

2020 X Brazilian Symposium on Computing Systems Engineering (SBESC 2020)

**Florianopolis, Brazil
23 – 27 November 2020**



**IEEE Catalog Number: CFP2097R-POD
ISBN: 978-1-7281-8287-2**

**Copyright © 2020 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:	CFP2097R-POD
ISBN (Print-On-Demand):	978-1-7281-8287-2
ISBN (Online):	978-1-7281-8286-5
ISSN:	2324-7886

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

TABLE OF CONTENTS

A RELIABLE AND LOW-LATENCY GRAPH-ROUTING APPROACH FOR IWSN USING Q-ROUTING.....	1
<i>Gustavo Künzel, Gustavo Cainelli, Ivan Müller, Carlos Eduardo Pereira, Leandro Soares Indrusiak</i>	
MULTI-CONTEXTUAL AND MULTI-ASPECT ANALYSIS FOR ROAD SURFACE TYPE CLASSIFICATION THROUGH INERTIAL SENSORS AND DEEP LEARNING.....	9
<i>Jeferson Menegazzo, Aldo Von Wangenheim</i>	
ENERGYBUDGETS: INTEGRATING PHYSICAL ENERGY MEASUREMENT DEVICES INTO SYSTEMS SOFTWARE.....	17
<i>Luis Gerhorst, Stefan Reif, Benedict Herzog, Timo Hönig</i>	
A COMPREHENSIVE PERFORMANCE EVALUATION TO GPGPU APPLICATIONS UNDER STT- RAM BASED HYBRID CACHE ARCHITECTURES.....	25
<i>Jingjing Fu, Yu Liu</i>	
A FAULT INJECTION FRAMEWORK FOR REAL-TIME MULTICORE EMBEDDED SYSTEMS.....	33
<i>Leonardo Passig Horstmann, Antônio Augusto Fröhlich</i>	
DATA CONFIDENCE APPLIED TO WIND TURBINE POWER CURVES.....	41
<i>Roberto Milton Scheffel, José Luís Conradi Hoffmann, Leonardo Passig Horstmann, Gustavo Medeiros De Araujo, Antônio Augusto Fröhlich, Tiago Kaoru Matsuo, Vitor Pohlenz, Marcos Hisashi Napoli Nishioka</i>	
METHODS FOR COMPARING EXECUTION TIMES OF DIFFERENT INPUT DATA WHEN REAL-TIME TASKS RUN ON COMPLEX COMPUTER ARCHITECTURES.....	49
<i>Karila Palma Silva, Luis Fernando Arcaro, Rômulo Silva De Oliveira</i>	
A DIGITALIZATION CONCEPT FOR THE INTERACTION BETWEEN USERS AND CAR-AS-A-SERVICE.....	57
<i>Charles Steinmetz, Greyce N. Schroeder, Achim Rettberg, Carlos Eduardo Pereira</i>	
A STRATEGY FOR DEVELOPING A PAIR OF DIVERSE DEEP LEARNING CLASSIFIERS FOR USE IN A 2-CLASSIFIER SYSTEM.....	64
<i>Himanshu Agarwal, Rafal Dorociak, Achim Rettberg</i>	
EVALUATING THE CCSDS 123 COMPRESSOR RUNNING ON RISC-V AND ARM ARCHITECTURES.....	72
<i>Carolina Imianosky, Paulo R. O. Valim, Cesar A. Zeferino, Felipe Viel</i>	
EVALUATION OF INTERSECTION CONTROL STRATEGIES SUPPORTED BY COMMUNICATION INFRASTRUCTURE IN PRESENCE OF SELFISH VEHICLES.....	79
<i>Andre Brizzi, Leonardo De A. Schmidt, Marcia Pasin, Assia Belbachir</i>	
A PREDICTIVE ACTUATOR FOR IOT-BASED AIR CONDITIONER UNIT.....	87
<i>Henrique Tome Damasio, Marcio Seiji Oyamada</i>	
ONTOLOGY AND RULES FOR CHARACTERIZATION OF SENSORS AND ACTUATORS DEVICES IN AADL MODELS.....	95
<i>Diego Camara Sales, Cristian Koliver, Leandro Buss Becker</i>	

