

2015 Latin America Congress on Computational Intelligence (LA-CCI 2015)

**Curitiba, Brazil
13-16 October 2015**



**IEEE Catalog Number: CFP15A09-POD
ISBN: 978-1-4673-8419-3**

**Copyright © 2015 by the Institute of Electrical and Electronic 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 publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP15A09-POD
ISBN (Print-On-Demand):	978-1-4673-8419-3
ISBN (Online):	978-1-4673-8418-6

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

FROM ARCHITECTURE TO MANUFACTURING: AN ACCURATE FRAMEWORK FOR OPTIMAL OTA DESIGN	1
<i>R. A. L. Moreto ; C. E. Thomaz ; S. P. Gimenez ; A. L. P. Rotondaro</i>	
ITERATED LOCAL SEARCH ADAPTED TO CLUSTERING AND ROUTING PROBLEMS	7
<i>M. De Siqueira Guersola ; M. T. A. Steiner</i>	
ON LINE FUZZY LEARNING MAXIMUM LIKELIHOOD-INSTRUMENTAL VARIABLE EVOLVING ALGORITHM	13
<i>O. D. R. Filho ; G. L. De Oliveira Serra</i>	
SOFT-UCT: AN ALGORITHM FOR PROBABILISTIC PLANNING BASED ON A GENERALIZED MEAN OPERATOR	19
<i>L. A. De Almeida ; C. H. C. Ribeiro</i>	
STOCK MARKET VOLATILITY PREDICTION USING POSSIBILISTIC FUZZY MODELING	25
<i>L. Maciel ; F. Gomide ; R. Ballini</i>	
RAINFALL PREDICTION FOR MANAUS, AMAZONAS WITH ARTIFICIAL NEURAL NETWORKS	31
<i>P. M. De Lima ; E. B. Guedes</i>	
ON THE HIGH-FREQUENCY FINANCIAL FORECASTING PROBLEM WITH MULTILAYER PERCEPTRON MODELS	37
<i>R. D. A. Araujo ; A. L. I. Oliveira ; S. Meira</i>	
ANALYSIS OF THE DYNAMIC TRAVELING SALESMAN PROBLEM WITH WEIGHT CHANGES	43
<i>R. Tinos</i>	
DATA ASSIMILATION BY ARTIFICIAL NEURAL NETWORKS FOR THE GLOBAL FSU ATMOSPHERIC MODEL: SURFACE PRESSURE	49
<i>R. Cintra ; H. De Campos Velho ; J. Anochi ; S. Cocke</i>	
LONG-TERM POWER CONSUMPTION DEMAND PREDICTION: A COMPARISON OF ENERGY ASSOCIATED AND BAYESIAN MODELING APPROACH	55
<i>C. R. Rivero ; V. Sauchelli ; H. Daniel Patino ; J. A. Pucheta ; S. Laboret</i>	
VISUAL HOMOGRAPHY-BASED POSE ESTIMATION OF A QUADROTOR USING SPECTRAL FEATURES	61
<i>G. Araguas ; C. Paz ; G. P. Paina ; L. Canali</i>	
UPPER-LIMB MOVEMENT CLASSIFICATION THROUGH LOGISTIC REGRESSION SEMG SIGNAL PROCESSING	67
<i>V. H. Cene ; A. Balbinot</i>	
A NEW APPROACH USING HIDDEN MARKOV MODEL FOR GENERATING MOVIE CAPTIONS TO AID THE HEARING IMPAIRED, WHICH IS CAPABLE OF VISUAL ENCODING EMOTIONAL INFORMATION	72
<i>M. C. De Paula ; F. B. D. L. Neto</i>	
IMPLEMENTATION OF QUASI-SIMPLEX LOCAL SEARCH ON MOEA/D	77
<i>L. Prestes ; C. Almeida ; R. Goncalves</i>	
RESOLUTION OF 1-D BIN PACKING PROBLEM USING AUGMENTED NEURAL NETWORKS AND MINIMUM BIN SLACK	83
<i>R. De Almeida ; M. T. A. Steiner</i>	
TOWARDS STATISTICAL CONVERGENCE CRITERIA FOR MUTATION-BASED EVOLUTIONARY ALGORITHMS	89
<i>F. Campelo</i>	
NARX NEURAL NETWORK MODEL FOR PREDICTING AVAILABILITY OF A HEAVY DUTY MINING EQUIPMENT	95
<i>G. Acuna ; F. Cubillos ; B. Araya ; G. Segovia ; C. Perez ; M. Curilem ; C. Huanquilef</i>	
PREDICTION OF THE CRITICALITY OF A HEAVY DUTY MINING EQUIPMENT	100
<i>M. Curilem ; C. Huanquilef ; G. Acuna ; F. Cubillos ; B. Araya ; G. Segovia ; C. Perez</i>	
AN IMPROVED GENETIC ALGORITHMS-BASED SEAM CARVING METHOD	105
<i>S. A. F. Oliveira ; A. R. R. Neto</i>	
DIFFERENTIAL EVOLUTION OPTIMIZATION APPLIED IN MULTIVARIATE NONLINEAR MODEL-BASED PREDICTIVE CONTROL	111
<i>G. H. Negri ; V. H. B. Preuss ; M. S. M. Cavalca ; J. De Oliveira</i>	

