

2016 IEEE Latin American Conference on Computational Intelligence (LA-CCI 2016)

**Cartagena, Colombia
2-4 November 2016**



**IEEE Catalog Number: CFP16A09-POD
ISBN: 978-1-5090-5106-9**

**Copyright © 2016 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:	CFP16A09-POD
ISBN (Print-On-Demand):	978-1-5090-5106-9
ISBN (Online):	978-1-5090-5105-2

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

FUZZY QCA APPLICABILITY FOR A REFINED SELECTION OF DRIVERS AFFECTING IS ADOPTION: THE CASE FOR ECUADOR	1
<i>Nayeth I. Solorzano Alcivar ; Louis Sanzogni ; Luke Houghton</i>	
ENHANCED NEURO-GENETIC MODEL AIMED AT OPTIMIZING THE SENSITIVITY OF GMI SENSORS, SUBJECTED TO LINEARITY AND SPAN CONSTRAINTS	7
<i>Lizeth S. B. Cabrera ; Eduardo C. Silva</i>	
A HYBRID METHOD USING EXPONENTIAL SMOOTHING AND GRADIENT BOOSTING FOR ELECTRICAL SHORT-TERM LOAD FORECASTING	13
<i>Victor Mayrink ; Henrique S. Hippert</i>	
WIENER SYSTEM IDENTIFICATION USING BEST LINEAR APPROXIMATION WITHIN THE LS-SVM FRAMEWORK	19
<i>Ricardo Castro-Garcia ; Johan A. K. Suykens</i>	
UNORGANIZED MACHINES TO PREDICT HOSPITAL ADMISSIONS FOR RESPIRATORY DISEASES	25
<i>Yara De Souza Tadano ; Hugo Valadares Siqueira ; Thiago Antonini Alves</i>	
UNORGANIZED NEURAL NETWORKS APPLIED TO STREAMFLOW FORECASTING OF PASSO REAL HYDROELECTRIC PLANT	31
<i>Hugo Valadares Siqueira ; Levy Boccato ; Ivette Luna ; Christiano Lyra</i>	
DESIGNING THE OPTICAL NETWORK OF HAITI USING A MULTI-OBJECTIVE EVOLUTIONARY APPROACH	37
<i>Vital Duplex ; Danilo R. B. Araújo ; Carmelo J. A. Bastos-Filho</i>	
NOISY CHAOTIC TIME SERIES FORECAST APPROXIMATED BY COMBINING RENY'S ENTROPY WITH ENERGY ASSOCIATED TO SERIES METHOD: APPLICATION TO RAINFALL SERIES	43
<i>Cristian Rodriguez Rivero ; Julian Pucheta ; Sergio Laboret ; Victor Sauchelli ; Alvaro David Orjuela-Cañon ; Leonardo Franco</i>	
THERMAL COMFORT ESTIMATION USING A NEUROCOMPUTATIONAL MODEL	49
<i>José Rodríguez-Alabarce ; Francisco Ortega-Zamorano ; José M. Jerez ; Kusha Ghoreishi ; Leonardo Franco</i>	
APPLICATION OF GENETIC ALGORITHMS TO THE SOLUTION OF THE BIOMAGNETIC INVERSE PROBLEM, USING DATA ACQUIRED BY A 16-CHANNEL SQUID SYSTEM	54
<i>Johnny A. B. Otero ; Salvador Pacheco ; Eduardo C. Silva ; Carlos R. H. Barbosa ; Elisabeth C. Monteiro</i>	
ONLINE PATTERN RECOGNITION FOR PORTUGUESE PHONEMES USING MULTI-LAYER PERCEPTRON COMBINED WITH RECURRENT NON-LINEAR AUTOREGRESSIVE NEURAL NETWORKS WITH EXOGENOUS INPUTS	60
<i>Diana A. Bonilla C ; Nadia Nedjah ; Luíza De Macedo Mourelle</i>	
EEG GRAPH ANALYSIS FOR IDENTIFICATION OF EX-COMBATANTS: A MACHINE LEARNING APPROACH	66
<i>Andrés Quintero-Zea ; Mónica Rodríguez Calvache ; Sandra Trujillo Orrego ; Francisco Vargas-Bonilla ; Natalia Trujillo Orrego ; José D. López</i>	
ADAPTIVE HYBRID RECOMMENDER SYSTEM OF LEARNING OBJECTS	72
<i>Jose Aguilar ; Omar Portilla ; Eduard Puerto</i>	
IMPROVING THE BINARY FISH SCHOOL SEARCH ALGORITHM FOR FEATURE SELECTION	78
<i>Raphael F. Carneiro ; Carmelo J. A. Bastos-Filho</i>	
CHARACTERIZATION OF SUSTAINABILITY USING FUZZY OPINION SYSTEMS	84
<i>Alvaro Talavera ; Leonardo Forero ; Manoela Kohler ; Marco A. Pacheco</i>	
A TYPE-2 FUZZY LOGIC SYSTEM APPROACH TO TRAIN HONDURAN COFFEE CUPPERS	90
<i>Wilfredo C. Flores ; Gracia M. Pineda</i>	
AN APPROACH BASED ON NETWORK SCIENCE TO DETECT COMMUNITIES IN SOCIAL NETWORKS	96
<i>Victor C. F. Lima ; Carmelo J. A. Bastos-Filho</i>	
COMPARISON BETWEEN UNIPOLAR AND BIPOLAR ELECTROGRAMS FOR DETECTING ROTOR TIP FROM 2D FIBRILLATION MODEL USING IMAGE FUSION. A SIMULATION STUDY	102
<i>Carlos A. Duarte-Salazar ; Andrés Orozco-Duque ; Catalina Tobón ; Diego H. Peluffo-Ordóñez ; Jaime A. Guzmán Luna ; Miguel A. Becerra</i>	

