

# **2022 8th International Conference on Control, Decision and Information Technologies (CoDIT 2022)**

**Istanbul, Turkey  
17-20 May 2022**

**Pages 1-830**



**IEEE Catalog Number: CFP22COB-POD  
ISBN: 978-1-6654-9608-7**

**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:	CFP22COB-POD
ISBN (Print-On-Demand):	978-1-6654-9608-7
ISBN (Online):	978-1-6654-9607-0
ISSN:	2576-3547

**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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# TABLE OF CONTENTS

Adaptive Gain First-Order Sliding Mode Control for a Millimetric Electrospinning Device with Output Constraints.....	9
<i>Oscar Reyes-Garcia, Alejandro Lozano, David Cruz-Ortiz, Mariana Ballesteros, Isaac Chairez</i>	
Extended Predictive Control of Interconnected Oscillators.....	15
<i>Camilo Garcia-Tenorio, Alain Vande Wouwer</i>	
High-Level Colored Time Petri Nets for True Concurrency Modeling in Real-time Software.....	21
<i>Imane Haur, Jean-Luc Bechennec, Olivier H. Roux</i>	
Defect Detection by a Deep Learning Approach with Active IR Thermography.....	27
<i>Giovanna Guaragnella, Davide Morelli, Tiziana D'Orazio, Umberto Galletti, Bartolomeo Trentadue, Roberto Marani</i>	
Stability of the Optimal Control Problem Solution .....	33
<i>Askhat Diveev, Elizaveta Shmalko</i>	
Monitoring of Backside Weld Bead Width from High Dynamic Range Images Using CNN Network.....	39
<i>Rui Yu, Joseph Kershaw, Peng Wang, Yuming Zhang</i>	
Object Recognition and Tracking Using Haar-Like Features Cascade Classifiers: Application to a Quad-rotor UAV.....	45
<i>Luis Arreola, Gesem Gudino, Gerardo Flores</i>	
A Novel Attempt of Barrier Function to the Safety of Caputo's Fractional-Order Systems.....	51
<i>Zheren Zhu, Nan Liu, Xinmin Zhang, Zhihuan Song, Yi Chai</i>	
Distributed Process Monitoring Based on Multi-Block KGLPP .....	57
<i>Qiu Tang, Xincheng Tian, Yan Liu, Zheren Zhu</i>	
Design of LQR Controller for 3D Trajectory Tracking of Octocopter Unmanned Aerial Vehicle .....	63
<i>Jasmin Velagic, Nedim Osmic, Vedin Klovo, Halil Lacevic</i>	
A Comparison of Data Imputation Methods Utilizing Machine Learning for a New IoT System Platform.....	69
<i>Sena Kalay, Eyup Cinar, Inci Saricicek</i>	
PRNU Estimation Based on Weighted Averaging for Source Smartphone Video Identification .....	75
<i>Ashref Lawgaly, Fouad Khelifi, Ahmed Bouridane, Somaya Al-Maaddeed, Younes Akbari</i>	
Signals Features Extraction in Radioisotope Liquid-Gas Flow Measurements Using Autocorrelation Function.....	81
<i>Robert Hanus, Marcin Zych, Anna Golijanek-Jedrzejczyk</i>	
Control-Relevant Model Selection for Servo Control Systems.....	86
<i>Mathias Tantau, Torben Jonsky, Zygimantas Ziukas, Hans-Georg Jacob</i>	
Remaining Useful Life Predictions for Turbofan Engine Using Semi-Supervised DBN-LSTM Joint Training Model.....	94
<i>Yutong Zhang, Xiaochu Tang, Xinmin Zhang</i>	

A Humanlike Lane Change Decision Strategy for Mixed Traffics with Multi-Objects .....	100
<i>Ping Wu, Feng Gao, Keqiang Li</i>	
Solving a Realistic Hybrid and Flexible Flow Shop Scheduling Problem Through Constraint Programming: Industrial Case in a Packaging Company .....	106
<i>S. Oujana, L. Amodeo, F. Yalaoui, D. Brodart</i>	
Autonomous Landing of Tailless, Blended Wing, and Variable Centre of Mass UAV Using Adaptive Control .....	112
<i>Mihai Lungu, Gerardo Flores, Dana-Aurelia Dinu, George Mihail Ciuca</i>	
A Two-Step Identification-optimization Approach for Climate Change Control.....	118
<i>Lucia Sangiorgi, Claudio Carnevale</i>	
A Multi-Source Transfer Learning Method for New Mode Monitoring in Industrial Processes.....	124
<i>Kai Wang, Wenxuan Zhou, Chenliang Liu, Xiaofeng Yuan, Yalin Wang</i>	
A Simulation Model of Autonomous Ship Firefighting .....	130
<i>Lada Males, Dean Sumic, Marko Rosic</i>	
AI-Driven Intelligent Vehicle Behavior Decision in Software Defined Internet of Vehicle .....	135
<i>Jiayi Liu, Kai Lin, Giancarlo Fortino</i>	
Stabilization Control of Rotary Base Inverted Pendulum by Combination of Lyapunov-Base Controller and Linear PD Controller .....	141
<i>Cesar Alejandro Villasenor-Rios, Octavio Gutierrez-Frias</i>	
An Exact Dynamic Programming Algorithm, Lower and Upper Bounds, Applied to the Large Block Sale Problem .....	146
<i>David Nizard, Nicolas Dupin, Dominique Quadri</i>	
Parallel Numerical Simulation of Mass Transfer Through a Simplified Aerospace Material .....	152
<i>Adrian Duran-Chavesti, Nora Isabel Perez-Quezadas, Hector Benitez Perez</i>	
Industry 4. 0: Construction of a Waterproof Wearable Biosignal Device to Assist in Submerged Offshore Work.....	159
<i>William S. Barbosa, Flavia M. Goncalves, Felipe R. Henriques, Jonas L. Gurgel, Felipe C. Gouvea, Mariana M. Gioia</i>	
Cost Inference of Discrete-Time Linear Quadratic Control Policies Using Human-Behaviour Learning .....	165
<i>Adolfo Perrusquia, Weisi Guo</i>	
Bond Graphs for Production Control: A Systematic Literature Review .....	171
<i>Juliana K. Sagawa, Arthur S. Maluf, Gasper Music, Roberto F. S. Borges</i>	
K-Means and Fuzzy C-Means Fusion for Object Clustering.....	177
<i>Ashraf Heni, Imen Jdey, Hela Ltifi</i>	
Optimization of the CF <sup>2</sup> Mobile Robot Motion Planning Approach and Adaptation for Moving Targets .....	183
<i>Safa Ziadi, Mohamed Njah</i>	
Optimal Placement of Electric Vehicle Charging Infrastructure: Study Case of an Urban Area of Tunisia.....	189
<i>Ines Mehouchi, Mariem Trojette, Khaled Grayaa</i>	

