

2019 8th Brazilian Conference on Intelligent Systems (BRACIS 2019)

**Salvador, Brazil
15 – 18 October 2019**



IEEE Catalog Number: CFP19BAA-POD
ISBN: 978-1-7281-4254-8

**Copyright © 2019 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:	CFP19BAA-POD
ISBN (Print-On-Demand):	978-1-7281-4254-8
ISBN (Online):	978-1-7281-4253-1
ISSN:	2643-6256

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

2019 8th Brazilian Conference on Intelligent Systems (BRACIS) **BRACIS 2019**

Table of Contents

Preface .xxi.....
Organizing Committee .xxii.....
Program Committee .xxiii.....
Reviewers .xxix.....
Keynote Speakers .xxxi.....

Knowledge Representation and Reasoning I

An Embedded Network Based Platform for Cognitive Robotics .1..... <i>Marcio Figueiredo Garcia (Federal University of Bahia (UFBA)), Diego Stéfano Fonseca Ferreira (Federal University of Bahia (UFBA)), and Augusto Cesar Pinto Loureiro da Costa (Federal University of Bahia (UFBA))</i>
Building a Massive Corpus for Named Entity Recognition Using Free Open Data Sources .6..... <i>Daniel Menezes (Departamento de Informática PUC-Rio), Ruy Milidiú (Departamento de Informática PUC-Rio), and Pedro Savarese (TTIC)</i>
Synthesis of Quantifier-Free First-Order Sentences from Noisy Samples of Strings .12..... <i>Thiago Alves Rocha (Federal Institute of Education, Science and Technology of Ceará) and Ana Teresa Martins (Federal University of Ceará)</i>
Identification of Features for Profit Forecasting of Soccer Matches .18..... <i>Milton Ossamu Tanizaka Filho (Instituto Tecnológico de Aeronáutica, Itaú Unibanco), Ernesto Cordeiro Marujo (Instituto Tecnológico de Aeronáutica), and Thomaz Calasans dos Santos (Itaú Unibanco)</i>
An Improved Evolutionary Hybrid Method for Cloud Provider Selection .24..... <i>Lucas Borges de Moraes (UDESC), Adriano Fiorese (UDESC), and Rafael Stubbs Parpinelli (UDESC)</i>
A Rough Sets-Based Method with Belief Merging Operators for Multiclass Classification Problems .30..... <i>Rafael Albuquerque (Federal University of Ceará) and João Alcântara (Federal University of Ceará)</i>

Optimization Algorithms: Genetic Algorithms

A New Method for Identification of Recombining Components in the Generalized Partition Crossover .36..... <i>Ozeas Quevedo de Carvalho (UTFPR, Cornélio Procópio/PR), Renato Tinós (USP, Ribeirão Preto/SP), Darrel Whitley (Colorado State University, Fort Collins, Colorado, USA), and Danilo Sipoli Sanches (UTFPR, Cornélio Procópio/PR)</i>
--

Parameter Tuning in Load Balancing Techniques for Wireless Sensor Networks through Genetic Algorithms .42.....	
<i>Lisane Brisolara (Universidade Federal de Pelotas), Matheus Lorenzatto Braga (Universidade Federal de Pelotas), Alex Braga (Universidade Federal de Pelotas), and Paulo Roberto Ferreira Jr. (Universidade Federal de Pelotas)</i>	
A Parallel Strategy for Generation of Fuzzy Rule Bases in Big Data Problems Using the NSGA-DO .48.....	
<i>Maykon Santana (Federal University of São Carlos - UFSCar) and Heloisa Camargo (Federal University of São Carlos - UFSCar)</i>	
A Multiobjective Genetic Approach with TOPSIS to Learn Fuzzy Rule-Based Classification Systems .54.....	
<i>Antonio Eloy de Oliveira Araujo (Federal University of Espírito Santo) and Renato Antonio Krohling (Federal University of Espírito Santo)</i>	
An Improved Heuristic Based Genetic Algorithm for Bin Packing Problem .60.....	
<i>Aluísio Cardoso Silva (Federal University of Juiz de Fora) and Carlos Cristiano Hasenclever Borges (Federal University of Juiz de Fora)</i>	
A Multi-objective Approach for Symbolic Regression with Semantic Genetic Programming .66.....	
<i>Felipe Casadei (Universidade Federal de Minas Gerais), Joao Francisco B. S. Martins (Universidade Federal de Minas Gerais), and Gisele L. Pappa (Universidade Federal de Minas Gerais)</i>	

Natural Language Processing I

A Contextual Hierarchical Graph Model for Generating Random Sequences of Objects with Application to Music Playlists .72.....	
<i>Igor de Oliveira Nunes (Universidade Federal do Rio de Janeiro (UFRJ)), Gabriel Matos Cardoso Leite (Universidade Federal do Rio de Janeiro (UFRJ)), and Daniel Ratton Figueiredo (Universidade Federal do Rio de Janeiro (UFRJ))</i>	
Mining Journals to the Ground: An Exploratory Analysis of Newspaper Articles .78.....	
<i>Camila Leite da Silva (Universidade Federal de Santa Catarina), Lucas May Petry (Universidade Federal de Santa Catarina), Vinicius Marino Calvo Torres de Freitas (Universidade Federal de Santa Catarina), and Carina Friedrich Dorneles (Universidade Federal de Santa Catarina)</i>	
Novel Features Based on Sentence Specificity for Helpfulness Prediction of Online Reviews .84...	
<i>Beatriz Lima (Federal University of Bahia) and Tatiane Nogueira (Federal University of Bahia)</i>	
Utterance Copy in Formant-Based Speech Synthesizers Using LSTM Neural Networks .90.....	
<i>Cassio Batista (Federal University of Para, Brazil), Renan Cunha (Federal University of Para, Brazil), Pedro Batista (Federal University of Para, Brazil), Aldebaro Klautau (Federal University of Para, Brazil), and Nelson Neto (Federal University of Para, Brazil)</i>	
Accelerating word Embedding Generation with Fine-Grain Parallelism .96.....	
<i>Leonardo Afonso Amorim (Universidade Federal de Goiás), Mateus F. Freitas (Universidade Federal de Goiás), Altino Dantas (Universidade Federal de Goiás), Celso G. Camilo-Junior (Universidade Federal de Goiás), Weber Martins (Universidade Federal de Goiás), and Wellington Santos Martins (Universidade Federal de Goiás)</i>	
Automating News Summarization with Sentence Vectors Offset .102.....	
<i>Mauricio Steinert (PUCRS), Roger Granada (PUCRS), João Paulo Aires (PUCRS), and Felipe Meneguzzi (PUCRS)</i>	