DIFFERENTIAL EVOLUTION VARIANTS AND MILP FOR THE PIPELINE NETWORK SCHEDULE OPTIMIZATION PROBLEM.....	117
<i>J. Krause ; E. L. Sieczka ; H. S. Lopes</i>	
ASSOCIATION RULE MINING USING A BACTERIAL COLONY ALGORITHM.....	123
<i>D. S. Da Cunha ; R. S. Xavier ; D. G. Ferrari ; L. N. De Castro</i>	
GENETIC ALGORITHM FOR TYPE-2 ASSEMBLY LINE BALANCING.....	129
<i>C. G. S. Sikora ; T. C. Lopes ; H. S. Lopes ; L. Magatao</i>	
INTEGRATING COLLECTIVE INTELLIGENCE INTO EVOLUTIONARY MULTI-OBJECTIVE ALGORITHMS: INTERACTIVE PREFERENCES.....	135
<i>D. Cinalli ; L. Marti ; N. Sanchez-Pi ; A. C. B. Garcia</i>	
ON USING FUZZY LOGIC TO CONTROL A SIMULATED HEXACOPTER CARRYING AN ATTACHED PENDULUM.....	141
<i>E. Koslosky ; M. A. Wehrmeister ; J. A. Fabro ; A. S. De Oliveira</i>	
ARTIFICIAL NEURAL NETWORK MODELS FOR DIAGNOSIS SUPPORT OF DRUG AND MULTIDRUG RESISTANT TUBERCULOSIS.....	147
<i>L. H. R. A. Evora ; J. M. Seixas ; A. L. Kritski</i>	
A NOVEL EDUCATIONAL TIMETABLING SOLUTION THROUGH RECURSIVE GENETIC ALGORITHMS.....	152
<i>S. S. A. Alves ; S. A. F. Oliveira ; A. R. R. Neto</i>	
ARTIFICIAL MUSICAL PATTERN GENERATION WITH GENETIC ALGORITHMS.....	158
<i>F. V. Vargas ; J. A. Fuster ; C. Beltran Castanon</i>	
NOVELTY DETECTION IN PASSIVE SONAR SYSTEMS USING SUPPORT VECTOR MACHINES.....	163
<i>N. N. De Moura ; J. M. De Seixas</i>	
NEURAL NETWORK DESIGN FOR DATA COMPRESSION BASED ON KERNEL PCA: RATE-DISTORTION AND COMPLEXITY ANALYSIS.....	169
<i>V. R. M. Elias ; J. G. R. C. Gomes</i>	
LEARNING FUZZY CLASSIFICATION RULES FROM IMBALANCED DATASETS USING MULTI-OBJECTIVE EVOLUTIONARY ALGORITHM.....	175
<i>C. E. Hinojosa ; H. A. Camargo ; V. Y. J. Tupac</i>	
A NEW VECTOR EVALUATED PBIL ALGORITHM FOR REINSURANCE ANALYTICS.....	181
<i>O. A. C. Cortes ; A. Rau-Chaplin ; P. Felipe Do Prado</i>	
ON SUBSPACE PROJECTION AUTOASSOCIATIVE MEMORIES BASED ON LINEAR SUPPORT VECTOR REGRESSION.....	187
<i>M. E. Valle ; E. P. Da Silva</i>	
FEATURE SELECTION BASED ON BINARY PARTICLE SWARM OPTIMIZATION AND NEURAL NETWORKS FOR PATHOLOGICAL VOICE DETECTION.....	193
<i>T. A. Souza ; M. A. Souza ; W. C. D. A. Costa ; S. C. Costa ; S. E. N. Correia ; V. J. D. Vieira</i>	
HUMAN-MACHINE MUSICAL COMPOSITION IN REAL-TIME BASED ON EMOTIONS THROUGH A FUZZY LOGIC APPROACH.....	199
<i>P. Lucas ; E. Astudillo ; E. Pelaez</i>	
AN ADAPTIVE FILTERING APPROACH FOR SEGMENTATION OF TUBERCULOSIS BACTERIA IN ZIEHL-NEELSEN SPUTUM STAINED IMAGES.....	205
<i>V. Ayma ; R. De Lamare ; B. Castaneda</i>	
A STUDY ON TOPICS IDENTIFICATION ON TWITTER USING CLUSTERING ALGORITHMS.....	210
<i>M. N. M. Klinczak ; C. A. A. Kaestner</i>	
A DISCRETIZED DIFFERENTIAL EVOLUTION ALGORITHM FOR THE INFERENCE OF GENE REGULATORY NETWORKS.....	216
<i>L. T. Hattori ; H. S. Lopes ; F. M. Lopes</i>	
THRESHOLDING OF BIOLOGICAL IMAGES BY USING EVOLUTIONARY ALGORITHMS.....	222
<i>R. Ochoa-Montiel ; C. Sanchez-Lopez ; J. A. Gonzalez-Bernal</i>	
PERFORMANCE COMPARISON OF UNORGANIZED RECURRENT NEURAL NETWORK APPLIED TO STREAMFLOW FORECASTING OF SOBRADINHO PLANT.....	228
<i>H. V. Siqueira ; I. Luna</i>	
AN EFFICIENT METHOD TO DETERMINE STRAIN PROFILES ON FBGS BY USING DIFFERENTIAL EVOLUTION AND GPU.....	234
<i>L. H. Negri ; H. S. Lopes ; M. Muller ; J. L. Fabris ; A. S. Paterno</i>	
FUZZY GAIN SCHEDULING DESIGN BASED ON MULTIOBJECTIVE PARTICLE SWARM OPTIMIZATION.....	240
<i>E. B. M. Costa ; G. L. O. Serra</i>	