An Algorithm for Solving a MinMax Problem with Bounded Constraints .....	195
<i>Aghiles Azizen, Kahina Louadj, Mohamed Aidene</i>	
MFO-WC Based Fuzzy Logic PI Controller for Load Frequency Control of Autonomous Microgrid System .....	200
<i>Abdessamade Bouaddi, Reda Rabeh, Mohammed Ferfra</i>	
Command Shaping Control of a Multi-Mode Flexible System .....	206
<i>Abdullah Alshaya</i>	
Switched Affine Systems with Hysteresis-Based Switching Control: Application to Power Converters .....	212
<i>Ryan P. C. De Souza, Zohra Kader, Stephane Caux</i>	
Differential Evolution Approach for Identification and Control of Stable and Unstable Systems .....	218
<i>Fayti Majid, Mjahed Mostafa, Ayad Hassan, El Kari Abdeljalil</i>	
OptTopo: Automated Set-Point Optimization for Coupled Systems Using Topology Information .....	224
<i>Gregor Thiele, Theresa Johanni, David Sommer, Martin Eigel, Jorg Kruger</i>	
Constrained Precision Tuning .....	230
<i>Dorra Ben Khalifa, Matthieu Martel</i>	
Kinematic Analysis and Position Control of Motor Grader Blade Mechanism for Automatic Levelling.....	237
<i>Ekin Cansu Ozkan, Halit Ergezer</i>	
Comparative Study of Misbehavior Detection System for Classifying Misbehaviors on VANET .....	243
<i>Omessaad Slama, Bechir Alaya, Salah Zidi, Mounira Tarhouni</i>	
Robust Stability and Ellipsoidal Quality Estimates of Interval Multidimensional Control Systems*1 .....	249
<i>R. O. Omorov, T. A. Akunov</i>	
Anomaly Detection with Selective Dictionary Learning.....	255
<i>Denis C. Ilie-Ablachim, Bogdan Dumitrescu</i>	
Selection of Statistic Textural Features for Skin Disease Characterization Toward Melanoma Detection .....	261
<i>Jinen Dagherir, Lotfi Tlig, Moez Bouchouicha, Noureddine Litaïem, Faten Zeglaoui, Mounir Sayadi</i>	
Neural Inverse Optimal Control of Single-Phase Induction Motors.....	268
<i>Jorge P. Vega, Edgar N. Sanchez, Larbi Djilali, Alexandre G. Loukianov</i>	
Reinforcement Learning for Assistance of Alzheimer's Disease Patients .....	274
<i>Wafa Ben Taleb, Ahmed Snoun, Tahani Bouchrika, Olfa Jemai</i>	
Solving Time Alignment Issue of Multimodal Data for Accurate Prognostics with CNN-Transformer-LSTM Network .....	280
<i>Sagar Jose, Raymond Houe Ngouna, Khanh T. P. Nguyen, Kamal Medjaher</i>	
Investigation of Stateful Microservice Availability During Failover .....	286
<i>Kestutis Pakrijauskas, Dalius Mažeika</i>	
Complete Analytical Solution to the Energy-Optimal Problem of Multivariable Perfect Control Systems Based on the Generalized H-inverse .....	291
<i>Tomasz Feliks, Wojciech P. Hunek, Marek Krok, Pawel Majewski</i>	

A Swarm Model for Target Capturing in a Polygonal Strip.....	297
<i>Antonio Bono, Luigi D'Alfonso, Giuseppe Fedele, Veysel Gazi</i>	
An Iris Preprocessing and Segmentation Procedures for Iris Recognition: The Darkest Crescent Algorithm Based on the RGB Space .....	303
<i>Faiza Walha, Houda Khmila, Imen Khanfir Kallel</i>	
A Numerical Algorithm for Stability Test of Linear Systems with Multiple Time Delays.....	309
<i>Pooja Sharma, Satyanarayana Neeli</i>	
Subspace Identification from Binary Output Measurements.....	314
<i>Ali Mestrah, Mathieu Pouliquen, Eric Pigeon, Hicham Oualla</i>	
Investigation on Data Acquisition Accuracy for Long Range Communication Using RFM LoRa.....	320
<i>Ahmad Shahrizan Abdul Ghani, Muhammad Daniel Naim Zulkifflee</i>	
Novel Imbalanced Fault Diagnosis Method Based on CSMOTE Integrated with LSDA and LightGBM for Industrial Process .....	326
<i>Qun-Xiong Zhu, Ning Zhang, Yan-Lin He, Yuan Xu</i>	
Impact of Neuron Network on the Generation of Chaotic Attractors.....	332
<i>Salma Ben Mamia, William Puech, Kais Bouallegue</i>	
A Multi-Convolutional Stream for Hybrid Network for Driver Action Recognition at Nighttime .....	337
<i>Karam Abdullah, Imen Jegham, Anouar Ben Khalifa, Mohamed Ali Mahjoub</i>	
Multiresolutional Hybrid NLM-Wiener Filters for X-Ray Image Denoising .....	343
<i>Hana Rabbouch, Foued Saâdaoui, Hela Ibrahim, Mounir Zrigui</i>	
Integrated Drive Train and Structural Optimization for a Dynamic System: An Evolving Conceptual Design Algorithm.....	349
<i>Musa Ozgun Gulec, Seniz Ertugrul</i>	
A Jena API for Combining Ontologies and Bayesian Object-Oriented Networks .....	355
<i>Abdelweheb Gueddes, Mohamed Ali Mahjoub</i>	
Optimization Possibilities for the Shortest-Path Algorithms in the Context of Large Volumes of Information.....	361
<i>Bogdan Popa, Dan Selisteanu, Alexandra Elisabeta Lorincz, Tudosie Robert</i>	
Implementation of the Comma_v. 3. 0 System on AUTOSAR Architecture Using V2X Communication .....	367
<i>Alexandra Elisabeta Lorincz, Dan Selisteanu, Bogdan Popa, Traian Titi Serban</i>	
Combining Logical and Probabilistic Reasoning to Improve a Home Care Platform.....	373
<i>Abdelweheb Gueddes, Mohamed Ali Mahjoub</i>	
Enhancing the Quality Inspection Process in the Food Manufacturing Industry Through Automation.....	379
<i>Chengsi. Lin, Muhamad Arfauz A Rahman, Paul G. Maropoulos</i>	
Detection of Gear Defects by Mixed Discrete Wavelet Transform and FastEMD.....	385
<i>Hana Tayachi, Hanen Gabzili, Zied Lachiri</i>	
Heart Arrhythmia Detection with Novel Approach H3-SAD.....	390
<i>Kursat Cakal, Mehmet Onder Efe</i>	