Ensemble Systems

Instance Hardness as a Decision Criterion on Dynamic Ensemble Structure .1.08..... <i>Carine Dantas (UFRN), Romulo Nunes (UFRN), Anne Canuto (UFRN), and João Xavier-Júnior (UFRN)</i>
Using Active Learning Sampling Strategies for Ensemble Generation on Opinion Mining .1.14..... <i>Douglas Vitório (Federal University of Pernambuco (UFPE)), Ellen Souza (Federal Rural University of Pernambuco (UFRPE)), and Adriano L. I. Oliveira (Federal University of Pernambuco (UFPE))</i>
Ensemble Regression Models Applied to Dropout in Higher Education .1.20..... <i>Paulo M. da Silva (Universidade Federal de Pernambuco), Marilia N. C. A. Lima (Universidade de Pernambuco), Wedson L. Soares (Universidade de Pernambuco), Iago R. R. Silva (Universidade de Pernambuco), Roberta A. de A. Fagundes (Universidade de Pernambuco), and Fernando F. de Souza (Universidade Federal de Pernambuco)</i>
Investigating the Impact of Combining Handwritten Signature and Keyboard Keystroke Dynamics for Gender Prediction .1.26..... <i>Danilo Rodrigo Cavalcante Bandeira (Federal University of Rio Grande do Norte), Anne Magaly de Paula Canuto (Federal University of Rio Grande do Norte), Marjory Da Costa-Abreu (Federal University of Rio Grande do Norte), Michael Fairhurst (Kent University), Cheng Li (Kent University), and Diego Silveira Costa do Nascimento (Federal Institute of Rio Grande do Norte)</i>
Online Local Boosting: Improving Performance in Online Decision Trees .1.32..... <i>Victor Guilherme Turrisi da Costa (Londrina State University), Saulo Martiello Mastelini (University of São Paulo), André Carlos Ponce de Leon Ferreira de Carvalho (University of São Paulo), and Sylvio Barbon (Londrina State University)</i>
On Combining Diverse Models for Lyrics-Based Music Genre Classification .1.38..... <i>Caio Luiggy Ryoichi Sawada Ueno (Universidade Federal de São Carlos) and Diego Furtado Silva (Universidade Federal de São Carlos)</i>

Best Paper Session

Novelty Detection for Multi-Label Stream Classification .1.44..... <i>Joel Costa Júnior (Federal University of São Carlos), Elaine Faria (Federal University of Uberlândia), Jonathan Silva (Federal University of Mato Grosso do Sul), João Gama (Institute for Systems and Computer Engineering, Technology and Science - University of Porto), and Ricardo Cerri (Federal University of São Carlos)</i>
Tensor Fukunaga-Koontz Transform for Hierarchical Clustering .1.50..... <i>Bernardo B. Gatto (Center for Artificial Intelligence Research (C-AIR)), Marco A. F. Molinetti (University of Tsukuba), Eulanda M. dos Santos (Federal University of Amazonas), and Kazuhiro Fukui (University of Tsukuba)</i>
Multidimensional Projections Analysis Using Performance Evaluation Planning .1.56..... <i>Maycon Leone Maciel Peixoto (Federal University of Bahia), Erick Roseira Pinheiro (Federal University of Bahia), Tácito Trindade de Araújo Tiburtino Neves (Federal University of Alagoas), and Danilo Barbosa Coimbra (Federal University of Bahia)</i>

Active Learning for Evolutionary Constrained Clustering .162.....	
<i>Matheus Campos Fernandes (Universidade Federal do ABC (UFABC)), Thiago Ferreira Covões (Universidade Federal do ABC (UFABC)), and André Luiz Vizine Pereira (Universidade Federal de São Paulo (UNIFESP))</i>	
Symbolic Planning for Strong-Cyclic Policies .168.....	
<i>Viviane M. Bonadia dos Santos (Federal Institute of São Paulo), Leliane Nunes de Barros (DCC-IME-USP), and Maria Viviane de Menezes (Federal University of Ceará)</i>	
An RBF Network Based Crossover for Pseudo-Boolean Optimization .174.....	
<i>Renato Tinós (Universidade de São Paulo)</i>	

Features and Instances: Selection, Extraction and Analysis

Investigating the Robustness and Stability to Noisy Data of a Dynamic Feature Selection Method .180.....	
<i>Jhoseph Jesus (Federal University of Rio Grande do Norte - UFRN), Anne Canuto (Federal University of Rio Grande do Norte - UFRN), and Daniel Araújo (Federal University of Rio Grande do Norte - UFRN)</i>	
A Geometry-Based Approach to Visualize High-Dimensional Data .186.....	
<i>Caio Flexa (Federal University of Pará), Walisson Gomes (Instituto Tecnológico Vale), Sergio Viademonte (Instituto Tecnológico Vale), Claudomiro Souza Junior (Federal University of Pará), and Ronnie Alves (Instituto Tecnológico Vale)</i>	
An Ordered Search for Subset Selection in Support Vector Orthogonal Regression .192.....	
<i>Paulo Vitor Freitas da Silva (Federal University of Juiz de Fora), Raul Fonseca Neto (Federal University of Juiz de Fora), and Saulo Moraes Villela (Federal University of Juiz de Fora)</i>	
Dynamic Correlation-Based Feature Selection for Feature Drifts in Data Streams .198.....	
<i>Jorge Cristhian Chamby-Diaz (UFRGS), Mariana Recamonde-Mendoza (UFRGS), and Ana Bazzan (UFRGS)</i>	
Data Normalization in Structural Health Monitoring by Means of Nonlinear Filtering .204.....	
<i>Caio Flexa (Federal University of Pará), Walisson Gomes (Instituto Tecnológico Vale), and Claudomiro Sales Junior (Federal University of Pará)</i>	
The Influence of Sampling on Imbalanced Data Classification .210.....	
<i>Victor Barella (ICMC / University of São Paulo), Luís Garcia (CIC/University of Brasília), and André de Carvalho (ICMC / University of São Paulo)</i>	

Deep Learning Applications I

A Deep Reinforcement Learning Approach to Asset-Liability Management .216.....	
<i>Alan Fontoura (CEFET/RJ - PPCIC), Diego Haddad (CEFET/RJ - PPCIC), and Eduardo Bezerra (CEFET/RJ - PPCIC)</i>	