COMPUTED-TORQUE CONTROL OF A SIMULATED BIPEDAL ROBOT WITH LOCOMOTION BY REINFORCEMENT LEARNING	108
<i>Carlos Magno C. O. Valle ; Ricardo Tanscheit ; Leonardo A. Forero Mendoza</i>	
CORRELATION AS A MEASURE FOR FITNESS IN MULTI-AGENT LEARNING SYSTEMS	114
<i>David Martínez ; Eduardo Mojica Nava</i>	
A METHODOLOGICAL FRAMEWORK USING STATISTICAL TESTS FOR COMPARING MACHINE LEARNING BASED MODELS APPLIED TO FAULT DIAGNOSIS IN ROTATING MACHINERY	120
<i>Fannia Pacheco ; Mariela Cerrada ; René Vinicio Sánchez ; Diego Cabrera ; Chuan Li ; José Valente De Oliveira</i>	
FAST COMPUTATION OF CRAMER-RAO BOUNDS FOR TOA	126
<i>Esteban Garzón ; Santiago Valdiviezo ; René Játiva E. ; Josep Vidal</i>	
MODEL PREDICTIVE CONTROL USING ADAPTIVE TASK ALLOCATION FOR OPTIMIZATION OF NETWORKS WITH TRAFFIC LIGHTS	132
<i>Jennifer S. Guerrero ; Wilfredo Alfonso</i>	
SPATIAL FILTER COMPARISON FOR A BRAIN COMPUTER INTERFACE	138
<i>Daniel Rivas Alonso ; Marley Maria B. R. Vellasco</i>	
INDIRECT TRAINING OF GRAY-BOX MODELS USING LS-SVM AND GENETIC ALGORITHMS	144
<i>Gonzalo Acuña ; Hans Möller</i>	
DEMODULATION OF M-ARY NON-SYMMETRICAL CONSTELLATIONS USING CLUSTERING TECHNIQUES IN OPTICAL COMMUNICATION SYSTEMS	149
<i>Eduardo Avendaño Fernandez ; Jhon James Granada Torres ; Ana María Cardenas Soto ; Neil Guerrero González</i>	
BAYESIAN NETWORKS TO PREDICT REPUTATION IN VIRTUAL LEARNING COMMUNITIES	155
<i>Luis Chamba-Eras ; Ana Arruarte ; Jon A. Elorriaga</i>	
ON THE MULTI-STAGE INFLUENCE MAXIMIZATION PROBLEM	161
<i>Inzamam Rahaman ; Patrick Hosein</i>	
ROBOTIC DEVICE FOR MOBILITY ASSISTANCE TO ELDERLY PEOPLE IN URBAN ENVIRONMENTS	167
<i>Daniel Leite ; Marley Vellasco ; Karla Figueiredo</i>	
ESSENCE-BASED CLUSTERING: A MULTI-STRATEGIC AND HIGHLY-CUSTOMIZABLE CLUSTERING APPROACH	173
<i>Kevin Christian Rodríguez-Siu ; Dennis Barrios-Aranibar ; Raquel E. Patiño-Escarcina</i>	
TOWARD A ROUTE DETECTION METHOD BASE ON DETAIL CALL RECORDS	179
<i>Hadrien Hendrikx ; Miguel Núñez-Del-Prado-Cortez</i>	
FP-AK-QIEAR-R IN PROTEIN FOLDING APPLICATION	185
<i>Josimar Edinson Chire Saire ; Yván Túpac</i>	
A PARALLEL MULTI-GPU CLONAL SELECTION ALGORITHM FOR OPTIMIZATION USING OPENCL AND OPENMP	190
<i>Igor L. S. Russo ; Heder S. Bernardino ; Helio J. C. Barbosa</i>	
FUZZY-PD CONTROLLER FOR BEHAVIOR MIXING AND IMPROVED PERFORMANCE IN QUADCOPTER ATTITUDE CONTROL SYSTEMS	196
<i>Juan A. Paredes ; Cristhian Jacinto ; Renzo Ramírez ; Ismael Vargas ; Luis Trujillano</i>	
POLARITY CLASSIFICATION ON WEB-BASED REVIEWS USING SUPPORT VECTOR MACHINE	202
<i>Renato S. C. Da Rocha ; Leonardo Forero ; Harold De Mello ; Manoela Kohler ; Marley Vellasco</i>	
HARDWARE/SOFTWARE CO-DESIGN SYSTEM FOR TEMPLATE MATCHING USING PARTICLE SWARM OPTIMIZATION AND PEARSON'S CORRELATION COEFFICIENT	208
<i>Yuri Marchetti Tavares ; Nadia Nedjah ; Luiza De Macedo Mourelle</i>	
FEATURE SELECTION METHODS APPLIED TO MOTOR IMAGERY TASK CLASSIFICATION	214
<i>Alimed Celecia Ramos ; René González Hernández ; Marley Vellasco</i>	
CONCURRENT DESIGN OPTIMIZATION OF THE DELTA MANIPULATOR	220
<i>Salvador Botello-Aceves ; S. Ivvan Valdez ; Hector M. Becerra</i>	
CLASSIFYING ARTIFACTS AND NEURAL EEG COMPONENTS USING SVM	226
<i>Mónica Rodríguez Calvache ; Andrés Quintero-Zea ; Sandra Trujillo Orrego ; Natalia Trujillo Orrego ; José D. López</i>	
TEACHING AGENTS WITH CORRECTIVE HUMAN FEEDBACK FOR CHALLENGING PROBLEMS	231
<i>Carlos Celemin ; Javier Ruiz-Del-Solar</i>	