Effect of N-Damped Outriggers on High-rise Structure Subjected to Earthquake Loads .....	396
<i>Eliane R. Fankem, Buris P. Ndemanou, Blaise R. N. Nbandjo</i>	
A New Sampled-Data Observer Design for Bioreactors .....	402
<i>E. Magarotto, T. Ahmed-Ali, M. Haddad</i>	
Deep Residual Learning Based on ResNet50 for COVID-19 Recognition in Lung CT Images .....	407
<i>Radhia Ferjaoui, Mohamed Ali Cherni, Fathia Abidi, Asma Zidi</i>	
Environmental Optimization Model for a Milk Collection Problem with Heterogeneous Fleet .....	413
<i>Luis Francisco Lopez-Castro, Elyn L. Solano-Charris</i>	
Experimental Verification of a Simulation Model for Jet UAV with Model Based Design.....	419
<i>Haluk Altay, Fikret Caliskan</i>	
Machine Learning Based Classification for Fire and Smoke Images Recognition*.....	425
<i>Hedi Jabnoui, Imen Arfaoui, Mohamed Ali Cherni, Moez Bouchouicha, Mounir Sayadi</i>	
Microcalcification Detection Using K-Means Based Clustering Within a Possibility Theory Framework.....	431
<i>Mouna Zouari Mehdi, Jihen Frikha Elleuch, Norhene Gargouri Benayed, Majd Belaaj, Dorra Sellami, Alima Damak</i>	
Detection of Halyomorpha Halys Using Neural Networks .....	437
<i>A. Sava, L. Ichim, D. Popescu</i>	
Optimal Day-Ahead Operation Scheduling of a One-Pipe Heating System.....	443
<i>Mario Vasak, Nikola Hure, Marko Kovacevic, Anita Banjac</i>	
Lateral Control of a Vehicle Using Reinforcement Learning.....	451
<i>Moritz Brasch, Ipek Sarac Heinz, Alexander Bayer</i>	
Adaptive Control of a Biped Robot Mobilized by Linear Actuators Considering Articular Restrictions.....	457
<i>Karla Rincon, Wen Yu Liu, Isaac Chairez</i>	
Backstepping Second Order Sliding Mode Control for a Car-Like Robot .....	463
<i>Caridad Mireles-Perez, David Cruz-Ortiz, Ivan Salgado, Isaac Chairez</i>	
Randomized Simplicial Approximate Stochastic Dynamic Programming for Mid-Term Reservoir Optimization.....	468
<i>Luckny Zephyr, Bernard F. Lamond</i>	
Synthesized Control for Optimal Control Problem of Motion Along the Program Trajectory .....	475
<i>Askhat Diveev, Elena Sofronova</i>	
26–42 GHz SOI CMOS Low Noise Amplifier.....	481
<i>Otmane Bekkaoui</i>	
Development of a Joystick with a Two-Degree-of-freedom Mechanism Based on Cable-capstan Transmission .....	488
<i>Roderico Garcia, Maria Jose Cuellar-Mejia, David Cruz-Ortiz, Mariana Ballesteros, Joel C. Huegel</i>	
Adaptive Extended State Feedback Controller for a Multilink Robotic Manipulator with Micro- Metric Piezoelectric Grasping End-effector .....	494
<i>Francisco Moreno, Karla Rincon, Ivan De Jesus Salgado, Isaac Chairez</i>	

Long-Short Term Traffic Prediction Under Road Incidents Using Deep Learning Networks .....	500
<i>Benchawan Wiwatanapataphee, Nathnarong Khajohnsaksumeth, Yong Hong Wu, Graham Jacoby, Xinguang Zhang</i>	
Traffic Flow Prediction Under Non-Recurrent Events Using Microscopic Simulation .....	506
<i>Benchawan Wiwatanapataphee, Weenakorn Ieosanurak, Yong Hong Wu, Graham Jacoby, Xinguang Zhang</i>	
Robust Approach Linking cryptography,3D Watermarking Using RSA Algorithm and Spherical Harmonics Transform to Secure Multiresolution Meshes Transmission.....	513
<i>Malika Jallouli, Ikbel Sayahi, Anouar Ben Mabrouk, Mohamed Ali Mahjoub, Chokri Ben Amar</i>	
Model-Free Control for Real-Time Dynamic Traffic Routing Problems .....	519
<i>Hassane Abouaissa</i>	
A Robust Auto-Tuning PID Controller Design Based on S-Shaped Time Domain Response .....	525
<i>Erhan Yumuk, Cosmin Copot, Clara M. Ionescu</i>	
Model-Free Control Policies for Inventory Management in Supply Chain.....	531
<i>Danielle Nyakam Nya, Hassane Abouaissa</i>	
An Efficient Finite Control Set Model Predictive Control Scheme for a Stand-Alone Wind Turbine System .....	537
<i>Ahmed Omar Elgharib, Mohammed Alhasheem, R. A. Swief, Aziz Naamane</i>	
Parkinson's Disease Gait Evaluation Leveraging Wearable Insoles and Deep Learning Approach* .....	543
<i>Asma Channa, Nirvana Popescu, Muhammad Faisal</i>	
A Flexible Hardware Accelerator for Morphological Filters on FPGA .....	550
<i>Hejer Elloumi, Dorra Sellami, Hassan Rabah</i>	
Exact Method and Iterative Approach to Solve a Case Study of the National Social Security Fund .....	556
<i>Fatma Ben Amor, Manel. Kammoun, Taicir. Loukil</i>	
Loading Detection in 3D Printed Polymer Parts Using the MWPE Method and Deep Learning .....	561
<i>Alireza Modir, Ibrahim Tansel, David Perez, Berry Lamy</i>	
Using Graph Databases for Portraying and Analysing Biological and Biomedical Networks .....	565
<i>Blagoj Ristevski, Snezana Savoska, Zlatko Savoski</i>	
Preprocessing of Seismic Data Using Neural Networks .....	569
<i>Naila R. Allahverdiyeva</i>	
Digital Twin in Intelligent Transportation Systems: A Review .....	576
<i>Wasim A. Ali, Michele Roccotelli, Maria Pia Fanti</i>	
Modified Efficiency-Based Bee Algorithm.....	582
<i>Firas Aimanovich Houssein, Vladimir Alexandrovich Kostyukov</i>	
Challenges and Opportunities of Using Data Fusion Methods for Travel Time Estimation .....	587
<i>Giuseppe Guido, Sina Shaffiee Haghshenas, Alessandro Vitale, Vittorio Astarita</i>	
Using a Direct Multiple Shooting Method to Control a Quadrotor .....	593
<i>Kahina Louadj, Philippe Marthon, Philippe Papaix</i>	



