

2018 4th International Conference on Optimization and Applications (ICOA 2018)

**Mohammedia, Morocco
26-27 April 2018**



**IEEE Catalog Number: CFP18DBA-POD
ISBN: 978-1-5386-4226-9**

**Copyright © 2018 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:	CFP18DBA-POD
ISBN (Print-On-Demand):	978-1-5386-4226-9
ISBN (Online):	978-1-5386-4225-2

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



Proceedings of 2018 International Conference on Optimization and
Applications (ICOA)

April 26 - 27, 2018 Mohammedia, Morocco

<http://www.icoa2018.net>

TABLE OF CONTENTS

Session 1: Electrical & Electronic engineering, Smart Grids & energy systems, Control systems and Mechatronics

Interactive Winding Geometry Design of Power Transformers.....	1
<i>Yayun Zhou, Meinhard Paffrath, Harald Ertl and Yiqing Gu</i>	
Analytical study of drain current and transconductance for a new cylindrical gate MOSFET structure	7
<i>Hind Jaafar, Abdellah Aouaj, Ahmed Bouziane, Benjamin Iñiguez</i>	
The Impact of the Decentralized Energy Generation on Moroccan Industrial HTA Network	12
<i>Sara Mkattiri, Abdallah Saad</i>	
Estimation of the state of charge of the battery using EFK and Sliding mode Observer in Matlab-Arduino/LabView	18
<i>Mouna Abarkan, Abdelilah Byou, Nacer KM'Sirdi, El hossain Abarkan</i>	
Usage and impact of multi-bit flip-flops low power methodology on physical implementation	24
<i>Lekbir Cherif, Mohamed Chentouf, Jalal Benallal, Mohammed Darmi, El gouri Rachid, Nabil Hmina</i>	
A new multilevel inverter with genetic algorithm optimization for hybrid power station application	29
<i>Khalili Tajeddine, Raihani Abdelhadi, Omar Bouattane, Hassan Ouajji</i>	
Optimal Digital IIR Filter Design Using Ant Colony Optimization	35
<i>Loubna Kritele, Bachir Benhala and Izeddine Zorkani</i>	

Reconstruction of axle load signal, measurement basis of static load of vehicle axles through the High Speed Weigh in Motion System	40
<i>Lhoussaine Oubrich, Mohammed Ouassaid, Mohamed Maaroufi</i>	
High On-Off current modulation ratio investigated at onset voltage for an organic thin film transistor	46
<i>Abdeljabbar Essaghir, El-Mahjoub Boufounas, Aumeur El Amrani, Bruno Lucas</i>	
Artificial Bee Colony Technique for a study of the Influence of Impact of Metal Thickness on the Factor of Quality-Q in Integrated Square Spiral Inductors	52
<i>Hamid Bouyghf, Bachir Benhala, and Abdelhadi Raihani</i>	
Sizing of three-stage bipolar transistor amplifier by the Genetic Algorithm	59
<i>Asmae El beqal, Bachir Benhala and Izeddine Zorkani</i>	
Power-Aware Clock Routing in 7nm Designs	64
<i>Mohamed Chentouf, Lekbir Cherif, Zine El Abidine Alaoui Ismaili</i>	
Enhanced electrical performance of the InP/InGaAs Single Heterojunction Bipolar Transistor in terms of the cutoff frequency	70
<i>Jihane Ouchrif, Abdennaceur Baghdad, Aicha Sahel, Abdelmajid Badri, Abdelhakim Ballouk</i>	
A Novel Modified DTC Scheme with Speed Fuzzy-PI Controller	75
<i>Amina Achalhi, Mohammed Bezza, Nour eddine Belbounaguia</i>	
Optimal Synchronizing Speed Control of Multiple DC Motors.....	80
<i>Hacı Mehmet Güzey, Ahmet Dumlu, Nurbanu Guzey, Adil Alpay</i>	
Vision-based control of a flying Spherical Inverted Pendulum	85
<i>Soukaina Krafes, Zakaria Chalh, Abdelmjid Saka</i>	
Power Capture Optimization of a Wind Energy Conversion System Using a Backstepping Integral Sliding Mode Control.....	91
<i>Fatima Ezzahra Lamzouri, El-Mahjoub Boufounas, Aumeur El Amrani</i>	
Positive Real Control for 2D Continuous Systems Roesser Models in Finite Frequency Domains	97
<i>Abderrahim El amrani, Bensalem Boukili, Abdelaziz Hmamed, Ahmed El Hajjaji, Ismail Boumhidi</i>	
Particle Swarm Optimization for tuning PI controller in FOC chain of induction motors	103
<i>Marouane Rayyam, Malika Zazi</i>	
PSO-MPC Control of Artificial Pancreas.....	108
<i>Mohamed El Hachimi, Abdelhakim Ballouk, Abdennaceur Baghdad</i>	
Parametric Uncertainties effect on the performance of HAWT's Induction machine: Bond Graph Approach	113
<i>Naima Jouilel, Benaissa El Fahime, Mohammed Radouani</i>	
Investigation of wake interactions effect on wind farm efficiency	118
<i>Charhouni Naima, Mohamed Sallaou, Khalifa Mansouri</i>	
A Robust Control and Design of Generator-Side Converter for a Multi-Megawatt Hydraulic Energy Conversion System	123
<i>Chirine Benzazah, Loubna Lazrak, Soukaina El Daoudi, Mustapha Ait Lafkih</i>	