A New Approach to Navigation of Unmanned Aerial Vehicle using Deep Transfer Learning .222..	<i>Suane Pires Pinheiro da Silva (Universidade Federal do Ceará), Paulo Honório Filho (Instituto Federal de Educacao, Ciencia e Tecnologia do Ceará), Leandro B. Marinho (Universidade Federal do ceará and Instituto Federal de Educacao, Ciencia e Tecnologia do Ceará), Jefferson S. Almeida (Universidade Federal do Ceará), Navar Medeiros M. Nascimento (Universidade Federal do Ceará and Instituto Federal de Educacao, Ciencia e Tecnologia do Ceará), Antonio Wendell de O. Rodrigues (Instituto Federal de Educacao, Ciencia e Tecnologia do Ceará), and Pedro Pedrosa Rebouças Filho (Instituto Federal de Educacao, Ciencia e Tecnologia do Ceará)</i>
Fire and Water: Using Deep Learning to Recognize Fluid Substances .228.....	<i>Alexandra Moreira (Universidade Federal de Vicoso), Alcione Oliveira (Universidade Federal de Vicoso), and Jugurta Lisboa-Filho (Universidade Federal de Vicoso)</i>
Increasing Accuracy of Medical CNN Applying Optimization Algorithms: An Image Classification Case .233.....	<i>Rafael Marconi Ramos (University of Brasilia), Célia Ghedini Ralha (University of Brasilia), Tahsin M. Kurc (Stony Brook University), Joel H. Saltz (Stony Brook University), and George Teodoro (University of Minas Gerais)</i>
Automatic Ocular Alignment Evaluation for Strabismus Detection Using U-NET and ResNet Networks .239.....	<i>Thayane de Oliveira Simoes (Federal University od Maranhao), Johnatan Carvalho Souza (Federal University of Maranhao), Joao Dallyson Sousa de Almeida (Federal University of Maranhao), Aristofanes Correa Silva (Federal University of Maranhao), and Anselmo Cardoso de Paiva (Federal University of Maranhao)</i>
Recognition of Simple Handwritten Polynomials Using Segmentation with Fractional Calculus and Convolutional Neural Networks .245.....	<i>Francisco das Chagas Fontenele Marques Junior (State University of Ceará), Thelmo Pontes de Araujo (State University of Ceará), José Vigno Moura Sousa (State University of Piaui), Nator Junior Carvalho da Costa (State University of Ceará), Rodrigo Teixeira Melo (Instituto Atlântico), Alano Martins Pinto (Instituto Atlântico), and Arata Andrade Saraiva (State University of Piaui)</i>

Computational Intelligence

Analyzing Electoral Donations Through Congress Ideological Segmentation .251.....	<i>Lénon Guimarães Alípio (Universidade de São Paulo)</i>
A Comparison Study on Time Series Forecasting Given Smart Grid Load Uncertainties .257.....	<i>Diego Arize (Federal University of Bahia) and Tatiane Nogueira Rios (Federal University of Bahia)</i>
Laplacian using Abstract State Transition Graphs: A Framework for Skill Acquisition .263.....	<i>Matheus Mendonça (National Laboratory for Scientific Computing (LNCC)), Artur Ziviani (National Laboratory for Scientific Computing (LNCC)), and André Barreto (National Laboratory for Scientific Computing (LNCC))</i>

Collision Detection with Monocular Vision for Assisting in Mobility of Visually Impaired People .269.....	
Alexander Vasconcelos Canez (<i>Federal University of Rio Grande</i>), Joelson Sartori (<i>Federal University of Rio Grande</i>), Regina Barwaldt (<i>Federal University of Rio Grande</i>), and Ricardo Nagel Rodrigues (<i>Federal University of Rio Grande</i>)	
A Biased Random-Key Genetic Algorithm for the Traffic Counting Location Problem .275.....	
Glaubos Clímaco (<i>Federal University of Rio de Janeiro</i>), Pedro Gonzalez (<i>Federal Center for Technological Education of Rio de Janeiro</i>), Gláydston Ribeiro (<i>Federal University of Rio de Janeiro</i>), Geraldo Mauri (<i>Federal University of Espírito Santo</i>), and Luidi Simonetti (<i>Federal University of Rio de Janeiro</i>)	
Particle Swarm Localization for Mobile Robots Using a 2D Laser Sensor .281.....	
João Luiz Carneiro Carvalho (<i>Federal University of The Recôncavo da Bahia</i>), Paulo César Machado de Abreu Farias (<i>Federal University of Bahia</i>), Edmar Egidio Purcino de Souza (<i>Federal University of Bahia</i>), and Eduardo Furtado de Simas Filho (<i>Federal University of Bahia</i>)	

Optimization Algorithms I

An Efficient Algorithm for the Tabu Clustered Traveling Salesman Problem .287.....	
Edson Lopes da Silva Junior (<i>Federal University of Juiz de Fora</i>), Vinicius Alberto Alves da Silva (<i>Federal University of Juiz de Fora</i>), Luciana Brugio Gonçalves (<i>Federal University of Juiz de Fora</i>), Lorenza Leão Oliveira Moreno (<i>Federal University of Juiz de Fora</i>), and Stênio Sã Rosário Furtado Soares (<i>Federal University of Juiz de Fora</i>)	
Action Scheduling Optimization using Cartesian Genetic Programming .293.....	
Marco André Abud Kappel (<i>Centro Federal de Educação Tecnológica Celso Suckow de Fonseca – CEFET/RJ</i>)	
Quota Traveling Salesman with Passengers and Collection Time .299.....	
Thiago Soares Marques (<i>Federal University of Rio Grande do Norte</i>), Sidemar Fideles Cezario (<i>Federal University of Rio Grande do Norte</i>), Elizabeth Ferreira Gouvêa Goldbarg (<i>Federal University of Rio Grande do Norte</i>), Marco César Goldbarg (<i>Federal University of Rio Grande do Norte</i>), and Sílvia Maria Diniz Monteiro Maia (<i>Federal University of Rio Grande do Norte</i>)	
TSchainRad: a new Tabu Search-Based Matheuristic for IMRT Optimization .305.....	
Luis Tertulino (<i>Federal University of Rio Grande do Norte</i>), Sílvia Maria Diniz Monteiro Maia (<i>Federal University of Rio Grande do Norte</i>), Elizabeth Ferreira Gouvêa Goldbarg (<i>Federal University of Rio Grande do Norte</i>), and Marco César Goldbarg (<i>Federal University of Rio Grande do Norte</i>)	
On Updating Probabilistic Graphical Models in Bayesian Optimisation Algorithm .311.....	
Mohamed El Yafrani (<i>Aalborg University</i>), Marcella Scocozynski (<i>UTFPR-Brazil</i>), Myriam Delgado (<i>UTFPR-Brazil</i>), Ricardo Lüders (<i>UTFPR-Brazil</i>), Inkyung Sung (<i>Aalborg University</i>), Markus Wagner (<i>The University of Adelaide</i>), and Diego Oliva (<i>Universidad de Guadalajara</i>)	
A GPU-Based Hybrid jDE Algorithm Applied to the 2D-AB Protein Structure Prediction Problem.317	
Mateus Boiani (<i>UDESC</i>), Gabriel Dominico (<i>UDESC</i>), and Rafael Stubs Parpinelli (<i>UDESC</i>)	