Synthesized Optimal Control for Mecanum-Wheeled Robot.....	599
<i>Elizaveta Shmalko, Askhat Diveev</i>	
Investigation of fast-NMPC and Deep Learning Approach in Fixed-point-based Hierarchical Control.....	605
<i>Xuan-Huy Pham, Mazen Alamir, Francois Bonne</i>	
Adaptive Multiple Synchronization and Phase Shift Control for Mechatronic Vibrational Setup .....	611
<i>Boris Andrievsky, Iuliia Zaitceva, Tao Li, Alexander L. Fradkov</i>	
Comparison Between Model-Based and Data-Based Methods for Fault Diagnosis of Railway Turnouts .....	617
<i>Asma Ladj, Belkacem Ould Bouamama, Armand Toguyeni</i>	
Statistical Analysis of Clinical and DaTSCAN SPECT Imaging Features' in Parkinson's Disease, SWEDD, and Healthy Control Subjects.....	623
<i>Hajer Khachnaoui, Nawres Khelifa, Rostom Mabrouk</i>	
Torque Ripple Minimization Control of Permanent Magnet Synchronous Motor Using Adaptive Ant Colony Optimization .....	629
<i>Ahmed Belkhadir, Driss Belkhaty, Youssef Zidani, Remus Pusca, Raphaël Romary</i>	
Electroencephalography Signal Classification for Automatic Interpretation of Electroencephalogram Based on Artificial Intelligence .....	636
<i>Abigail Chubwa Ndiku, Randa Ghedira-Chkir, Anouar Ben Khalifa, Mohamed Dogui</i>	
Analyzing and Comparing Public Perception of Facial Recognition, Iris Verification and Fingerprints Based Authentication Systems.....	641
<i>Sadia Riaz, Arif Mushtaq, Hassan Ibrar</i>	
Minimizing Fuel Consumption in the Time-Dependent VRP .....	647
<i>Sidonie Ienra Nyako, Dalila Tayachi, Moncef Tagina</i>	
An Optimal Approach for Testing Control in the Distributed Cloud .....	653
<i>Fatima Zahra Moutai, Mohammed Amine Tajjoui, Salma Azzouzi, My El Hassan Charaf</i>	
Improved 2D Laser Slam Graph Optimization Based on Cholesky Decomposition.....	659
<i>Liangliang Gao, Chaoyi Dong, Xiaoyang Liu, Qifan Ye, Kang Zhang, Xiaoyan Chen</i>	
Mapping of Project Manager Competences with Project Complexity - a Case Study of it Sector in Pakistan .....	663
<i>Faisal Waheed, Sara Siddique, Ratna Saha, Ali Ahsan</i>	
Control Law for the Air Inlet of a Supersonic Drone .....	669
<i>Alexandru-Nicolae Tudosie</i>	
A Definition of Anomalies, Measurements, and Predictions in Dynamical Engineering Systems for Streamlined Novelty Detection .....	675
<i>Jan Michael Spoor, Jens Weber, Jivka Ovtcharova</i>	
Closed-Loop System Parametric Identification Based on Binary Measurement on the Input and the Output.....	681
<i>Hicham Oualla, Mathieu Pouliquen, Miloud Frikel, Said Safi, Ali Mestrah</i>	
A Synchronized Knapsack Problem .....	687
<i>F. Bendali, J. Mailfert, E. Mole Kamga, A. Quilliot, H. Toussaint</i>	

Safe Management of Autonomous Vehicles .....	693
<i>A. Mombelli, A. Olivas Gonzales, M. Baiou, A. Quilliot</i>	
Empathy Scale Adaptation for Artificial Agents: a Review with a New Subscale Proposal.....	699
<i>Harika Putta, Karl Daher, Mira El Kamali, Omar Abou Khaled, Denis Lalanne, Elena Mugellini</i>	
Detection of Biliary Artesia Using Sonographic Gallbladder Images with the Help of Deep Learning Approaches.....	705
<i>Ahmed Mahdi Obaid, Amina Turki, Hatem Bellaaj, Mohamed Ksontini</i>	
Informational Structures for Hidden Coalition Equilibria .....	712
<i>Denis N. Fedyanin</i>	
Using Iterative Residual-Based Method for Modular Privacy-preserving Requirement in Hierarchical Control Framework.....	718
<i>Xuan-Huy Pham, Mazen Alamir, Francois Bonne, Patrick Bonnay</i>	
Efficient U-Net CNN with Data Augmentation for MRI Ischemic Stroke Brain Segmentation .....	724
<i>Fathia Aboudi, Cyrine Drissi, Tarek Kraiem</i>	
Brick Orientation Adjustment in the Automotive Industry Using Image Processing Techniques .....	729
<i>Charbel El Hachem, Raoul Santiago, Loic Painvin, Gilles Perrot, Raphaël Couturier</i>	
Path Planning for Vehicle Platoons Under Routing Decisions: A Distributed Approach Combining Deep Reinforcement Learning and Model Predictive Control .....	734
<i>Francesco Giannini, Giancarlo Fortino, Giuseppe Franze, Francesco Pupo</i>	
Prediction of Microsatellite Instability for the Detection of Colorectal Cancer by GAN-CNN.....	740
<i>Khouloud Mnassri, Ines Rahmany, Nawres Khelifa, Sihem Hmissa, Nabihha Missaoui</i>	
Risk Management in a Tunisian Commercial Company's Logistic Distribution Process.....	746
<i>Rim Bhiri, Bouthaina Maazoun, Lotfi Khrifech</i>	
Bilateral Teleoperation Transparency at Steady States .....	752
<i>P. Ph. Robet, S. Devie, Y. Aoustin, M. Gautier</i>	
Application of Particle Swarm Optimization for the Identification of Two-Mass Electric Drive Systems.....	758
<i>Ishaq Hafez, Rached Dhaouadi</i>	
Optimal Investment in a Market with Random Interest Rate for Borrowing: An Explicit Closed-Form Solution.....	764
<i>Abdullah Aljalal, Bujar Gashi</i>	
Physics-Based Simulation and Control Framework for Steering a Magnetically-Actuated Guidewire .....	770
<i>Abbas Tariverdi, Kim Mathiassen, Vegard Soyseth, Havard Kalvoy, Ole J. Elle, Jim Torresen, Orjan G. Martinsen, Mats Erling Hovin</i>	
Stochastic Optimization and Risk Problems for Engineering Applications .....	775
<i>Stefania-Cristiana Colbu, Dumitru Popescu, Daniel-Marian Bancila, Mihaela-Ancuta Mone, Alina Petrescu-Nita</i>	
Classification and Feature Extraction of Biological Signals Using Machine Learning Techniques .....	780
<i>Marina Ciocîrlan, Andreea Udrea</i>	