Optimal Power Flow Management Strategies of MicroGrid, Using Petri Nets and Fuzzy Logic Approaches	129
<i>Marouane Lagouir, Abdelmajid Badri, Yassine Sayouti</i>	
Importance cleaning of PV Modules for Grid-Connected PV Systems in a desert environment.....	135
<i>Mohammed Mostefaoui, Ammar Necaibia, Abderrezzaq Ziane, Rachid Dabou, Abdelkrim Rouabhia, Seyfallah Khelifi, Ahmed Bouraiou, Nordine Sahouane</i>	
Multithreading Design for an Embedded Irrigation System Running on Solar Power	141
<i>Abdelouahed Selmani, Mohamed Outanoute, Mohamed Amini alaoui, Mohamed EL khayat, Mohammed Guerbaoui, Abdelali Ed-dahhak, Abdeslam Lachhab, Benachir Bouchikhi</i>	
HBase-based Storage System for Electrical Consumption Forecasting in a Moroccan Engineering School.....	146
<i>Houda Daki, Asmaa El Hannani, Hassan Ouahmane</i>	
Optimal Microgrid Sizing and Daily Capacity Stored Analysis in Summer and Winter season.....	152
<i>Mohammed Kharrich, Yassine Sayouti, Mohammed Akherraz</i>	
Optimal unit sizing of PV/Wind/Batterie/Sector generating system.....	158
<i>Zahira El hariz, Hicham Aissaoui, Mohammed Diany</i>	

Session 2: Antennas & Communication Systems, Embedded Systems, Audio, image & video processing, Computer Vision and medical applications

Array antenna characteristics improvement: parasitic patches (two disposals) and multi layer substrate techniques.....	163
<i>Nadia Chater, Tomader Mazri, Mohammed Benbrahim</i>	
Wide-band Circular Antenna for 5G Applications.....	169
<i>Youssef El Gholb, Mohamed El Bakkali, Najiba El Amrani El Idrissi</i>	
Resource allocation in a multi-carrier cell using scheduler algorithms.....	173
<i>Zenadji Sylia, Gueguen Cédric, Ouamri Med Amine and Khireddine Abdelkrim</i>	
Local search algorithm for Low Autocorrelation Binary Sequences	178
<i>Kaoutar Farnane, Khalid Minaoui, Driss Aboutajdine</i>	
A Novel Small and Compact Flexible Monopole Antenna for UWB Applications	183
<i>Asmae Hachi, Hassan Lebbar, Mohamed Himdi</i>	
High gain microstrip patch antenna, with PBG substrate and PBG cover, for millimeter wave applications.....	187
<i>Abir Zaidi, Abdennaceur Baghdad, Abdelhakim Ballouk, Abdelmajid Badri</i>	
A Novel Design of THz MEMS Λ -Helix Antenna using HFSS-based Effective Stochastic Solvers	193
<i>Abdelhakim Boudkhal, Mohammed Chetioui, Benabdallah Nadia, Asma Ouzzani, Nasreddine Benahmed</i>	