SMARTPHONE CAMERA DOCUMENT DETECTION VIA GEODESIC OBJECT PROPOSALS	237
<i>Luciano R. S. Leal ; Byron L. D. Bezerra</i>	
PROXIMITYRANK: WHO ARE THE NEAREST INFLUENCERS?	243
<i>Johnny Torres ; Carmen Vaca ; Enrique Peláez</i>	
MULTIPROCESSOR TASK SCHEDULING ON HETEROGENEOUS ENVIRONMENTS BY A HYBRID CHEMICAL REACTIONS OPTIMIZATION	249
<i>Jonathan Alexander Núñez-Humán ; Yván Túpac</i>	
A DIGITAL PATHOLOGY APPLICATION FOR WHOLE-SLIDE HISTOPATHOLOGY IMAGE ANALYSIS BASED ON GENETIC ALGORITHM AND CONVOLUTIONAL NETWORKS	255
<i>Mateo Puerto ; Tania Vargas ; Angel Cruz-Roa</i>	
PROGRAMMABLE THREE-PHASE VOLTAGE SOURCE CONTROLLED BY FUZZY LOGIC	262
<i>Jose L. Paniagua ; Johnny Posada ; Jesus A. Lopez</i>	
DIMENSIONALITY REDUCTION FOR INTERACTIVE DATA VISUALIZATION VIA A GEO- DESIC APPROACH	268
<i>Jose A. Salazar-Castro ; Diego Peña-Unigarro ; Diego H. Peluffo-Ordóñez ; Paul D. Rosero-Montalvo ; H. Mauricio Domínguez-Limaico ; Juan C. Alvarado-Pérez ; Roberto Therón</i>	
AN AUTOASSOCIATIVE NEURAL NETWORK FOR IMAGE SEGMENTATION	274
<i>Hugo Leonardo Marcolino Dos Santos ; Bruno José Torres Fernandes ; Sérgio Murilo Maciel Fernandes</i>	
DATA ANALYSIS FOR SPATIAL-SPECTRAL INTERACTIONS IN UNSUPERVISED HYPERSPPECTRAL UNMIXING	280
<i>Miguel A. Goenaga-Jimenez</i>	
PRODUCTION PROGRAMMING MODEL IN OPEN-SHOP SYSTEMS USING GENETIC ALGORITHMS APPROACH	286
<i>A. Blanco-Cañon ; C. A. Sierra</i>	
EXTENDED ABSTRACT: A COLOR QUANTIZATION APPROACH BASED ON THE GROWING NEURAL FOREST	288
<i>Esteban J. Palomo ; Ezequiel López-Rubio</i>	
HUMAN DETECTION IN DIGITAL VIDEOS USING MOTION FEATURES EXTRACTORS	290
<i>Rodrigo F. S. C. Oliveira ; Carmelo J. A. Bastos-Filho</i>	
EXTENDED ABSTRACT: FORMAL DESCRIPTION OF A PATTERN FOR A RECURSIVE PROCESS OF RECOGNITION	292
<i>Eduard Puerto ; Jose Aguilar</i>	
EXPANDED ABSTRACT: SOLUTION OF SIMPLE ASSEMBLY LINE BALANCING PROBLEMS WITH FSS	294
<i>Isabela M. C. Albuquerque ; João B. M. Filho ; Alany Maria Silva ; Fernando B. L. Neto</i>	
EXPANDED ABSTRACT: AN ADAPTIVE SUPPORT SYSTEM FOR PHONOLOGICAL TREATMENT OF PHONETIC DISORDERS USING VISUAL FEEDBACKS AND SPEECH RECOGNITION	296
<i>Marlon Chalegre De Paula ; Fernando B. L. Neto</i>	
A STUDY OF A POSSIBLE SCENARIO OF ZIKA VIRUS OUTBREAK AND RAPID INTERVENTION USING A MATHEMATICAL AND COMPUTATIONAL SIMULATION	298
<i>Huber Nieto-Chaupis</i>	
Author Index	