Descriptor Formulation for a Robust Static Output Feedback $H_{\infty}$ Control for Polytopic Discrete-Time System .....	785
<i>El Haiek Badreddine, Zoulagh Taha, Karina A. Barbosa, El Hajjaji Ahmed, Hmamed Abdelaziz</i>	
Droop Control in DC Grids for Kitchen Appliances to Avoid Power Congestion .....	791
<i>Alexander Spaans, Diëgo Zuidervliet, Peter Van Duijsen</i>	
Modeling and Performance Analysis of Vehicular Traffic Networks: a Multi-Agent Perspective .....	797
<i>E. G. Hernandez-Martinez, F. Morales-Torres, J. E. Quiroz-Ibarra, M. Flores-Geronimo, G. Fernandez-Anaya, E. D. Ferreira-Vazquez, J. J. Flores-Godoy</i>	
Modeling and Control of a Switching Regulator with a Fuel-Cell Stack as Input Source for Power Generation .....	803
<i>L. H. Diaz-Saldierna, J. Leyva-Ramos, A. Ramirez</i>	
Design and Simulation of Beat Up Mechanism: Handmade Carpet Looms.....	809
<i>Halil Ibrahim Celik, Lale Canan Dulger, Mehmet Topalbekiroglu</i>	
Deep Learning-Based Prediction Models for Freeway Traffic Flow Under Non-Recurrent Events .....	815
<i>Fahad Aljuaydi, Benchawan Wiwatanapataphee, Yong Hong Wu</i>	
A Computationally Efficient Formulation for Traffic Signal Timing Optimization of an Isolated Intersection .....	821
<i>George R. Jagadeesh, Jielin Yang, Kien Ming Ng, Kim Leng Poh, Zhengyu Yang, Teck Hou Teng, Zhibing Zhuo</i>	
Brain-Controlled Lower-Limb Exoskeleton to Assist Elderly and Disabled.....	827
<i>Hammad Nazeer, Noman Naseer</i>	
Analysing the Effects of Lockdown & Vaccination to Inhibit the Spread of COVID-19 in India with a Networked SUVIRD Model .....	831
<i>Piklu Mallick, Surajit Panja</i>	
Predictive Systems for Snow Avalanche Forecasting .....	837
<i>Mounira Sassi, Hanen Idoudi, Khadija Bousselmi</i>	
Active Fault Diagnosis Based on Adaptive Degrees of Freedom X2-Statistic Method .....	843
<i>Quoc-Hung Lu, Soheib Fergani, Carine Jauberthie</i>	
Controlling of Plate and Ball System with a Nonlinear RHC Approach with a Compromised Length of Time Subintervals .....	849
<i>Jasem Tamimi</i>	
Design and Simulation of Lower-Limb Exoskeleton to Assist Paraplegic People in Walking .....	855
<i>Usama Umar, Hamza Shabbir Minhas, Noman Naseer, Hammad Nazeer, Sohail Iqbal, Malik Nazir Ahmed</i>	
Experimental Evaluation of the Success of Peg-In-Hole Tasks Learned from Demonstration .....	861
<i>Serdar Hakan Arguz, Seniz Ertugrul, Kerem Altun</i>	
Application of Machine Learning in the Producer's Optimal Control Problem with Non-Stable Demand .....	867
<i>Aleksandr Delev, Aleksandra Zhukova, Anna Flerova</i>	

A Comparative Study of Newly Developed Metaheuristics for the Discrete Uncapacitated $\$p$ -Median Problem .....	872
<i>Muhammad Sulaman, Mahmoud Golabi, Mathieu Brevilliers, Julien Lepagnot, Lhassane Idoumghar</i>	
On the First Order Hold Discretization of Generalized State Space Systems with Input Delays .....	878
<i>Georgia Pechlivanidou, Nicholas Karampctakis</i>	
Estimation of Asynchrony Events with Negative Elastance in Spontaneously Breathing Mechanically Ventilated Patients in ICU .....	884
<i>Nur Sa'Adah Muhamad Sauki, Nor Salwa Damanhuri, Nor Azlan Othman, Yeong Shiong Chiew, Belinda Chong Chiew Meng, Mohd Basri Mat Nor, Nurhidayah Mohd Zainol, Azrina Md Ralib</i>	
Fractional Smith Predictor for Fractional Order Systems with Dead-Time: An IMC Approach .....	890
<i>Aishwarya Sharma, Hirenkumar G. Patel</i>	
Using Combined CNNs for ROI Segmentation in Early Investigation of Pregnancy .....	897
<i>M. El-Khatib, O. Teodor, D. Popescu, L. Lchim</i>	
Topic Modeling and Sentiment Analysis-Based Recommender System: A Literature Review .....	903
<i>Doniazed Ben Nsir, Afef Ben Brahim, Hela Masri</i>	
Order Determination of Linear Systems Using Convolutional Neural Networks .....	908
<i>Sh. Kalantari, A. Kalhor, B. N. Araabi</i>	
Classification of Linear Processes Type Using Convolutional Neural Networks .....	914
<i>Sh. Kalantari, A. Kalhor, B. N. Araabi</i>	
Predictive Direct Yaw Moment Control with Active Steering Based on Polytopic Linear Parameter-Varying Model .....	920
<i>Sandor Iles, Marko Svec, Petar Makarun, Josip Kir Hromatko</i>	
The Constrained-Routing and Spectrum Assignment Problem: Extended Formulation and Branch-and-Cut-and-Price Algorithm .....	926
<i>Ibrahima Diarrassouba, Youssouf Hadhbi, Ali Ridha Mahjoub</i>	
Optimizing the Charging Stations Allocation for Efficient Electric Vehicles Routing .....	932
<i>Chaima Taieb, Takwa Tlili, Issam Nouaouri, Saoussen Krichen</i>	
Sliding Mode Control of a Pumping System Supplied by Photovoltaic Generator .....	938
<i>Haytham Grissa, Slah Farhani, Faouzi Bacha</i>	
A Novel Electronic Throttle Control Strategy Based on Grafcet Formalism Under Real Vehicle Engine Operating Conditions .....	944
<i>Noureddaher Zaidi, Adel Kheder</i>	
R-Safety: A Mobile Crowdsourcing Platform for Road Safety in Smart Cities .....	950
<i>Ibtissem Khedher, Sami Faiz, Souhayel Gazah</i>	
Different Types of Control Systems for the Contraction Pneumatic Muscle Actuator .....	956
<i>Heba Ali Mohsen, Alaa Al-ibadi, Turki Y. Abdalla</i>	
Modes of Motion as an Alternative Approach for Mobile Robot Kinematic Constraint Representation .....	962
<i>Karim A. Tahboub</i>	