Optimization Algorithms and Machine Learning

A Comparative Study on Automatic Model and Hyper-Parameter Selection in Classifier Ensembles .323.....	<i>Antonino Feitosa Neto (Federal University of Rio Grande do Norte), João Carlos Xavier Junior (Federal University of Rio Grande do Norte), Anne Canuto (Federal University of Rio Grande do Norte), and Alexandre Oliveira (Federal University of Maranhão)</i>
Automatic Design of Convolutional Neural Networks using Grammatical Evolution .329.....	<i>Ricardo Henrique Remes de Lima (Federal University of Paraná), Aurora Pozo (Federal University of Paraná), and Roberto Santana (University of Basque Country)</i>
Differential Evolution with Cluster-Based External Archive and Local Search for Multimodal Optimization .335.....	<i>Gabriel Dominico (UDESC), Mateus Boiani (UDESC), and Rafael Stubs Parpinelli (UDESC)</i>
Towards an Interpretable Metric for DOTA 2 Players: An Unsupervised Learning Approach .341.	<i>Gabriel Franco (Universidade Federal de Viçosa), Marcos Henrique Fonseca Ribeiro (Universidade Federal de Viçosa), and Giovanni Comarella (Universidade Federal de Viçosa)</i>
A Partitional Cooperative Coevolutionary Group Search Optimization Approach for Data Clustering .347.....	<i>Luciano Pacifico (Universidade Federal Rural de Pernambuco) and Teresa Ludermir (Universidade Federal de Pernambuco)</i>
Using Hyperplanes to Create Neural Networks in Pseudo-Boolean Optimization .353.....	<i>Renato Tinós (Universidade de São Paulo)</i>

Data Mining I

A Multilevel Approach for Building Location-Based Social Network by using Stay Points .359.....	<i>Diego Minatel (Universidade de São Paulo), Vinícius Ferreira (Universidade de São Paulo), and Alneu Andrade Lopes (Universidade de São Paulo)</i>
A Scalability Approach Based on Multilevel Optimization for Link Prediction Methods .365.....	<i>Vinícius Ferreira (University of São Paulo), Alan Valejo (University of São Paulo), and Alneu de Andrade Lopes (University of São Paulo)</i>
A Multivariate Method for Group Profiling Using Subgroup Discovery .371.....	<i>Tarcísio Lucas (Universidade Federal de Pernambuco), João Gomes (Instituto Federal do Sertão Pernambucano), Renato Vimieiro (Universidade Federal de Minas Gerais), Ricardo Prudêncio (Universidade Federal de Pernambuco), and Teresa Ludermir (Universidade Federal de Pernambuco)</i>
Towards Meta-Learning for Multi-Target Regression Problems .377.....	<i>Gabriel Jonas Aguiar (Londrina State University), Everton José Santana (Londrina State University), Saulo Martiello Mastelini (University of São Paulo), Rafael Gomes Mantovani (Federal Technology University), and Sylvio Barbon Júnior (Londrina State University)</i>
Self-Adaptive Appearance-Based Eye-Tracking with Online Transfer Learning .383.....	<i>Bruno Klein Salvalaio (SAP Labs Latin America) and Gabriel de Oliveira Ramos (Universidade do Vale do Rio dos Sinos)</i>

Using Social Group Trajectories for Potential Impersonation Detection on Smart Buildings Access Control .389.....

Gabriel Mariano de Castro Silva (Universidade de São Paulo) and Jaime Simão Sichman (Universidade de São Paulo)

Neural Networks and Deep Learning

The Use of Deep Learning to Support Math Teaching and Learning for the Blind .395.....
--

*Luiz Oscar Homann de Topin (Universidade Federal do Rio Grande),
Regina Barwaldt (Universidade Federal do Rio Grande), Joelson Sartori Jr (Universidade Federal do Rio Grande), and Bruna dos Santos Freitas (Universidade Federal do Rio Grande)*

Impact of Facial Expressions on the Accuracy of a CNN Performing Periocular Recognition .401.

Rodolfo Coelho Dalapicola (University of São Paulo), Raissa Tavares Vieira Queiroga (Federal University of Rio Grande do Norte), Carolina Toledo Ferraz (Unifaccamp), Tamiris Trevisan Negri Borges (Federal Institute of São Paulo), José Hiroki Saito (Unifaccamp), and Adilson Gonzaga (University of São Paulo)

Residual MLP Network for Mental Fatigue Classification in Mining Workers from Brain Data .407.
--

Ana C Q Siravenha (Vale Institute of Technology), Mylena N F Reis (Federal University of Para), Iraquitan Cordeiro (Vale Institute of Technology), Renan Arthur Tourinho (Vale S/A), Bruno D. Gomes (Federal University of Para), and Schubert R. Carvalho (Vale Institute of Technology)

Analyzing the Effect of Stochastic Transitions in Policy Gradients in Deep Reinforcement Learning .413.....

Ângelo Gregório Lovatto (Universidade de São Paulo), Thiago Pereira Bueno (Universidade de São Paulo), and Leliane Nunes Barros (Universidade de São Paulo)

Image-Based Electric Consumption Recognition via Multi-Task Learning .419.....
--

Ricardo Costa da Silva Marques (Federal University of Maranhão (UFMA)), Arthur Costa Serra (Federal University of Maranhão (UFMA)), João Vitor Ferreira França (Federal University of Maranhão (UFMA)), João Otavio Bandeira Diniz (Federal University of Maranhão (UFMA)), Geraldo Braz Junior (Federal University of Maranhão (UFMA)), João Dallyson Sousa de Almeida (Federal University of Maranhão (UFMA)), Marcia Izabel Alves da Silva (Maranhão Energy Company (CEMAR)), and Eliana Marcia Garros Monteiro (Maranhão Energy Company (CEMAR))

Recurrent Neural Network Based on Statistical Recurrent Unit for Remaining Useful Life Estimation .425.....