MOEA/D WITH ADAPTIVE OPERATOR SELECTION FOR THE ENVIRONMENTAL/ECONOMIC DISPATCH PROBLEM	246
<i>R. A. Goncalves ; C. P. Almeida ; J. N. Kuk ; A. Pozo</i>	
COMPARISON OF DIFFERENTIAL EVOLUTION VARIANTS FOR THE MOLECULAR LIGAND-RECEPTOR DOCKING PROBLEM	252
<i>C. S. De Magalhaes ; V. Dias ; L. E. Dardenne</i>	
OWA FILTERS FOR SAR IMAGERY	258
<i>L. Torres ; J. C. Becceneri ; C. C. Freitas ; S. J. S. Sant'Anna ; S. Sandri</i>	
SMART PLACEMENT OF RSU FOR VEHICULAR NETWORKS USING MULTIOBJECTIVE EVOLUTIONARY ALGORITHMS	264
<i>R. Massobrio ; S. Bertinat ; S. Nesmachnow ; J. Toutouh ; E. Alba</i>	
METAHEURISTICS FOR FEATURE SELECTION IN HANDWRITTEN DIGIT RECOGNITION	270
<i>L. M. Seijas ; R. F. Carneiro ; C. J. Santana ; L. S. L. Soares ; S. G. T. A. Bezerra ; C. J. A. Bastos-Filho</i>	
OPTIMAL SELECTION OF FACTORS USING GENETIC ALGORITHMS AND NEURAL NETWORKS FOR THE PREDICTION OF STUDENTS' ACADEMIC PERFORMANCE	276
<i>O. A. Echegaray-Calderon ; D. Barrios-Aranibar</i>	
AUTOMATIC DESIGN OF ALGORITHMS FOR OPTIMIZATION PROBLEMS	282
<i>C. Contreras-Bolton ; V. Parada</i>	
TRAINING OF AN ARTIFICIAL NEURAL NETWORK WITH BACKPROPAGATION ALGORITHM USING NOTIFICATION ORIENTED PARADIGM	287
<i>F. Schutz ; J. A. Fabro ; C. R. E. Lima ; A. F. Ronszcka ; P. C. Stadzisz ; J. M. Simao</i>	
AN OPTIMIZATION MODEL FOR THE INDOOR ACCESS POINT PLACEMENT PROBLEM WITH DIFFERENT TYPES OF OBSTACLES	293
<i>A. A. Politi ; L. C. Zamboni ; R. Pasti ; L. N. De Castro</i>	
AN EVALUATION OF FORECASTING METHODS FOR ANTICIPATING SPARE PARTS DEMAND	297
<i>B. A. De Melo Menezes ; D. De Siqueira Braga ; B. Hellingrath ; F. B. De Lima Neto</i>	
SUPPLY CHAIN MANAGEMENT AND METAHEURISTIC ALGORITHMS: ANALYSING A NEW HYBRID GENETIC CROSSOVER OPERATOR	303
<i>F. G. S. Teodoro ; D. M. M. Da Costa ; S. M. Peres ; C. A. M. Lima</i>	
MULTI-CLASS CLASSIFICATION OF OBJECTS IN IMAGES USING PRINCIPAL COMPONENT ANALYSIS AND GENETIC PROGRAMMING	309
<i>M. Ribeiro ; H. S. Lopes</i>	
PATTERN RECOGNITION IN TRUNK IMAGES BASED ON CO-OCCURRENCE DESCRIPTORS: A PROPOSAL APPLIED TO TREE SPECIES IDENTIFICATION	315
<i>A. Bressane ; J. A. F. Roveda ; A. C. G. Martins</i>	
AN APPROACH TO REAL-CODED QUANTUM INSPIRED EVOLUTIONARY ALGORITHM USING PARTICLES FILTER	321
<i>J. E. C. Saire ; V. Y. J. Tupac</i>	
Author Index	