International Conference on ICT, Society, and Human Beings 2016, International Conference on Web-Based Communities and Social Media 2016, International Conference on Big Data Analytics, Data Mining and Computational Intelligence 2016 and Theory and Practice in Modern Computing 2016

Held at the Multi-Conference on Computer Science and Information Systems (MCCSIS 2016)

Madeira, Portugal 1 – 4 July 2016

Editors:

Piet Kommers Ajith P. Abraham Jorg Roth Piet Kommers Pedro Isaias Luis Rodrigues

ISBN: 978-1-5108-6526-6

Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2016) by International Association for Development of the Information Society (IADIS) All rights reserved.

Printed by Curran Associates, Inc. (2018)

For permission requests, please contact International Association for Development of the Information Society (IADIS) at the address below.

International Association for Development of the Information Society (IADIS) Rua Sao Sebastiao Da Pedreira No. 100, 30, 1050-209 Lisbon, Portugal

Phone: 351 21 3151373 Fax: 351 21 3151244

secretariat@iadis.org

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 Email: curran@proceedings.com Web: www.proceedings.com

TABLE OF CONTENTS

FOREWORD	ix
PROGRAM COMMITTEE	XV
KEYNOTE LECTURES	xxiii

FULL PAPERS

ICT, SOCIETY, AND HUMAN BEINGS	
STUDYING THE VIRTUAL USER COMMUNITY IN AN INTERNATIONAL INNOVATION PROJECT: THE ATTITUDES AND THE CULTURAL BACKGROUND Borka Jerman Blažič-Džonova and Andrej Jerman Blažič	3
STUDY OF THE VIABILITY OF USING TWITTER SENTIMENT ANALYSIS IN THE HOTEL INDUSTRY Elisa Mena-Maldonado, Richard Sinnott and Maritzol Tenemaza	13
A THEORETICAL FRAMEWORK TO EXPLAIN THE EFFECTS OF INTERNET-MEDIATED COMMUNICATION ON GERMAN AND CHINESE TEMPORAL UNDERSTANDING <i>Maria Faust</i>	20
THE ROLE OF ARCHITECTURAL DESIGN IN VIRTUAL WORLDS FOR EDUCATIONAL PURPOSES Noha Saleeb, Georgios Dafoulas and Martin Loomes	32
UNLOCKING THE POTENTIAL OF INFORMATION AND COMMUNICATION TECHNOLOGY FOR BUSINESS SUSTAINABILITY BY SMALL, MICRO AND MEDIUM ENTERPRISES IN VHEMBE DISTRICT, SOUTH AFRICA Francis Mungofa Manzira and Willard Munyoka	41
PLAYFUL E-PARTICIPATION WITH MINECRAFT AS DEVELOPMENT TOOL FOR URBAN REDESIGN: A CASE STUDY Artan Rexhepi, Sonja Filiposka and Vladimir Trajkovik	49
DIGITAL KNOWLEDGE ECOSYSTEMS: EMPOWERING USERS THROUGH CONTEXT SPECIFIC ACTIONABLE INFORMATION Athula Ginige	57
AFTER-SALES AND CRM: THEIR ROLE AS A DIFFERENTIATION STRATEGY FOR CLIENTS Carlos Santos and Pedro Isaias	66
THE USE OF TWITTER FOR GOVERNMENT AGENCIES IN INDONESIA Nurhalimah Harahap and Indra Budi	73
INTEGRATION OF E-SERVICE QUALITY, CUSTOMER SATISFACTION AND TECHNOLOGY ACCEPTANCE André van Friderici, Pascal Ravesteyn and Benny M. E. De Waal	81

STEADYSERV BEER: IOT-ENABLED PRODUCT MONITORING USING RFID Rebecca Angeles	89
INTERSECTION-BASED ROUTING ON TOP OF A VIRTUALIZATION LAYER TO SUPPORT VEHICULAR CLOUD APPLICATIONS IN A SMART CITY José Víctor Saiáns-Vázquez, Martín López-Nores, Manuel Ramos-Cabrer, Jack Fernando Bravo-Torres and Esteban Fernando Ordóñez-Morales	97
WEB BASED COMMUNITIES AND SOCIAL MEDIA	
ASSESSING COMMUNALITY IN WEB-BASED COMMUNITIES. THE CASE OF SPAGHETTI OPEN DATA Federico Cabitza, Angela Locoro and Andrea Maurino	105
A TWO-PHASE STRATEGY FOR DETECTING COMMUNITIES Kamal Hassan Taha	113
WSN BASED SENSING MODEL FOR SMART CROWD MOVEMENT WITH IDENTIFICATION: A CONCEPTUAL MODEL Naeem A. Nawaz, Ahmad Waqas, Zulkefli Muhammed Yusof and Asadullah Shah	121
DESIGN OF AN ONTOLOGY FOR THE USE OF SOCIAL MEDIA IN EMERGENCY MANAGEMENT Matthias Moi and Nikolai Rodehutskors	129
IMPACT OF SOCIAL COMPUTING ON BUSINESS OUTCOMES Marie D. Fernando, Athula Ginige and Ana Hol	137
BIG DATA ANALYTICS, DATA MINING AND COMPUTATIONAL INTELLIGENCE	
PROFIT-BASED LOGISTIC REGRESSION TRAINED BY MIGRATING BIRDS OPTIMIZATION: A CASE STUDY IN CREDIT CARD FRAUD DETECTION Azamat Kibekbaev and Ekrem Duman	148
TWITTER TEMPORAL EVOLUTION ANALYSIS: COMPARING EVENT AND TOPIC DRIVEN RETWEET GRAPHS Giambattista Amati, Simone Angelini, Francesca Capri, Giorgio Gambosi, Gianluca Rossi and Paola Vocca	155
THE ROLE OF DATA ASSETS IN THE ORGANIZATIONAL SUCCESS Stanislav Mamonov and Tamilla Mavlanova	163
BIG DATA ANALYTICS IN THE PUBLIC SECTOR: A CASE STUDY OF NEET ANALYSIS FOR THE LONDON BOROUGHS Daqing Chen, Babatunde Asaolu and Chao Qin	171
FACTORING THE HABITS: COMPARING METHODS FOR DISCOVERING BEHAVIOR PATTERNS FROM LARGE SCALE ACTIVITY DATASETS Onur Yürüten and Pearl Pu	179
PREDICTING MORTGAGE DEFAULT: LESSONS FROM DATA MINING FANNIE MAE MORTGAGE PORTFOLIO Stanislav Mamonov and Raquel Benbunan-Fich	187
THEORY AND PRACTICE IN MODERN COMPUTING	
MUTUAL AUTHENTICATION PROTOCOL FOR SECURE NFC BASED MOBILE HEALTHCARD Divyashikha Sethia, Daya Gupta, Huzur Saran, Rishabh Agrawal and Amogh Gaur	195