A ROUTING BASED GENETIC ALGORITHM FOR TASK MAPPING ON MPSOC	103
<i>Hiago Mayk G. De A. Rocha, Antonio Carlos S. Beck, Sílvia M. D. M. Maia, Márcio E. Kreutz, Monica M. Pereira</i>	
ON THE DESIGN AND IMPLEMENTATION OF REAL-TIME RESOURCE ACCESS PROTOCOLS.....	111
<i>Lucas Matheus Dos Santos, Giovanni Gracioli, Tomasz Kloda, Marco Caccamo</i>	
PERFORMANCE EVALUATION OF INDUSTRIAL INTERNET OF THINGS SERVICES IN DEVICES OF CLOUD-FOG-DEW-THINGS COMPUTING	119
<i>Charles Tim Batista Garrocho, Carlos F. M. Da Cunha Cavalcanti, Ricardo Augusto Rabelo Oliveira</i>	
BLOCKCHAIN-BASED MACHINE-TO-MACHINE COMMUNICATION IN THE INDUSTRY 4.0 APPLIED AT THE INDUSTRIAL MINING ENVIRONMENT	127
<i>Charles Tim Batista Garrocho, Emerson Klippel, Anderson Vieira Machado, Célio Márcio Soares Ferreira, Carlos Frederico Marcelo Da Cunha Cavalcanti, Ricardo Augusto Rabelo Oliveira</i>	
MAPPING WIRED LINKS IN A HYBRID WIRED-WIRELESS NETWORK-ON-CHIP	135
<i>Samuel Da S. Oliveira, Guilherme Eglé P. Lima, Monica M. Pereira, Márcio E. Kreutz, Bruno M. Carvalho</i>	
A MANYCORE VISION PROCESSOR ARCHITECTURE FOR EMBEDDED APPLICATIONS	143
<i>Bruno Almeida Da Silva, Arthur Mendes Lima, Jones Yudi</i>	
IOT SENSORS INTEGRATED WITH THE DISTRIBUTED PROTOCOL IOTA/TANGLE: BOSCH XDK110 USE CASE	151
<i>Wellington Fernandes Silvano, Daniel De Michele, Daniel Trauth, Roderval Marcelino</i>	
MAPPING COMPUTATIONS IN HETEROGENEOUS MULTICORE SYSTEMS WITH STATISTICAL REGRESSION ON INPUTS.....	159
<i>Junio C. R. Da Silva, Lorena Leão, Vinicius Petrucci, Abdoulaye Gamatié, Fernando M. Q. Pereira</i>	
USING DEEP-LEARNING TO AUTOMATICALLY DETECT EPILEPTIC SEIZURE IN A WEARABLE DEVICE	167
<i>Levi Moreira De Albuquerque, Elias Teodoro Da Silva</i>	
UAVS AS DATA COLLECTORS IN THE WSNS: INVESTIGATING THE EFFECTS OF BACK-AND-FORTH AND SPIRAL COVERAGE PATHS IN THE NETWORK LIFETIME	175
<i>Jean Roberto Antunes, Lisane Brisolara, Paulo R. Ferreira</i>	
EVALUATION OF SCHEDULING ALGORITHMS FOR EMBEDDED FREERTOS-BASED SYSTEMS.....	183
<i>Gessé Oliveira, George Lima</i>	
THE THINGS OF THE INTERNET OF MUSICAL THINGS: DEFINING THE DIFFICULTIES TO STANDARDIZE THE BEHAVIOR OF THESE DEVICES	191
<i>Rômulo Vieira, Luan Gonçalves, Flávio Schiavoni</i>	
SIMPLE AREA COVERAGE BY A DYNAMIC SET OF UNMANNED AERIAL VEHICLES	198
<i>Graziemo Pellegrino, Gustavo Mota, Flávio Assis, Sérgio Gorender, Alirio Sá</i>	
A STATISTICAL APPROACH TO PREDICT OPERATING SYSTEM FAILURES BASED ON MULTIPLE FAILURES ASSOCIATION.....	206
<i>Caio A. R. Dos Santos, Rivalino Matias, Kishor S. Trivedi</i>	

BRINGING ENERGY INFORMATION TO THE INSTRUCTION SET 214
Bruno Bonotto, Lucas Wanner, Ricardo Pannain, Rodolfo Azevedo

Author Index