An Expert System for Early Glaucoma Pathology Detection.....	967
<i>A. Soltani, Y. Mlouhi, S. Souli, I. Jabri, T. Battikh</i>	
Identification of Human Model Parameters for the Human-Machine Control Systems Design.....	972
<i>Iuliia Zaitceva, Nikolay V. Kuznetsov, Boris Andrievsky</i>	
Sliding Mode FTC of an Octoplane UAV Transition Mode .....	978
<i>Ibrahim Mizrak, Halim Alwi, Christopher Edwards</i>	
On Stabilization of Uncertain Takagi-Sugeno Fuzzy Discrete-time Systems with Delayed Control Input .....	984
<i>D. Krokavec, A. Filasova</i>	
Tracking Control with Ellipsoidal Disturbance Attenuation .....	990
<i>Anastasia Zorkina, Alexey Peregudin, Igor Furtat</i>	
Deep Learning: Traffic Accident Captioning Model in Madagascar Mother Language .....	996
<i>Soniarimamy Nantenaina Serge Rochel, Razafindramintsa Jean Luc, Mahatody Thomas, Manantsoa Victor</i>	
Geographically Distributed Real-Time Co-simulation of Electric Vehicle.....	1002
<i>Jesus Alfonso, Jose Manuel Rodriguez, Carlos Bernad, Viktor Beliautsov, Valentin Ivanov, Jose Angel Castellanos</i>	
Control and Study of the Bidirectional Three Phase DAB Converter .....	1008
<i>Abdelkarim Aouiti, Abdessami Soyed, Faouzi Bacha</i>	
Detection and Diagnostics of Combined Bearing and Gear Faults Using Electrical Health Indicator.....	1014
<i>M. Soualhi, N. Zerhouni, A. Soualhi, K. E. Hemsas, T. P. K. Nguyen, K. Medjaher</i>	
The Labeled Two Edge Connected Subgraph Problem.....	1020
<i>Mariam Ben Salem, Raouia Taktak</i>	
Digital 2D State Observers Design for the Navier–Stokes Equation.....	1026
<i>Ayoub Farkane, Mohamed Boutayeb, Laaziri Mohamed, Mounir Ghogho</i>	
Data-Driven Positive Stabilization of Linear Systems .....	1031
<i>Bahram Shafai, Anahita Moradmand, Milad Siami</i>	
Robust Control for Third-Order Electro-mechanical Systems with Partially Unknown Dynamics Under State Constraints .....	1037
<i>Alejandro Lozano, Mariana Ballesteros, David Cruz-Ortiz, Ivan Salgado, Joel C. Huegel, Isaac Chairez</i>	
Plant Leaf Classification Using Convolutional Neural Network.....	1043
<i>Nor Azlan Othman, Nor Salwa Damanhuri, Nabilah Md Ali, Belinda Chong Chiew Meng, Ahmad Asri Abd Samat</i>	
Self-Tuning Multi-model Statistical Process Control for Process Monitoring in Additive Manufacturing .....	1049
<i>Atakan Sahin, Pilar Rey, George Panoutsos</i>	
On the Use of Deep Learning and Scattering Transform for Pathological Voices Recognition.....	1055
<i>S. Souli, R. Amami, A. Soltani, S. Ben Yahia</i>	

Applying Neural Networks for the Identification of Control Object Mathematical Models for the Control Problems.....	1059
<i>Askhat Diveev, Sergey Konstantinov</i>	
Quantized Control of Complex Networks Composed of Identical Systems with Delayed Inputs - Application of the Descriptor Approach .....	1064
<i>Volodymyr Lynnyk, Branislav Rehak</i>	
Cybersecurity Threats in the Banking Sector .....	1070
<i>Oliver Gulyas, Gabor Kiss</i>	
The Conservative Lock-In Range for PLL with Lead-lag Filter and Triangular Phase Detector Characteristic.....	1076
<i>Kuznetsov N. V, Blagov M. V, Lobachev M. Y, Yuldashev M. V, Yuldashev R. V</i>	
Application of Formation Control Algorithms to Achieve Reconfigurable Swarm Formation Shapes .....	1082
<i>Aman Shekhar, Gagan Deep Meena</i>	
Estimation of ARMA Model Order Utilizing Structural Similarity Index Algorithm.....	1087
<i>Khaled E. Alqawasmi</i>	
Neural Network Approach for E-Motor Development.....	1091
<i>Majid Pourkarimi, Ugur Demir, Mustafa Caner Akuner</i>	
An Effective Hybrid Stochastic Gradient Descent for Classification of Short Text Communication in E- Learning Environments .....	1096
<i>Fawaz S. Al-Anzi</i>	
Optimizing Selective Maintenance Problem in Mission-Oriented Systems Under Repairpersons Availability .....	1102
<i>A. Khatab, K. Chaabane, C. Diallo, E. -H. Aghczzaf, U. Venkatadri</i>	
Geo-Clustering Model for Optimizing Locations of Public Health Emergency Operations and COVID-19 Vaccine Distribution Centers.....	1108
<i>Sampson E. Akwafuo, Armin R. Mikler, Christopher Ihinegbu</i>	
Innovative Approach for Obtaining Metal Parts with Improved Hardness and Wear Resistance .....	1114
<i>D. Karastoyanov, N. Stoimenov</i>	
A Dual-Channel Attention Model for Optical Microscope Pollen Classification .....	1118
<i>Yanan Li, Jianqiang Li, Yan Pei, Jin Wang</i>	
CPM Remote: A Remote Access to the CPM Lab .....	1124
<i>Armin Mokhtarian, Bassam Alrifae</i>	
Computationally Efficient Nonlinear Model Predictive Control.....	1130
<i>Zhijia Yang, Byron Mason, Wen Gu, Edward Winward, James Knowles</i>	
Distributed Maintenance: Design, Scheduling and Capacitated Routing Problem*.....	1138
<i>Rony A. Djeunang Mezafack, Zineb Simeu-Abazi, Maria Di Mascolo</i>	
Optimizing Ridge Gap Waveguide Based Slot Antenna Shape for Maximum Gain and Bandwidth for Satellite Applications .....	1144
<i>Mehmet Faruk Cengiz, Gokberk Akarsu, Daa E. Fawzy, A. M. M. A. Allam</i>	