André Ribeiro de Miranda (Federal University of Goiás), Tales M. G. de Andrade Barbosa (Pontifical Catholic University of Goiás), André G. Scolari Conceição (Federal University of Bahia), and Symone G. Soares Alcalá (Federal University of Goiás)

Natural Language Processing II

Automatic Summarization of Technical Documents in the Oil and Gas Industry .431.....
--

João Marcos Correia Marques (University of São Paulo), Fabio Gagliardi Cozman (Universidade de São Paulo), and Ismael Humberto Ferreira dos Santos (Petrobras)

Assessing the Impact of Contextual Embeddings for Portuguese Named Entity Recognition .437.	
<i>Joaquim Santos (PUCRS), Bernardo Consoli (PUCRS), Cicero dos Santos (IBM Research), Juliano Terra (PUCRS), Sandra Collonini (PUCRS), and Renata Vieira (PUCRS)</i>	
FaQuAD: Reading Comprehension Dataset in the Domain of Brazilian Higher Education .443.....	
<i>Hélio Fonseca Sayama (UFMS), Anderson Viçoso Araujo (UFMS), and Eraldo Rezende Fernandes (UFMS)</i>	
Dialogue Management with Deep Reinforcement Learning: Balancing Exploration and Exploitation .449.....	
<i>Bruno Nishimoto (Universidade de São Paulo) and Anna Helena Reali Costa (Universidade de São Paulo)</i>	
Combining Labeled Datasets for Sentiment Analysis from Different Domains Based on Dataset Similarity to Predict Electors Sentiment .455.....	
<i>Jéssica Soares dos Santos (Universidade Federal Fluminense (UFF)), Aline Paes (Universidade Federal Fluminense (UFF)), and Flavia Bernardini (Universidade Federal Fluminense (UFF))</i>	

Agents and Multi-Agent Systems

An Efficient Kick Strategy for Agents in the 2D Simulation League .461.....	
<i>João Pedro Figueirôa Nascimento (Univasf - Universidade Federal do Vale do São Francisco), Rosaldo Ferreira de Oliveira Neto (Univasf - Universidade Federal do Vale do São Francisco), and Lourinaldo Júnior Macário Amorim (Univasf - Universidade Federal do Vale do São Francisco)</i>	
Argumentation-Based Agents that Explain Their Decisions .467.....	
<i>Mariela Morveli Espinoza (Federal University of Technology of Parana), Ayslan Possebom (Federal Institute of Parana), and Cesar Augusto Tacla (Federal University of Technology of Parana)</i>	
Promoting Reusability and Extensibility in the Engineering of Domain-Specific Conversational Systems .473.....	
<i>Pedro Elkind Velmovitsky (University of Waterloo), Marx Viana (Pontifical Catholic University of Rio de Janeiro), Elder Cirilo (Federal University of Sao Joao del-Rei), Ruy Luiz Milidiu (Pontifical Catholic University of Rio de Janeiro), Plinio Pelegrini Morita (University of Waterloo), and Carlos José Pereira de Lucena (Pontifical Catholic University of Rio de Janeiro)</i>	
Building Self-Play Curricula Online by Playing with Expert Agents in Adversarial Games .479.....	
<i>Felipe Leno da Silva (University of São Paulo), Anna Helena Reali Costa (University of São Paulo), and Peter Stone (The University of Texas at Austin)</i>	
Social Analysis of Game Agents: How Trust and Reputation can Improve Player Experience .485	
<i>Lucas Rodrigues Carneiro (Universidade Federal do Rio de Janeiro), Carla Amor Divino Moreira Delgado (Universidade Federal do Rio de Janeiro), and João Carlos Pereira da Silva (Universidade Federal do Rio de Janeiro)</i>	
Towards an Organisation-Centred Semantics for Argumentation-Based Dialogues .491.....	
<i>Alison R. Panisson (Federal University of Pelotas)</i>	

Optimization Algorithms II

Decision Variable Learning .497..... <i>Matheus Santos Almeida (Federal University of Sergipe), Joel Alves de Oliveira (Federal University of Sergipe), and André Britto (Federal University of Sergipe)</i>
Combining Fitness Landscape Analysis and Adaptive Operator Selection in Multi and Many-Objective Optimization .503..... <i>Josiel Kuk (UNICENTRO), Richard Goncalves (UNICENTRO), and Aurora Pozo (UFPR)</i>
Q-NAS Revisited: Exploring Evolution Fitness to Improve Efficiency .509..... <i>Daniela Szwarcman (PUC-Rio, IBM-Research), Daniel Civitarese (IBM-Research), and Marley Vellasco (PUC-Rio)</i>
Bio-Inspired Algorithms for Many-Objective Discrete Optimization .515..... <i>Luiz Martins (Universidade Federal de Uberlândia), Tiago França (Universidade Federal de Uberlândia), and Gina Oliveira (Universidade Federal de Uberlândia)</i>
An Urban Pigeon-Inspired Optimiser for Unconstrained Continuous Domains .521..... <i>Angie L. Blanco (Universidad Distrital Francisco José de Caldas), Nathalia Chaparro (Universidad Distrital Francisco José de Caldas), and Sergio Rojas-Galeano (Universidad Distrital Francisco José de Caldas)</i>
Evolutionary Algorithms with Constraint Handling for the Hydroelectric Dispatch Planning .527.... <i>Eduardo J. Marcondes (Universidade Federal do Paraná), Bruno Nocera Zanette (Universidade Federal do Paraná), Peter Frank Perroni (Universidade Federal do Paraná), and Daniel Weingaertner (Universidade Federal do Paraná)</i>

Bioinformatics and Biomedical Engineering

Toward in Loco Cancer Therapy by Biomolecular Computer .533..... <i>Reginaldo Inojosa da Silva Filho (Universidade Federal de Mato Grosso do Sul) and Ana Paula Rozeno Rodrigues (Universidade Federal de Mato Grosso do Sul)</i>
Selecting the Most Relevant Features for the Identification of Long Non-Coding RNAs in Plants .539..... <i>Robson Parmezan Bonidia (Federal University of Technology - Paraná, UTFPR, Cornélio Procópio - PR, Brazil), André Carlos Ponce de Leon Ferreira de Carvalho (Universidade de São Paulo), Alexandre Rossi Paschoal (Federal University of Technology - Paraná, UTFPR, Cornélio Procópio - PR, Brazil), and Danilo Sipoli Sanches (Federal University of Technology - Paraná, UTFPR, Cornélio Procópio - PR, Brazil)</i>
A Random Forest Classifier for Prokaryotes Gene Prediction .545..... <i>Raíssa Lorena Silva da Silva (Federal University of Pará and Vale Institute of Technology), Kleber Padovani de Souza (Federal University of Pará), Fabiana Rodrigues de Góes (University of São Paulo), and Ronnie Cley de Oliveira Alves (Federal University of Pará and Vale Institute of Technology)</i>