Design and Optimization of SIW Patch Antenna for Ku Band Applications using ANN Algorithms	199
<i>Mohammed Chetoui, Abdelhakim Boudkhil, Benabdallah Nadia, Nasreddine Benahmed</i>	
A Small Printed Antenna with Circular Slot for European UHF RFID Reader Devices	203
<i>Yassine Gmih, Younes El Hachimi, El Mostafa Makroum, Abdelmajid Farchi</i>	
A Compact Dual-band Antenna including Symmetrical Slots for 2.45/5.8 GHz Handheld RFID Reader Applications	208
<i>Younes El Hachimi, Yassine Gmih, El Mostafa Makroum, Abdelmajid Farchi</i>	
A new class of spectral risk measures	213
<i>Mohammed Berkouch, Ghizlane Lakhnati and Marcelo Brutti Righi</i>	
Monte Carlo Transport Code Using for Simulating the Neutron yield of spallation targets..	218
<i>Abdessamad Didi, Hassane El bekkouri, Rachid Machrafi, Ahmed Dadouch, Mohamed Bencheikh, Otman Jai</i>	
The effect of inlet and outlet position and sediments concentration on sedimentation tank efficiency	225
<i>Firdaouss Bouisfi, Achraf Bouisfi, Mohamed El Bouhali, Hamza Ouarriche, Mohamed Chaoui</i>	
Effects of carriers charge mobility and work function on the performances of P3HT:PCBM based organic photovoltaic solar cell.....	229
<i>Meriem Erray, Mounir Hanine, El-Mahjoub Boufounas, Aumeur El Amrani</i>	
A progression strategy of proximal algorithm for the unconstrained optimization	235
<i>Marouane Nazih, Khalid Minaoui</i>	
Implementation of parallel algorithm for Heat Equation using SkelGIS library, CUDA and SISAL	241
<i>Safa Belhaous, Meryem Bentaleb, Soumia Chokri, Mohammed Mestari, Abdelwahab Naji</i>	
How Does Cosmic Rays Affect Multijunction Solar Cells	246
<i>Aboulkacem Karkri, Abdelaziz Chetouani, Mohammed Benaichi, Driss Moussaid, Salah Eddin Elqebbaj</i>	
Optimisation using the response surface methodology: Application to an ice crystallization process for seawater pretreatment	251
<i>Ibtissam Baayyad, Naoual Semlali Aouragh Hassani</i>	
Towards controlling climatic parameters under greenhouse	255
<i>El Afou Youssef, Mustapha Jammoukh, Tarik Kousksou</i>	
A new fast brain tumor extraction method based on NI-means and expectation maximization	260
<i>Yassine Sayd Tahri, Sara Sandabad, Bouchaib Cherradi, Raihani Abdelhadi</i>	
A DPS filter for Nonconvex Edge Preserving For PieceWise Constant Signals Denoising..	265
<i>Anass Belcaid, Mohammed Douimi, El moukhtar Zemmouri</i>	
Performance analysis of Direction Of Arrival estimation under hard condition.....	270
<i>Bitissam Boustani, Abdennaceur Baghdad, Abdelmajid Badri, Abdelhakim Ballouk, Aicha Sahel</i>	
Thermal influence of brain tumor on MRI images with anisotropic properties	275
<i>Abdelmajid Bousselham, Omar Bouattane, Youssfi Mohamed, Abdelhadi Raihani</i>	

New wrapper method based on normalized mutual information for dimension reduction and classification of hyperspectral images	280
<i>Hasna Nhaila, Asma Elmaizi, Elkebir Sarhrouni, Ahmed Hammouch</i>	
Time and frequency parameters of sEMG signal - force relationship.....	287
<i>A Achmamad, A Belkhou, Atman Jbari, Larbi Bellarbi</i>	
QRS Complex Characterization based on Non-negative Matrix Factorization NMF.....	292
<i>Said Ziani, Atman Jbari, Larbi Bellarbi</i>	
Fuzzy cardiovascular diagnosis system using clinical data.....	297
<i>Terrada Oumaima, Bouchaib Cherradi, Raihani Abdelhadi, Omar Bouattane</i>	
A Binarization Method for Degraded Document Image using Neural Network and Interpolation Inpainting.....	301
<i>Naouel Ouafek, Mohamed-Khireddine Kholadi</i>	

Session 3: Aerospace, Naval and Marine Engineering Transportation, Logistic Engineering, Civil Engineering and Mechanical engineering