Distribution Management Problem: Case of Vehicle Routing Problem with Capacity Constraints “CVRP” in the Moroccan Petroleum Sector .....	1149
<i>Younes Fakhraddine El Bahi, Latifa Ezzine, Zineb Aman, Haj El Moussami</i>	
Simulations and Experimental Results of Active and Reactive Power Control Using HVDC Transmission Systems .....	1155
<i>Mansour Baazouzi, Kamel Sayahi, Faouzi Bacha</i>	
Improved Control of PV-Grid Connected Via a Two-stage Configuration Transformerless: Invited Paper.....	1161
<i>Fethi Messaoudi, Fethi Farhani, Abderrahmen Zaafour</i>	
Distributed Actor-Critic Learning Using Emphatic Weightings .....	1167
<i>Milos S. Stankovic, Marko Beko, Srdjan S. Stankovic</i>	
Nonlinear Control Strategies for a Continuous Alcoholic Fermentation Bioreactor Used for Bioethanol Production .....	1173
<i>T. Shaqarin, M. G. Hajaya</i>	
Study on Dynamic Characteristics of Sliding Friction Interfaces in Feed System During Non-Stable Starting Stage* .....	1178
<i>Li Yan, Yuan Jiawei, Liang Zhengxiong, Gao Chuang, Wei Xiaoqing</i>	
Liveness Enforcement for Time Petri Nets .....	1184
<i>Tao Qin, Yifan Dong, Li Yin, Naiqi Wu, Zhiwu Li</i>	
Power System Faults Detection Based on Deep Learning and Support Vector Machine Supervised Machine Learning Techniques .....	1190
<i>Nouha Bouchiba, Azeddine Kaddouri, Amor Ounissi</i>	
Machine Learning for Predicting Firefighters’ Interventions Per Type of Mission .....	1196
<i>Roxane Elias Mallouhy, Christophe Guyeux, Chady Abou Jaoude, Abdallah Makhoul</i>	
Modeling and Routing Problems of Automated Port Using T-TPN and Beam Search.....	1201
<i>Ghassen Cherif, Benoit Trouillet, Abdoul K. A. Toguyeni</i>	
The Effect of Music and Light-Color as a Machine Empathic Response on Stress in Occupational Health .....	1207
<i>Andres Felipe Dorado, Karl Daher, Elena Mugellini, Denis Lalanne, Omar Abou Khaled</i>	
System for Robust Detection of Pedestrians in Dynamic Environments Based on 3D Range Data .....	1213
<i>Jasmin Velagic, Amar Civgin, Nedim Osmic, Adnan Osmanovic</i>	
A Review of Factors Impacting Cybersecurity in Connected and Autonomous Vehicles (CAVs).....	1218
<i>Mohinder Pandey, Seetharaman</i>	
Performance Analysis of 5G Uplink on N78 Band Over Propagation Pathloss .....	1225
<i>D. M. Mathe, I. S. Batalha</i>	
Flow Control Process Identification Using Matlab's System Identification Toolbox.....	1228
<i>Nur Assani, Petar Matic, Danko Kezic</i>	
A Study on the Factors Affecting Original Equipment Manufacturers in the Semiconductor Industry Following Mergers and Acquisitions .....	1233
<i>Sanjay Malla, A. Seetharaman, Girija Shawarika</i>	

Set-Valued State Estimation of Linear Discrete-Time Systems with Linear Invariant .....	1238
<i>Nacim Meslem</i>	
Comparative Evaluation of Three Maximum Power Point Tracking Algorithms for Photovoltaic Systems Using Quadratic Boost-Converter .....	1244
<i>Belgacem Mbarki, Jaouher Chroua, Fethi Farhani, Abderrahmen Zaafour</i>	
Portfolio Optimisation Using Ulimisana Optimisation Algorithm .....	1250
<i>Tshifhiwa Maumela, Fulufhelo Nelwamondo, Tshilidzi Marwala</i>	
Detection and Isolation of Sensor Faults Under External Disturbances .....	1255
<i>Huan V. Bui, Alexey A. Margun, Artem S. Kremlev</i>	
Verification of Current-State Opacity for Discrete Event Systems Modeled with Unbounded Petri Nets .....	1261
<i>Haoming Zhu, Li Yin, Naiqi Wu, Zhiwu Li</i>	
Critical Review of Industry 4. 0 Technologies' Applications on Occupational Safety and Health .....	1267
<i>Zhihao Jiang, Otto Jan Bakker, Paulo Jds Bartolo</i>	
Decision-Based Sampling for Node Context Representation .....	1273
<i>Ikenna Oluigbo, Hamida Seba, Mohammed Haddad</i>	
Diagnosability Enforcement in Labeled Petri Nets Based on Digital Twins .....	1279
<i>Shaopeng Hu, Jiafeng Zhang, Zhiwu Li</i>	
Adaptive Parameter Estimation of Deterministic Signals .....	1285
<i>Tung K. Nguyen, Sergey M. Vlasov, Aleksandra V. Skobeleva, Anton A. Pyrkina</i>	
Compensation Multiharmonic Disturbance for Linear System with Input Delay .....	1291
<i>Tung K. Nguyen, Sergey M. Vlasov, Aleksandra V. Skobeleva, Anton A. Pyrkina</i>	
An Innovative Approach Towards Violence Recognition Based on Deep Belief Network .....	1297
<i>Wafa Lejmi, Anouar Ben Khalifa, Mohamed Ali Mahjoub</i>	
Textile-Based Thermally Driven Actuators for Soft Robotic Mechanotherapy Applications .....	1303
<i>Mehmet Fatih Celebi, Zeynep Beler, Elif Dede, Emine Dilara Kocak, Ozgur Atalay, Asli Tuncay Atalay, Veysel Gazi</i>	
RoRo Ships Stowage Planning: Using a Novel MIP Model and Stability Constraints .....	1309
<i>Seyed Parsa Parvasi, Alastair Ronald Main, Dario Pacino</i>	
Fault Classification Using Deep Learning in a Grid-Connected Photovoltaic Systems* .....	1312
<i>Amal Hichri, Majdi Mansouri, Mansour Hajji, Kais Bouzrara, Hazem Nounou, Mohamed Nounou</i>	
Effective Fault Diagnosis in Grid Connected Photovoltaic Systems Using Multiscale PCA Based Artificial Neural Network Technique .....	1318
<i>Khadija Attouri, Majdi Mansouri, Mansour Hajji, Kais Bouzrara, Hazem Nounou, Mohamed Nounou</i>	
Improved Ensemble Approach for Fault Diagnosis of Wind Energy Conversion Systems* .....	1324
<i>Khaled Dhibi, Majdi Mansouri, Kais Bouzrara, Hazem Nounou, Mohamed Nounou</i>	
Enhanced Recurrent Neural Network for Fault Diagnosis of Uncertain Wind Energy Conversion Systems* .....	1330
<i>Khaled Dhibi, Majdi Mansouri, Kais Bouzrara, Hazem Nounou, Mohamed Nounou</i>	



