2022 8th International Conference on Optimization and Applications (ICOA 2022)

Sestri Levante, Italy 6 – 7 October 2022



IEEE Catalog Number: CFP22DBA-POD ISBN: 978-1-6654-7682-9

Copyright © 2022 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:
 CFP22DBA-POD

 ISBN (Print-On-Demand):
 978-1-6654-7682-9

 ISBN (Online):
 978-1-6654-7681-2

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



Table of contents

Multi-objective layout optimization of industrial environment Xiaoxiao Song, Emilie Poirson, Yannick Ravaut and Fouad Bennis	6
A Smooth Approach to the solution of Nonlinear Complementarity Problems involving P0-function El Hassene Osmani, Mounir Haddou and Naceurdine Bensalem	12
LSTM Deep Learning vs ARIMA Algorithms for Univariate Time Series Forecasting: A case study	18
Jouilil Youness and Mentagui Driss	
Artificial intelligence and machine learning for a better decision making in the public sector	22
Jihad Satri, Chakib El Mokhi and Hanaa Hachimi	
Hyperbolic Functions Impact Evaluation on Channel Identification Based on Recursive Kernel Algorithm Rachid Fateh, Anouar Darif and Said Safi	27
Beamforming Optimization by Binary Genetic Algorithm	33
Atzemourt Mossaab, Farchi Abdelmajid, Chihab Younes and Hachkar Zakaria	
Reliable and energy-efficient transmission scheme based on error correction codes and clustered routing protocol for WSN Ikram Daanoune and Abdennaceur Baghdad	38
How AI is automating writing: The rise of robot writers Malak Dargham, Hanaa Hachimi and Mohammed Boutalline	44
Multiband and Wide Band Octagonal Fractal Antenna for Telecommunication Applications	49
Mohamed Marzouk, Ibrahime Hassan Nejdi, Youssef Rhazi and Mohamed Saih	
Nonsmooth Optimization for Synaptic Depression Dynamics Nouhayla Ait Oussaid, Mourad El Ouali, Sultana Ben Aadi, Khalid Akhlil and Salma Gaou	55
Solution of Schr¨odinger type Problem in Extended Colombeau Algebras Abdelmjid Benmerrous, Lalla Saadia Chadli, Abdelaziz Moujahid, Said Melliani and M'Hamed Elomari	60
Transient Thermal Profile Prediction for Integrated Circuits (ICs) Thermal Management Aziz Oukaira	65
A packaging industry optimization based on three metaheuristics methods Sara Rhouas and Norelislam El Hami	69

Towards the use of artificial intelligence and machine learning in material scientist field	74
Sara Samine, Maria Zemzami, Nabil Hmina, Manuel Lagache and Soufiane Belhouideg	
Assignement problem solved by two metaheuristic algorithms ACO and HHO Anas El Attaoui and Norelislam El Hami	79
An Econometric Analysis of the Determinants of Small's Cities' Attractiveness: Evidence from Moroccan Case Sohaib Khalid, Driss Effina and Jouilil Youness	83
Electronic nose based on gas sensors and a machine-learning algorithm to discriminate potatoes according to the cultivated field nature Ali Amkor and Noureddine El Barbri	89
TPMS Lattice Structure derived using Topology Optimization for the Design of Additive Manufactured Issam El Khadiri, Mohamed Abouelmajd, Maria Zemzami, Nabil Hmina, Manuel Lagache, Bandar Almangour, Ahmed Bahlaoui, Ismail Arroub and Soufiane Belhouideg	93
Accounting for large jobs for a single-processor online model Elizaveta Tarasova and Natalya Grigoreva	97
Agriculture 4.0: Literature Review and Application Challenges in the "Beni Mellal-Khenifra" region Khalid El Moutaouakil, Brahim Jabir and Noureddine Falih	102
Agent-based Modeling and Simulation of Digital Learning Environment Ouassam Elhoucine, Hmina Nabil, Bouikhalene Belaid and Hachimi Hanaa	108
A comparative study of several metaheuristic algorithms for optimization problems Hakima Reddad, Maria Zemzami, Norelislam El Hami and Nabil Hmina	113
Optimal Additive C-Fuzzy Regression Trees for Software Development Effort Prediction Assia Najm, Abdelali Zakrani and Marzak Abdelaziz	122
Automatic detection of covid-19 using CNN model combined with Firefly algorithm Bouzaachane Khadija	128
Optimizing Feature Representation via A Nested Network for Object Segmentation Abdalrahman Alblwi and Kenneth E. Barner	132
Deep-Learning models for daily PM10 forecasts using feature selection and genetic algorithm Oumaima Bouakline, Youssef El Merabet and Kenza Khomsi	138
A conceptual framework for personality-sensitive scheduling models	142

