnerability Discovery Rate using Past Versions of a Software.....220
Fok Kar Wai, Lim Wee Yong, Dinil Mon Divakaran and Vrizlynn L. L. Thing

Method for Enforcing Access Control Policies on NCMS.....226
Zhigang Zhao and Huaqun Guo

Session	S5B Sustainable Logistics
Date/Time	Thursday, 2 August 2018, 09:00 - 10:40 hrs
Venue	Venus III
Chairs	Yaqiong Lv, *Wuhan University of Technology, P. R. China* Wolfgang Echelmeyer, *Hochschule Reutlingen, Holland*

An Overview of Warehousing Applications based on Cable Robot Technology in Logistics.....232
Cyril Alias, Eduardo Garduño Correa Magallanes, Ilia Nikolaev and Bernd Noche

IoT based Omni-Channel Logistics Service in Industry 4.0.....240
Yaqiong LV, Lei TU, C.K.M Lee and Xin Tang

Fleet-sizing of Multi-load Autonomous Robots for Material Supply.....244
Augusto Urru, Marco Bonini and Wolfgang Echelmeyer

Automated Guided Vehicle: the Direction of Intelligent Logistics.....250
Shihua Li, Jing Yan and Lingxi Li

Ensuring Performance Measurement Integrity in Logistics using Blockchain.....256
Kristjan Kuhi, Kati Kaare and Ott Koppel

Session	S6A Big Data Analytics for Smart City
Date/Time	Thursday, 2 August 2018, 11:20 - 12:40 hrs
Venue	Venus II
Chairs	Ho Song Guang, *Nanyang Technological University, Singapore* Rahul Singh, *Continental Automotive Singapore Pte Ltd, Singapore*

Anonymization and Analysis of Horizontally and Vertically Divided User Profile Databases with Multiple Sensitive Attributes.....262
Yuki Ina, Yuichi Sei, Yasuyuki Tahara and Akihiko Ohsuga

Multi-atomic Annealing Heuristic for the Dial-a-ride Problem.....268
Song Guang Ho, Ramesh Ramasamy Pandi, Sarat Chandra Nagavarapu and Justin Dauwels

Unstructured Big Data Analytics for Air Cargo Logistics Management.....274
Pei-Ju Wu and Chun-Kai Yang

A Deep Learning-Based Approach for Road Pothole Detection in Timor Leste.....279
Vosco Pereira, Satoshi Tamura, Satoru Hayamizu and Hidekazu Fukai

Session	S6B Service Design, Engineering, Operations and Innovations
Date/Time	Thursday, 2 August 2018, 11:20 - 12:40 hrs
Venue	Venus III
Chairs	Neelakantam Venkatarayalu, *Singapore Institute of Technology, Singapore* Nasimuddin, *Institute for Infocomm Research, A*STAR, Singapore*

A Blockchain Aided Metric for Predictive Delivery Performance in Supply Chain Management.....285
Mark H. Meng and Yaou Qian

Servitization as a Key Driver for Digital Transformation of Manufacturing Companies' Spare Parts Service.....291
Uwe Dombrowski and Simon Fochler

Real-time Pallet Localization with 3D Camera Technology for Forklifts in Logistic Environments.....297
Benjamin Molter and Johannes Fottner

Enhancement of the Demand Planning Accuracy in the Retail Industry in Sri Lanka.....303
P. T Amararathne and Kaushalya Herath

Additional Paper

Design and Optimization of Single-Stage Multi-Product Supply Chain Network for Product Distribution.....208
Razaullah, Asnaf Aziz and Abdul Salam Khan