IBGP SOLUTION BY COMBINING ROUTE REFLECTION AND SHARED TREE BASED MULTICAST Toshihiko Kato, Yao Koffi Hubert Wilfried, Celimuge Wu and Satoshi Ohzahata	203
AN ADAPTIVE HYBRID GENETIC ALGORITHM FOR PAVEMENT MANAGEMENT João Santos, Adelino Ferreira and Gerardo Flintsch	211
SHORT PAPERS	
ICT, SOCIETY, AND HUMAN BEINGS	
THE INFLUENCE OF THE KAZAKH LANGUAGE SEMANTIC PECULIARITIES ON COMPUTER SIGN LANGUAGE Saule Kudubayeva, Dmitriy Ryumin and Marat Kalghanov	221
OUR FUTURE – WITH THE GOOD, THE BAD OR THE UGLY ESERVICES? Maija Korhonen	227
WEB BASED COMMUNITIES AND SOCIAL MEDIA	
FACEBOOK AND WHATSAPP AT SCHOOL, PRESENT SITUATION AND PROSPECTS IN ITALY Marco Lazzari, Letizia Caso and Alessandra De Fiori	233
BIG DATA ANALYTICS, DATA MINING AND COMPUTATIONAL INTELLIGENCE	

BRINGING HEALTHCARE ANALYTICS TO WHERE BIG DATA RESIDES USING A DISTRIBUTED QUERY SYSTEM Shawn Murphy, Alyssa Goodson, Michael Mendis, Marykate Murphy, Lori Phillips, Yanbing Wang and Christopher Herrick	237
TECHNICAL FUNCTION DISCOVERY IN PATENT DATABASES FOR GENERATING INNOVATIVE SOLUTIONS Dmitriy M. Korobkin, Sergey A. Fomenkov, Sergey G. Kolesnikov and Alexander B. Golovanchikov	241
THEORY AND PRACTICE IN MODERN COMPUTING	
DESIGN OF A SMART BUILDING THERMAL COMFORT DEVICE Lúcia Satiko Nomiso, Eduardo Hideki Tanaka and Daniel Augusto Guerra da Costa	246
RESPONSE TO SECURITY THREATS: APPRAISAL OF PROTECTION AND AVOIDANCE ACTIONS Noushin Ashrafi, Jean-Pierre Kuilboer and One-Ki (Daniel) Lee	251
APPLYING EQUIVALENCE ALGORITHMS IN SOLVING PATTERN MATCHING PROBLEMS. CASE STUDY FOR EXPERT SYSTEM DESIGN	255

Alina Andreica

REFLECTION PAPER

ICT, SOCIETY, AND HUMAN BEINGS

ICT AND JAPANESE PHILOSOPHY: GAMIFICATION FOR SKILLED ANIMALS <i>Per Fors</i>	263
ATELIER – ASSISTIVE TECHNOLOGIES FOR LEARNING, INTEGRATION AND REHABILITATION Anabela Gomes, César Páris, Jorge Barbosa, Álvaro Santos, Nuno Martins and Ana Rita Teixeira	267
ON HOW ICT CAN SUPPORT ORGANIZATIONAL CREATIVITY Maria Mach-Król	271

POSTERS

ICT, SOCIETY, AND HUMAN BEINGS

AUGMENTED REALITY IN LIMITED ENVIRONMENT, ANALYSIS OF USABILITY Maritzol Tenemaza, Elisa Mena-Maldonado, Fernando Ledesma, Mauricio Llumiquinga and Sergio Luján-Mora	277
EXPLORING THE USER – IT PROFESSIONAL RELATIONSHIP Matthew Hinton	280
ACCURATE INDOOR POSITIONING UTILIZING INTERPERSONAL RELATIONSHIP Hiroki Saito and Yuya Ueda	283
WEB BASED COMMUNITIES AND SOCIAL MEDIA	
VISUAL TREND ANALYSIS METHOD FOR ONTOLOGY BASED OPINION MINING ON MOVIE REVIEWS Seongmin Mun, Ginam Kim, Gyeongcheol Choi and Kyungwon Lee	287
THEORY AND PRACTICE IN MODERN COMPUTING	
THE INTERNET OF THINGS ARCHITECTURE AND IMPEDED SECURITY Jean-Pierre Kuilboer and Noushin Ashrafi	291

AUTHOR INDEX