

# **20th International Conference on WWW/Internet and 18th International Conference Applied Computing 2021 (ICWI AC 2021)**

Online  
13-15 October 2021

## **Editors:**

**Pedro Isaías  
Hans Weghorn**

ISBN: 978-1-7138-3938-5

**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© (2021) by International Association for Development of the Information Society (IADIS)  
All rights reserved.

Printed with permission by Curran Associates, Inc. (2022)

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

IMPACT OF PROMOTIONAL SOCIAL MEDIA CONTENT ON CLICK-THROUGH RATE – EVIDENCE FROM A FMCG COMPANY .....	3
<i>Maria Madlberger, Jiri Jizdny</i>	
USING NEURAL MACHINE TRANSLATION FOR DETECTING AND CORRECTING GRAMMATICAL ERRORS .....	11
<i>Dongqiang Yang, Xiaodong Sun, Pikun Wang</i>	
TRANSPARENCY IN SPANISH TOWN COUNCIL WEBSITES: A STUDY OF MUNICIPALITIES WITH BETWEEN 5001 AND 10,000 INHABITANTS.....	19
<i>Antonio Munoz-Canavate, Melisa Perez Cebadero, Maria Jose Tena Mateos</i>	
FINDING SYNONYMS IN A SYNTACTICALLY CONSTRAINED VECTOR SPACE MODEL .....	26
<i>Dongqiang Yang, Xiaodong Sun, Pikun Wang</i>	
BUILDING A SEARCH-BASED ARCHITECTURE TO ENHANCE PRODUCT CERTIFICATE VERIFICATION AND REDUCING COUNTERFEIT .....	34
<i>Eduard Daoud, Martin Gaedke</i>	
SAASPORT MODEL: EXPLORING PROTOCOL PORTABILITY, RESOURCE ELASTICITY AND MICROSERVICE ARCHITECTURE IN THE EFFICIENT EXECUTION OF IOT APPLICATIONS.....	43
<i>Maria Gisele Flores Da Silveira, Wagner Da Silva Silveira, Rodrigo Da Rosa Righi, Cristiano Andre Da Costa, Dalvan Griebler</i>	
IMPROVING KNOWLEDGE MANAGEMENT USING WIKI TOOL THROUGH EXPERIMENTAL STUDIES .....	54
<i>Bruno A. Bonifacio, Raquel Cunha, Franciney Lima, Luis H. P. Albuquerque, Marcelo S. Ayres, Fernanda Souza, Ana M. Moreno, Erika S. Muniz</i>	
THAI IMMIGRANTS’ PERCEPTIONS AND ATTITUDES TOWARDS SOCIAL MEDIA USE IN CHINESE LEARNING IN TAIWAN .....	61
<i>Nalatpa Hunsapun, Chao-Chen Chen</i>	
GRAPH BASED TEMPORAL AGGREGATION FOR VIDEO RETRIEVAL .....	69
<i>Aprameya Bharadwaj, Arvind Srinivasan, Aveek Saha, Subramanyam Natarajan</i>	
DEVELOPMENT OF A FOCUSED WEB PAGE CRAWLER BASED ON GENRE AND CONTENT .....	77
<i>Marcelo Trajano Alves Junior, Marcos Felipe Pontes Rezende, Guilherme Tavares De Assis</i>	
A SYSTEMATIC REVIEW ON THE IMPLEMENTATION OF BUSINESS INTELLIGENCE AT FEDERAL UNIVERSITIES .....	85
<i>Thiago Rizzi Santos, Marcos Wagner S. Ribeiro, Weuler Borges Santos, Lucas Rodrigues Costa, Carlos Gabriel S. Stedile</i>	
A DATA-DRIVEN STUDY OF CITIZEN SCIENCE DATA QUALITY ASSESSMENT PROFILE.....	93
<i>Jailson N. Leocadio, Antonio M. Saraiva</i>	
EVALUATING YONA LANGUAGE.....	101
<i>Adam Kovari, Alexander Meduna, Zbynek Krivka</i>	