Mechanical Behavior of TPMS-Based Solid Network Structures Obtained by Additive Manufacturing Technology Mohamed Abouelmajd, Issam El Khadiri, Ismail Ezzaraa, Maria Zemzami, Mohamed El Afi, Manuel Lagache, Bandar Almangour, Ismail Arroub, Rachid Bouferra, Mohamed Essaleh, Ahmed Bahlaoui, Nabil Hmina and Soufiane Belhouideg	146
An Optimized Adaptive Learning Approach Based on Cuckoo Search Algorithm El Miloud Smaili, Salma Azzouzi and Moulay El Hassan Charaf	151
On intuitionistic fuzzy laplace transforms for solving intuitionistic fuzzy partial Volterra integro-differential equations Zineb Belhallaj, M'Hamed Elomari, Said Melliani and Lalla Saadia Chadli	155
Applying Face Recognition in Video Surveillance for Security Systems Khadija Bouzaachane and El Mahdi El Guarmah	161
Predicting Stock Market Price Movement using Machine Learning Techniques Ibtissam Medarhri, Mohamed Hosni, Najib Nouisser, Fatma Chakroun and Khalid Najib	166
6G and V2X Communications: Applications, Features, and Challenges Hamza Ouamna, Zhour Madini and Younes Zouine	171
Numerical optimization methods for financial time series GARCH(p,q) model, a comparative approach Ayoub Razouk, Rachid Ait Daoud and Moulay El Mehdi Falloul	177
Improved stability analysis for Takagi-Sugeno (T-S) fuzzy systems with two additive time-varying delays Said Idrissi, Youssef El Fezazi, Nabil El Fezazi and Elhoussaine Tissir	184
Optimal energy management for a connected microgrid using dynamic programming method Wassim Chouaf, Ahmed Abbou and Ali Agga	188
Using AI and IoT at the Edge of the network Sanaa Lakrouni, Marouane Sebgui and Slimane Bah	194
An intelligent decision support system to anticipate the fall of a structure for paraplegic patients Khalil Ibrahim Hamzaoui, Mohammed Gabli and Laurent Peyrodie	200
Secure Data Acces in Odoo System Hasnaa Souabni, Houssam Benbrahim and Aouatif Amine	204
Mode Collapse in Generative Adversarial Networks: An Overview Youssef Kossale, Mohammed Airaj and Aziz Darouichi	209
Images Segmentation using Deep Learning Algorithms and Metaheuristics	215

A NEW HYBRID GENETIC WITH FIREFLY ALGORITHM FOR SOLVING CYBER-CRIMINAL'S ATTACKS	221
Narimen Hafsi, Hanaa Hachimi and Djamel Benterki	
The importance of Enterprise Resource Planning (ERP) in the optimisation of the SME's ressources in Morocco Jihane Ech-Chatebi and Asmaa Farah	226
Optimized management of green supply chains by the use of ant colonies multi- objective algorithm: The integration of the economic, environmental and social impacts of multimodal transport Adam El Khaldi and Prof. Dr. Hanaa Hachimi	232
On PI-Net deep learning model for classification of images Abdellah Haddad, Badr Abou El Majd and Driss Bennis	241
Power Management Strategy for a Direct Current Hybrid Microgrid based on Doubly Fed Induction Generator and Fuel Cell	246
Ouassima El Qouarti, Ahmed Essadki, Hammadi Laghridat and Tamou Nasser	
Road traffic accident prediction: a driving behavior approach Hajar Lazar and Zahi Jarir	25 1
Performance Evaluation of Supervised ML Algorithms of Elephant Flow Detection in SDN	255
Kaoutar Boussaoud, Meryeme Ayache and Abdeslam Ennouaary	
Waste solid management using Machine learning approch Gouskir Lahcen, Mohamed Edahbi, Mohamed Gouskir, Hanaa Hachimi and Abdelmoula Abouhilal	26 1
INDEX	266