A Deep Learning Approach to Detect Hyoid Bone in Ultrasound Exam .551.....	
<i>Marília Lopes (Universidade Federal da Paraíba), Cecília Silva (Universidade Federal da Paraíba), Lucas Lima (Universidade Federal da Paraíba), Douglas Lima (Universidade Federal da Paraíba), Bianca Costa (Universidade Federal da Paraíba), Desiré Magalhães (Universidade Federal da Paraíba), Darlyane Rodrigues (Universidade Federal da Paraíba), Thaís Rêgo (Universidade Federal da Paraíba), Leandro Pernambucano (Universidade Federal da Paraíba), and Ary Santos (Universidade Federal da Paraíba)</i>	
Pill Image Classification using Machine Learning .556.....	
<i>Luan Sousa Cordeiro (Federal Institute of Ceará), Joyce Saraiva Lima (Federal Institute of Ceará), A. Iedo Rocha Ribeiro (Federal Institute of Ceará), Francisco Nivando Bezerra (Federal Institute of Ceará), Pedro P. Rebouças Filho (Federal Institute of Ceará), and Ajalmar Rocha Neto (Federal Institute of Ceará)</i>	
Hyperparameter Tuning and its Effects on Cardiac Arrhythmia Prediction .562.....	
<i>Renan Soares de Andrade (Universidade Federal de Pelotas), Mateus Grellert (Universidade Católica de Pelotas), and Mateus Beck Fonseca (Universidade Federal de Pelotas)</i>	

Data Mining Applications I

Exploiting Geographical Data to Improve Recommender Systems for Business Opportunities in Urban Areas .568.....	
<i>Vinícius Ferreira (Visibilis), Alan Valejo (Visibilis), Paola Valdivia (Visibilis), and Jorge Valverde-Rebaza (Visibilis)</i>	
Data Mining Solution for Assessing the Secondary School Students of Brazilian Federal Institutes .574.....	
<i>Rogério L.C. Silva Filho (Universidade Federal de Pernambuco) and Paulo J.L. Adeodato (Universidade Federal de Pernambuco)</i>	
ML-MDLText: A Multilabel Text Categorization Technique with Incremental Learning .580.....	
<i>Marciele M. Bittencourt (Federal University of São Carlos), Renato M. Silva (Federal University of São Carlos), and Tiago A. Almeida (Federal University of São Carlos)</i>	
Evaluating One-Class Classifiers for Fault Detection in Hard Disk Drives .586.....	
<i>Francisco Pereira (UFC), Daniel Teixeira (UFC), João Paulo Gomes (UFC), and Javam Machado (UFC)</i>	
Fake News Detection Using One-Class Classification .592.....	
<i>Pedro Faustini (Universidade Federal do ABC) and Thiago Ferreira Covões (Universidade Federal do ABC)</i>	
Using Historical Information of Patients for Prior Authorization Learning .598.....	
<i>Karoline Farias (Universidade Federal do Piauí (UFPI)), Pedro Santos Neto (Universidade Federal do Piauí (UFPI)), Andre Santana (Universidade Federal do Piauí (UFPI)), and Ranulfo Bezerra Neto (Universidade Federal do Piauí (UFPI))</i>	

Clustering Techniques

A Temporal Clustering Algorithm for Achieving the Trade-off between the User Experience and the Equipment Economy in the Context of IoT .604.....	<i>Caio Ponte (Universidade de Fortaleza), Carlos Caminha (Universidade de Fortaleza), Rafael Bomfim (Universidade de Fortaleza), Ronaldo Moreira (Universidade de Fortaleza), and Vasco Furtado (Universidade de Fortaleza)</i>
Community Detection to Invariant Pattern Clustering in Images .610.....	<i>Lusmar M. Freitas (Federal University of Uberlândia) and Murillo G. Carneiro (Federal University of Uberlândia)</i>
K-Fact: Using the Frequency Factor for Clustering Categorical Data .616.....	<i>Robespierre Pita (Federal University of Bahia), Gabriela Borges (CIDACS - Oswaldo Cruz Foundation), Nivea Bispo (CIDACS - Oswaldo Cruz Foundation), Daniela Almeida (CIDACS - Oswaldo Cruz Foundation), Rosemeire Fiaccone (Federal University of Bahia), and Marcos E. Barreto (Federal University of Bahia)</i>
An Empirical Evaluation of Two Novel Linkage Criteria for Hierarchical Agglomerative Clustering .622.....	<i>Leonardo Emmendorfer (Federal University of Rio Grande)</i>
Using Clustering in Eye-Tracking Calibration Task .627.....	<i>Adrien Brilhault (Department of Computer Science, Federal University of Bahia, Salvador, Brasil), Sergio Neuenschwander (Brain Institute, Federal University of Rio Grande do Norte, Natal, Brazil), and Ricardo Araújo Rios (Department of Computer Science, Federal University of Bahia, Salvador, Brasil)</i>

Neural Networks

A Electric Network Reconfiguration Strategy with Case-Based Reasoning for the Smart Grid .633	<i>Flávio Calhau (UFBA) and Joberto Martins (UNIFACS)</i>
Improving Recommendations by Using a Heterogeneous Network and User's Reviews .639.....	<i>Vitor Rodrigues Tonon (ICMC, University of São Paulo), Cintia Carvalho Oliveira (Federal Institute of Triângulo Mineiro and University of São Paulo), Daniele Carvalho Oliveira (Federal University of Uberlândia and University of São Paulo), Alneu de Andrade Lopes (University of São Paulo), Roberta Akemi Sinoara (University of São Paulo), Ricardo Marcondes Marcacini (Federal University of Mato Grosso do Sul), and Solange Oliveira Rezende (University of São Paulo)</i>
A Network-Based Model for Optimizing Returns in the Stock Market .645.....	<i>Tiago Colliri (University of São Paulo) and Liang Zhao (University of São Paulo)</i>
Analytical Calculation of Hidden Layer Biases in Extreme Learning Machines with Sinusoidal Activation Function .651.....	<i>Matheus Rocha Barbosa (Federal University of Piauí – UFPI) and Luís Gustavo Mota Souza (Federal University of Piauí – UFPI)</i>
A Sampling-Based Framework for Transductive Classification in Information Networks .657.....	<i>Brucce Neves Santos (University of São Paulo), Ricardo M. Marcacini (Federal University of Mato Grosso do Sul), and Solange O. Rezende (University of São Paulo)</i>