PARALLEL BACKTRACKING FOR THE STUDY OF THE HYDROPHOBICPOLAR MODEL .....	109
<i>Ioan Sima, Daniela-Maria Cristea</i>	
FEASIBILITY STUDY AND EMPIRICAL ANALYSIS OF A LOW-COST FINGERPRINT RECOGNITION FOR IMMUNIZATION TRACING .....	117
<i>Esther Mukoya, Richard Rimiru, Michael Kimwele</i>	
IMPROVING THE PERFORMANCE OF BIGBLUEBUTTON FOR TEACHING ONLINE COURSES .....	126
<i>Christian Uhl, Bernd Freisleben</i>	
SELECTIVE PRIVACY IN IOT SMART-FARMS FOR BATTERY-POWERED DEVICE LONGEVITY .....	137
<i>Steph Rudd, Hamish Cunningham</i>	
EXPLORING SQL INJECTION VULNERABILITIES USING ARTIFICIAL BEE COLONY .....	147
<i>Kevin Baptista, Anabela Bernardino, Eugenia Bernardino</i>	
ESTIMATING CONTAMINATION RISK USING ARTIFICIAL INTELLIGENCE MODELS. A CASE OF THE PATIÑO AQUIFER, PARAGUAY .....	155
<i>Eliane H. Fernandez, Liz Baez, Miguel Garcia-Torres, Juan Pablo Nogues, Cynthia Villalba</i>	
AN AUTOMATED PARALLEL COMPATIBILITY TESTING FRAMEWORK FOR WEB- BASED SYSTEMS .....	163
<i>Yeisson Chicas, Stephane Maag</i>	
PERSONAL GREENHOUSE MONITORING WITH THE AID OF THE INTERNET OF THINGS ACROSS CONTINENTS .....	175
<i>Richard A. Teunen, Henri E. Van Rensburg</i>	
PRESERVING INDIGENOUS KNOWLEDGE THROUGH E-LEARNING: A CONCEPTUAL THEORETICAL MODEL .....	184
<i>Katazo N. Amunkete, Corne J. Van Staden, Marthie A. Schoeman</i>	
ASSESSING THE INCONSISTENCY IN ONLINE NEWS .....	195
<i>Honour Chika Nwagwu, Guy Pascal Kibuh, Hyacinth Agozie Eneh, Stanley Abhadiomhen</i>	
DIALOGBOOK2: AN IMPROVEMENT OF E-PORTFOLIO SYSTEM FOR INTERNATIONAL COMMUNICATION LEARNING .....	201
<i>Jun Ito, Shigenori Wakabayashi, Junji Sakurai</i>	
COST REDUCTION ESTIMATION METHOD OF A SOFTWARE VULNERABILITY MANAGEMENT TOOL.....	205
<i>Satoshi Yashiro, Pranay Verma, Norihisa Komoda, Takenao Ohkawa</i>	
OPTIMISING THE PERFORMANCE OF TELECOMMUNICATION BULK EXPORT USING A MACHINE LEARNING CLOSED LOOP SYSTEM BASED ON HISTORIC PERFORMANCE .....	211
<i>Barbara Conway, John Francis, Enda Fallon</i>	
APPLICATION DEVELOPMENT FOR MUSIC RECOMMENDATION SYSTEM USING DEEP DETERMINISTIC POLICY GRADIENT.....	216
<i>Rathin S. Kamble, Sujala D. Shetty, Aljo Jose</i>	
IN OTHER WORDS: A NAIVE APPROACH TO TEXT SPINNING.....	221
<i>Frederik S. Baumer, Joschka Kersting, Sergej Denisov, Michaela Geierhos</i>	

EVALUATION OF NAMED ENTITY RECOGNITION FOR THE GERMAN E-COMMERCE DOMAIN .....	226
<i>Sergej Denisov, Frederik S. Baumer</i>	
GENOMIC DATA ANALYSIS: CONCEPTUAL FRAMEWORK FOR THE APPLICATION OF ARTIFICIAL INTELLIGENCE IN PERSONALIZED TREATMENT OF ONCOLOGY PATIENTS .....	233
<i>Renata Kelemenic-Drazin, Ljerka Luic</i>	
VALIDITY CHECKING OF PROVENANCE DATA FROM SOFTWARE DEVELOPMENT PROCESSES .....	237
<i>Marcela Gomes Pinheiro, Gabriella Castro Barbosa Costa</i>	
TOWARDS PROGRAMMING WITH FIRST-CLASS PATTERNS .....	241
<i>Lutz Hamel, Timothy Colaneri, Ariel Finkle, Oliver McLaughlin</i>	
PARTIAL RESULTS OF A REVIEW OF SURVEY METHODS MEASURING E-PRIVACY CONCERNS.....	247
<i>Anders Matre, Magnus Englund, Vanessa Ayres-Pereira</i>	

**Author Index**