A New Mathematical Model for a Multi-Product Location-Arc Routing Problem	306
<i>Reza Tavakkoli-Moghaddam, Alireza Amini, Sadoullah Ebrahimnejad</i>	
Comparison between techniques feeding for simple rectangular, circular and triangular patch antenna at 2.45 GHz	311
<i>Aziz Elfatimi, Seddik Bri, Adil Saadi</i>	
Towards an Algerian earthquake-resistant BIM software used during the very early schematic design phase of an architectural project	316
<i>Mohamed Benabdelfattah, Kehila Youcef, Makhloufi Abdelkrim and Bouhanian Bachir</i>	
Topological Optimization of Structures Based on the BESO-Method.....	324
<i>Gueya Mahmoud, EL Mostapha Boudi, Toufik Tcherradi</i>	
Investigating the Effectiveness of the Sobel Operator in the MCA-based Automatic Crack Detection.....	331
<i>Ankur Dixit and Hiroaki Wagatsuma</i>	
Towards Implementing Lean Construction in the Moroccan Construction Industry: Survey Study.....	337
<i>Mohamed Saad Bajjou, Anas Chafi</i>	
Solving the Hybrid Berth Allocation Problem Using a Bat-Inspired Algorithm	342
<i>Issam El hammouti, Azza Lajjam, Mohamed EL Merouani</i>	
Development of a Thermal Cooling Model for Complex System Design using Thermoelectric Peltier.....	348
<i>Aziz Oukaira, Ouafaa Ettahri, Tabaa Mohamed, Ahmed Lakhssassi</i>	
Influence of Keel coolers use on ship energy efficiency: A case Study and Evaluation	352
<i>Abdallah Aijjou, Lhoussain Bahatti and Raihani Abdelhadi</i>	

Change Management in Supply Chain	358
<i>Hayat Tajri, Anas Chafi</i>	
Change Management in Supply Chain: Supply Chain Urbanization method	364
<i>Hayat Tajri, Anas Chafi</i>	
Lean Manufacturing For Handicraft Production: A new production system to enhance productivity and competitiveness of craft enterprise.....	371
<i>Fatine Chouiraf, Anas Chafi</i>	
The Integrated Production-Inventory-Routing problem in the context of Reverse Logistics: the case of collecting and remanufacturing of EOL products	377
<i>Zakaria Chekoubi, Wajdi Trabelsi, Nathalie Sauer</i>	
Ecodesign integration in the joint design of product and its supply chain: agent-based model	383
<i>Imane Ballouki, Mohammed Douimi, Latifa Ouzizi</i>	
Quick Response In Fast Fashion Retail: An Optimization Supply Chain Responsiveness Model	390
<i>Naila Fares, Maria Lebbar, Najiba Sbihi</i>	
The Impact of Network Structure in Collaborative Distribution System	395
<i>Hanan Ouhader, Malika El kyal</i>	
Optimizing Bootstrap Method to Improve Forecasting Accuracy in 'Business Jet Spare Parts Supply Chains'	401
<i>Roseline Ezekwesili, Armand Baboli, Muhammad-kashif Shahzad, Romy Tonadre</i>	
Estimation of Origin Destination Matrix using Fuzzy Logic	407
<i>Asma Sbai, Fattehallah Ghadi</i>	
Uncertainty Analysis in Tactical Logistics Chain Planning: Sources and Consequences	411
<i>Sofia Kassami, A. Zamma and S. Ben Souda</i>	
Wind turbine failures analysis based on performances study and FMECA	415
<i>Bennouk Anasse, Nejmi Ali</i>	
Multicriterial Evaluation of Process Planning of a New Product in The Stage of Its Design	421
<i>Fatimazahra Guini, Abdellah El Barkany, Abdelouahhab Jabri</i>	
Lagrangian relaxation-based lower bound for the two-machine flow shop with synchronized periodic maintenance	427
<i>Issam Krimi, Rachid Benmansour, Nizar Elhachemi, David Duvivier</i>	
Impact of intelligent wireless sensor network on predictive maintenance cost	433
<i>Soukaina Sadiki, M. Faccio, M. Ramadany, D.Amgouz and S. Boutahar</i>	
Estimation of a Repairable System Reliability	439
<i>My Elhoussine Ech-chhibat, Lhoucine Bahatti, Abdelhadi Raihani and Ayoub Fentis</i>	
Numerical modeling of fatigue analysis of welded rectangular profiles under damped loads for automotive utilization	444
<i>Imane Amarir, Hamid Mounir, Abdellatif El marjani</i>	

Hybrid optimization procedure and active vibration control of beams with piezoelectric patches	449
--	-----

Yassin Belkourchia, Lahcen Azrar and Es-sadek Mohamed Zeriab

Optimal volume design of planetary gear train using particle swarm optimization.....	456
--	-----

Kaoutar Daoudi and El Mostapha Boudi

Comparison between two Generation of consistent skin model shape based on a linear and nonlinear simulation of analysis tolerancing of complain assembly with the consideration of spot welding effects	460
---	-----

Hafsa Atik, Mouhssine Chahbouni, Driss Amegouz and Said Boutahari

Session 4: Software & Computer Engineering, Big data cloud computing & Internet of Things, Scheduling & Data mining, Artificial Intelligence, Smart city and traffic simulation

A Bi-Objective Location-Allocation Problem of Temporary Emergency Stations and Ambulance Routing in a Disaster Situation	465
--	-----