Knowledge Representation and Reasoning II

Can NetGAN be Improved on Short Random Walks? .663.....	<i>Vinicius Caridá (Itaú Unibanco), Amir Jalilifard (Itaú unibanco), Alex Mansano (Itaú Unibanco), and Rogers Cristo (Itaú Unibanco)</i>
Development of Criminal Ontologies to Enhance Situation Assessment .669.....	<i>Jordan Ferreira Saran (São Paulo State University (UNESP)) and Leonardo Castro Botega (São Paulo State University (UNESP))</i>
Probabilistic Multilateration: Model and Inference .675.....	<i>Daniel Jean Rodrigues Vasconcelos (Federal Institute of Ceará), Amauri Holanda de Souza Júnior (Federal Institute of Ceará), and Francesco Corona (Federal University of Ceará)</i>
Explainable Machine Learning for Breast Cancer Diagnosis .681.....	<i>Tamires Brito-Sarracino (University of São Paulo), Moisés Rocha dos Santos (University of São Paulo), Eric Freire Antunes (University of São Paulo), Iury Batista de Andrade Santos (University of São Paulo), Jonas Coelho Kasmanas (University of São Paulo), and André Carlos Ponce de Leon Ferreira de Carvalho (University of São Paulo)</i>
Bayesian Networks for Inference and Discovery of Semantic Relations in a Never-Ending Learning System .687.....	<i>Edimilson Batista dos Santos (Federal University of São João del-Rei), Igor Henrique P. Rodrigues (Federal University of São João del-Rei), Estevam R. Hruschka Jr. (Federal University of São Carlos), and Lucas Rezende Bruno (Federal University of São João del-Rei)</i>
Generalized Iterated Belief Change in Dynamic Epistemic Logic .693.....	<i>Marlo Souza (Federal University of Bahia - UFBA), Álvaro Moreira (Federal University of Rio Grande do Sul - UFRGS), and Renata Vieira (Pontifical Catholic University of Rio Grande do Sul - PUCRS)</i>

Deep Learning Applications II

Mobile System to Aid in the Identification and Classification of Electrical Assets using Convolutional Neural Network .699.....	<i>Pedro Pedrosa Rebouças Filho (Instituto Federal de Educacao, Ciencia e Tecnologia do Ceará), Wellington M. Souza (Instituto Federal de Educacao, Ciencia e Tecnologia do Ceará), Leandro B. Marinho (Universidade Federal do ceará and Instituto Federal de Educacao, Ciencia e Tecnologia do Ceará), Gabriel B. Holanda (Instituto Federal de Educacao, Ciencia e Tecnologia do Ceará), Harison Herman Silva (Pontifícia Universidade Católica de Minas Gerais), Alvaro A. F. Leite (Cernegele Sistemas Energeticos, Pocos de Caldas, Minas Gerais, Brazil), Thais S. Bandeira (Centrais Eletricas do Para, Belem, Para, Brazil), and A. Wendell O. Rodrigues (Instituto Federal de Educacao, Ciencia e Tecnologia do Ceará)</i>
Image Processing with Convolutional Neural Networks for Classification of Plant Diseases .705..	<i>Vanessa Castro Rezende (Universidade Federal do Pará), Michel Costa (Universidade Federal do Sul e Sudeste do Pará), Adam Santos (Universidade Federal do Sul e Sudeste do Pará), and Roberto C. L. de Oliveira (Universidade Federal do Pará)</i>

Semantic Segmentation of Static and Dynamic Structures of Marina Satellite Images using Deep Learning .7.1.....	<i>Matheus M. dos Santos (Universidade Federal do Rio Grande - FURG), Giovanni G. De Giacomo (Universidade Federal do Rio Grande - FURG), Paulo Drews-Jr (Universidade Federal do Rio Grande - FURG), and Silvia S. C. Botelho (Universidade Federal do Rio Grande - FURG)</i>
Semi-supervised Classification Using Deep Learning .7.1.7.....	<i>Bruno Vicente Alves de Lima (Federal University of Rio Grande do Norte), Adrião Duarte Dória Neto (Federal University of Rio Grande do Norte), Lúcia Emilia Soares Silva (Federal University of Piauí), Vinícius Ponte Machado (Federal University of Piauí), and João Guilherme Cavalcanti Costa (University of São Paulo)</i>
Statistical and Deep Learning Models for Forecasting Drug Distribution in the Brazilian Public Health System .7.23.....	<i>Renan Martins (Brazilian Federal Court of Accounts), Skander Hannachi (Nordstrom), and Guilherme Ramos (University of Brasília)</i>

Image Processing Applications

Meta-Data Construction for Selection of Breast Tissue Biopsy Slides Image Classifier to Identify Ductal Carcinoma .7.29.....	<i>Luis Fernando Marin Sepulveda (Federal University of Maranhao), Aristofanes Correa Silva (Federal University of Maranhao), and Joao Otavio Bandeira Diniz (Federal University of Maranhao)</i>
Car Plate Character Recognition Via Semi-Supervised Learning .7.35.....	<i>João Pedro Kerr Catunda (University of Santa Catarina State), André Tavares da Silva (University of Santa Catarina State), and Lilian Berton (Federal University of São Paulo)</i>
Automatic Classification of Medicinal Plant Species Based on Color and Texture Features .7.41....	<i>Luciano Pacifico (Universidade Federal Rural de Pernambuco), Larissa Britto (Universidade Federal Rural de Pernambuco), Emilia Oliveira (Universidade Federal Rural de Pernambuco), and Teresa Ludermir (Universidade Federal de Pernambuco)</i>
Human Action Recognition using 2D Poses .7.47.....	<i>Murilo Vargas da Silva (UFSCar/IFSP) and Aparecido Nilceu Marana (Unesp)</i>
Expression Removal in 3D Faces for Recognition Purposes .7.53.....	<i>Lucas Amparo Barbosa (Federal University of Bahia, Brazil), Gabriel Dahia (Federal University of Bahia, Brazil), and Maurício Pamplona Segundo (Federal University of Bahia, Brazil)</i>
Analysis of Machine Learning Techniques in Fault Diagnosis of Vehicle Fleet Tracking Modules .7.59.....	<i>Luis H. M. Sepulvane (Federal University of Itajubá), Isabela N. Drummond (Federal University of Itajubá), Bruno T. Kuehne (Federal University of Itajubá), Rafael M. D. Frinhani (Federal University of Itajubá), Fábio Petri (DDMX), Stephan Reiff-Marganiec (University of Leicester), and Bruno G. Batista (Federal University of Itajubá)</i>

Data Mining II

Dodecaphonic Composer Identification Based On Complex Networks .765.....	<i>Lucas Francesco Piccioni Costa (Universidade Tecnológica Federal do Paraná) and Andrés Eduardo Coca Salazar (Universidade Tecnológica Federal do Paraná)</i>
Bidirectional Mean Distance Estimation: A New Gap filling Method .771.....	<i>Marcos Ricardo Santos Oliveira (Federal University of Bahia) and Ricardo Araújo Rios (Federal University of Bahia)</i>
Visual Approach to Support Analysis of Optimum-Path Forest Classifier .777.....	<i>Danilo Eler (São Paulo State University (UNESP)), Matheus Batista (São Paulo State University (UNESP)), Rogério Garcia (São Paulo State University (UNESP)), Danillo Pereira (Universidade do Oeste Paulista (UNOESTE)), and Wilson Marcílio Júnior (São Paulo State University (UNESP))</i>
A Probabilistic Algorithm to Estimate the Spectral Moments of Large Undirected Weighted Graphs .783.....	<i>Gustavo Dias (UTFPR - Universidade Tecnológica Federal do Paraná) and André Kashiwabara (UTFPR - Universidade Tecnológica Federal do Paraná)</i>
A Survey and Comparison of Trajectory Classification Methods .788.....	<i>Camila Leite da Silva (Universidade Federal de Santa Catarina), Lucas May Petry (Universidade Federal de Santa Catarina), and Vania Bogorny (Universidade Federal de Santa Catarina)</i>
Enhancement on the Labeled Component Unfolding System for Parallel Implementations .794....	<i>Lucas Francisco Amaral Orosco Pellicer (University of São Paulo (USP)), Filipe Alves Neto Verri (Aeronautics Institute of Technology (ITA)), and Vitor Venceslau Curti (Aeronautics Institute of Technology (ITA))</i>

Natural Language Processing III

Explaining Content-Based Recommendations with Topic Models .800.....	<i>Gustavo Padilha Polletti (Universidade de São Paulo) and Fabio Gagliardi Cozman (Universidade de São Paulo)</i>
Identifying Traffic Event Types from Twitter by Multi-Label Classification .806.....	<i>Jorge Cristhian Chamby-Diaz (UFRGS) and Ana Bazzan (UFRGS)</i>
Structural Correspondence Learning for Cross-Domain Sentiment Analysis in Brazilian Portuguese .812.....	<i>Larissa Britto (Universidade Federal Rural de Pernambuco), Rinaldo Lima (Universidade Federal Rural de Pernambuco), and Luciano Pacífico (Universidade Federal Rural de Pernambuco)</i>
A Multiview Clustering Approach for Mining Authorial Affinities in Literary Texts .818.....	<i>Andréa B. Duque (Federal University of Pernambuco (UFPE)), Francisco de A. T. de Carvalho (Federal University of Pernambuco (UFPE)), and Renato Vimieiro (Federal University of Minas Gerais)</i>

An Approach to Support the Selection of Relevant Studies in Systematic Review and Systematic Mappings	824
---	-----

*Gleison de Andrade e Silva Silva (Universidade Federal do Piauí,
Infoway Tecnologia e Gestão em Saúde), Pedro de Alcântara dos Santos
Neto Neto (Universidade Federal do Piauí, Infoway Tecnologia e Gestão
em Saúde), Raimundo Santos Moura Moura (Universidade Federal do
Piauí), Alexandre Cristian Araújo Araújo (Universidade Federal do
Piauí), Otávio Cury da Costa Castro (Universidade Federal do
Piauí), and Irvayne Matheus de Sousa Ibiapina (Universidade Federal do
Piauí)*

Neural Networks and Fuzzy Systems

Exploring Artificial Neural Networks: A Data Complexity Perspective	830
<i>Lucas P. Zorzi (Universidade Federal de São Paulo) and Ana Carolina Lorena (Instituto Tecnológico de Aeronáutica)</i>	
Quantum Walk to Train a Classical Artificial Neural Network	836
<i>Luciano Souza (Universidade Federal Rural de Pernambuco), Jonathan Carvalho (Universidade Federal Rural de Pernambuco), and Tiago Ferreira (Universidade Federal Rural de Pernambuco)</i>	
Quantum Neural Networks Learning Algorithm Based on a Global Search	842
<i>Fernando Maciano de Paula Neto (Universidade Federal de Pernambuco), Teresa Bernarda Ludermir (Universidade Federal de Pernambuco), and Wilson Rosa de Oliveira (Universidade Federal Rural de Pernambuco)</i>	
An Introduction to Quaternion-Valued Recurrent Projection Neural Networks	848
<i>Marcos Eduardo Valle (University of Campinas) and Rodolfo Anibal Lobo (University of Campinas)</i>	

Data Mining Applications II

Audio Plugin Recommendation Systems for Music Production	854
<i>Paulo Mateus Moura da Silva (Instituto Federal do Ceará), César Lincoln Cavalcante Mattos (Universidade Federal do Ceará), and Amauri Holanda de Souza Júnior (Instituto Federal do Ceará)</i>	
Comorbidity Prediction and Validation using a Disease Gene Graph and Public Health Data	860
<i>Carla Fernandes da Silva (Instituto Federal Sul de Minas Gerais), Kuruvilla Joseph Abraham (University of São Paulo), and Evandro Eduardo Seron Ruiz (University of São Paulo)</i>	
A Random Keys Genetic Algorithm Approach for Reconfiguration Problem in Distribution Power Networks	866
<i>Mateus Teixeira Magalhães (Federal University of Juiz de Fora), Gabriel Brandão de Miranda (Federal University of Juiz de Fora), Luciana Brugiolo Gonçalves (Federal University of Juiz de Fora), Lorenza Leão Oliveira Moreno (Federal University of Juiz de Fora), Stênia Sá Rosário Furtado Soares (Federal University of Juiz de Fora), and Leonardo Willer de Oliveira (Federal University of Juiz de Fora)</i>	
Hybrid System for Time Series using Iterative Residual Forecasting Models	872
<i>Eraylson Galdino da Silva (UFPE), Paulo Salgado Gomes de Mattos Neto (UFPE), and João Fausto Lorenzato de Oliveira (UPE)</i>	
Evaluation of Data Based Normal Behavior Models for Fault Detection in Wind Turbines	878
<i>Daniel Souza (UFC), Thiago Vasconcelos (UFC), Cesar Mattos (UFC), and Joao Gomes (UFC)</i>	

Author Index	885
--------------------	-----