Reza Tavakkoli-Moghaddam, Pedram Memari, Ehsan Talebi

Modeling the flow of road traffic with the SUMO simulator.....	469
--	-----

Sara Haddouch, Nabil Hmina, Hanaa Hachimi

A WSN-based approach for prioritising emergency vehicles: Performance analysis of Medium Access Control.....	474
--	-----

Zakaria Hamidi-Alaoui, Abdelbaki El Belrhiti El Alaoui

Toward a Distributed Strategy for Emergency Ambulance Routing Problem.....	480
--	-----

Elgarej Mouhcine, Yassine Karouani, Khalifa Mansouri, Youssfi Mohamed

Real-Time UAV Path-Terrain Collision Evaluation on FPGA.....	484
--	-----

François Charles Joseph Allaire, Mohammed Tarbouchi, Gilles Labonte, Vincent Roberge

Route Planning for Electric Vehicle Efficiency Using the Bellman-Ford Algorithm on an Embedded GPU	489
--	-----

Adam Chambers, Matthew Eavis-O'Quinn, Vincent Roberge, Mohammed Tarbouchi

Configurable Process Mining: A Comparative Study	495
--	-----

Rabab Sikal, Hanae Sbai, Laila Kjiri

Rethinking IT Project Financial Risk Prediction Using Reference Class Forecasting Technique	501
---	-----

Abir El Yamami, Souad Ahriz, Khalifa Mansouri, Mohammed Qbadou, EL hossein Illoussamen

Heuristics for dynamic load balancing in parallel computing.....	507
--	-----

Soumia Chokri, Sohaib Baroud, Safa BELHAOUS, Meryem Bentaleb, Youssfi Mohamed, Mohammed Mestari

A syntactic and semantic multi-agent based Question Answering System for collaborative E-learning	512
---	-----

Abderrazzak Samadi, Hanaa El fazazi, Mohammed Qbadou, Youssfi Mohamed, Fatiha Akef

Information System Performance Evaluation and Optimization using AHP and TOPSIS: Construction Industry case	516
<i>Ansar Daghour, Khalifa Mansouri, Mohammed Qbadou</i>	
Virtual Platform for Modeling the Power Consumption of a Soft-core Processor by the SystemC/TLM	524
<i>Zineb Elhariti, Abdelhakim Alali, Mohamed Sadik</i>	
Towards an Educational Recommendation System based on Big Data Techniques-Case of Hadoop.....	528
<i>Mohammed Qbadou, Intissar Salhi, Khalifa Mansouri</i>	
LPWAN IEEE 802.11ah and LoRaWAN capacity simulation analysis comparison using NS-3	533
<i>Oukessou Yassine, Baslam Mohamed, Oukessou Mohamed</i>	
Real-Time Data Analysis Using Spark and Hadoop	537
<i>Khadija Aziz, Zaidouni Dounia, Mostafa Bellafkih</i>	
Practices and usages of the Cloud Computing as a solution to rise to the challenge of the digitalization of Moroccan companies	543
<i>Ibtissam M'rhaouarh and N. Chafiq</i>	
A Semantic Smart Interconnected Healthcare System using Ontology and Cloud Computing	548
<i>Ahmed Abatal, Hajar Khallouki, Mohamed Bahaj</i>	
MIP formulations for identical parallel machine scheduling problem with single server.....	553
<i>Abdelhak Elidrissi, Rachid Benmansour, Mohammed Benbrahim, David Duvivier</i>	
Ranking of Text Documents using TF-IDF Weighting and Association Rules mining.....	559
<i>Siham Jabri, Azzeddine Dahbi, Gadi Taoufiq, Abdelhak Bassir</i>	
Three Metaheuristics for solving the Flow Shop Problem with Permutation and Sequence Dependent Setup Time	565
<i>Said Aqil, Karam Allali</i>	
A Comparative Study of Discretization Method for HMM Classifiers.....	571
<i>Badreddine Benyacoub, Sabry Abdelhadi and Souad El Bernoussi</i>	
Artificial Neural Networks Applications in Economics and Management Research: An Exploratory Literature Review	577
<i>Bilal Elmsili, Benaceur Outtaj</i>	
RNA secondary structure prediction based on genetic algorithm and comparative approach	583
<i>Abdelhakim El fatmi, Ali Bekri, Said Benhlima</i>	
Validation of the GATE Monte Carlo Code for Radiation Therapy: Varian Clinac2300C/D	590
<i>Zakaria Aitelcadi, Yassine Toufique, Saad Elmadani, Abderrahman EL Kharrim, Othmane Bouhali, Abderraouf Hilali</i>	