Efficient Fault Detection and Diagnosis in Photovoltaic System Using Deep Learning Technique* .....	1336
<i>Manel Marweni, Radhia Fezai, Mansour Hajji, Majdi Mansouri, Kais Bouzrara, Hazem Nounou, Mohamed Nounou</i>	
Kernel PCA Based BiLSTM for Fault Detection and Diagnosis for Wind Energy Converter Systems*.....	1342
<i>Zahra Yahyaoui, Mansour Hajji, Majdi Mansouri, Kais Bouzrara, Hazem Nounou, Mohamed Nounou</i>	
The Assistant Diagnosis System for Chronic Obstructive Pulmonary Disease Based on Random Forest with Quantitative CT Parameters.....	1348
<i>Zhangli Wu, Hui Zhao, Ping Yang, Bei He, Ning Shen</i>	
A 5G SA User Perspective About Throughput Versus Current Consumption .....	1353
<i>Alvaro Javier Ortega, Paulo Thiago Marreiros Santos</i>	
Optimal Control Based Energy Management Strategy of Photovoltaic/Fuel Cell/Supercapacitor Hybrid Power System.....	1356
<i>Ameni Kadri, Hajer Marzougui, Faouzi Bacha</i>	
A Semantic Space-Time Event Representation Model in Production Equipment Monitoring of Technical State and Utilization Condition.....	1362
<i>Oksana Petrina, Sergei Marchenkov, Dmitry Korzun</i>	
Customer Acceptance of Digital Payment Systems .....	1368
<i>Manohar S Singh, A Seetharaman, K Maddulety</i>	
Fault Detection and Diagnosis in AHU System with Data Driven Approaches.....	1375
<i>Yanis Masdoua, Moussa Boukhnifer, Kondo H. Adjallah</i>	
Gait Analysis and Detection of Human Pose Diseases.....	1381
<i>Ala Balti, Mohamed Moncef Ben Khelifa, Slim Ben Hassine, Hibet-Allah Ouazaa, Saber Abid, Mohamed Najeh Lakhoua, Mounir Sayadi</i>	
Reducing Extended Kalman Filter Sampling Rates for Multi-Rate Fusion Through Computationally Efficient Sequential Single Sensor Measurement Processing .....	1387
<i>Charlotte Tkany, Martin Grotjahn, Torben Jonsky</i>	
Holographic Multi-Reader RFID Localization Method for Static Tags .....	1393
<i>Chokri Ajroud, Jamel Hattay, Mohsen Machhout</i>	
Hyper Symbolic Observation Graph to Enforce Opacity of Discrete Event Systems Using Supervisory Control.....	1397
<i>Nour Elhouda Souid, Kais Klai, Chiheb Ameer Abid, Samir Ben Ahmed</i>	
Design and Comparison of Optimal Controllers Using Look-Ahead Error in Path Following Problem .....	1403
<i>Namik Zengin, Mehmet Selcuk Arslan</i>	
Fuel-Cell Supercapacitor Hybrid System for Vehicular Application: Control, Operation and Experimental Validation.....	1409
<i>Hajer Marzougui, Ameni Kadri, Jean-Philippe Martin, Serge Pierfederici, Faouzi Bacha</i>	
Energy Management Algorithm of Fuel Cell/Supercapacitor System for Electrical Vehicle .....	1415
<i>Nassira Barhoumi, Hajer Marzougui, Faouzi Bacha, Moussa Boukhnifer</i>	

Parameter Estimation and Indirect Adaptive Control of a Robot Arm* .....	1421
<i>Andrei Zhivitskii, Oleg Borisov, Ilya Dovgopolik</i>	
Christine the Murderer Artificial Intelligence .....	1427
<i>Gabor Kiss</i>	
A Comparison of Forward and Inverse Simulation Methods for Fault Detection on a Rover.....	1432
<i>Stuart R. K. Shilliday, Euan W. McGookin, Douglas G. Thomson</i>	
Formal Model of Collaborative Fault Tolerant Planning in Multi-Robotic Systems .....	1438
<i>Elena Troubitsyna</i>	
Real-Time Implementation of a Static Compensator (STATCOM) / Active Power Filter for Power Quality Improvement Based on Improved VF-DPC Control Strategy .....	1444
<i>Sayahi Kamel, Ameni Kadri, Bacha Faouzi</i>	
Delay Measurement of 0-RTT Transport Layer Security (TLS) Handshake Protocol .....	1450
<i>Danylo Goncharskyi, Sung Yong Kim, Ahmed Serhrouchni, Pengwenlong Gu, Rida Khatoun, Joel Hachem</i>	
A Population-Based Algorithm for the Sphere Packing Problem.....	1455
<i>M. Hifi, A. Mohamed Youssouf, L. Yousef</i>	
A Population-Based Algorithm for the k-Clustering Minimum Biclique Completion Problem .....	1461
<i>G-M. Cochard, M. Hifi, E-S. Samod, L. Yousef</i>	
A Novel Image Enhancement Method for Palm Vein Images .....	1467
<i>Kaveen Perera, Fouad Khelifi, Ammar Belatreche</i>	
Blood Vessel Segmentation of Retinal Fundus Images Using Dynamic Preprocessing and Mathematical Morphology .....	1473
<i>E. Chakour, Y. Mrad, A. Mansouri, Y. Elloumi, M. H. Bedoui, I. B Andaloussi, A. Ahaitouf</i>	
Hierarchical Optimization for Solving the Integrated Berth and Quay Crane Assignment Problem in Port Terminal.....	1479
<i>Rokaya Lassoued, Abdelkarim Elloumi</i>	
Surface Vessel: Local Positioning System Based on Computer Vision .....	1484
<i>Vladimir Sivtsov, Alexander Ramos, Sergei Shavetov, Andrei Zhivitskii</i>	
Predictive Maintenance Algorithm Based on Machine Learning for Industrial Asset .....	1489
<i>Angel J. Alfaro-Nango, Elias N. Escobar-Gomez, Eduardo Chandomi-Castellanos, Sabino Velazquez-Trujillo, Hector R. Hernandez-De-Leon, Lidya M. Blanco-Gonzalez</i>	
Designing Data-Intensive Application System for Production Plans Data Processing and Near Real- Time Analytics .....	1495
<i>Alexander S. Suleykin, Peter B. Panfilov</i>	
Eye and Head Rotation Control Via Feedback Linearization.....	1501
<i>Bhagya Athukorallage, Bijoy K. Ghosh</i>	
Inconsistency Measurement for Logical Agents .....	1506
<i>Yehia A. Hatab, Haythem O. Ismail</i>	
Improvement of Visual Odometry Using Classic Features by Semantic Information.....	1512
<i>Miho Adachi, Hiroki Ishida, Ryusuke Miyamoto</i>	

Surface Defect Detection and Recognition Based on CNN.....	1518
<i>Oleg Evstafev, Sergey Shavetov</i>	
Real-Time Pedestrian Detection Using Enhanced Representations from Light-Weight YOLO Network.....	1524
<i>Shayan Shirahmad Gale Bagi, Behzad Moshiri, Hossein Gharaee Garakani, Mark Crowley, Pouya Mehrannia</i>	
Traffic Accident Severity Prediction Using a Meta-Model Based on a Majority Vote .....	1530
<i>Mohamed Mouaici</i>	
Modified Simulated Annealing Hybrid Algorithm to Solve the Traveling Salesman Problem.....	1536
<i>Eduardo Chandomi-Castellanos, Elias N. Escobar-Gomez, Sergio F. Aguilar Marroquin- Cano, Hector R. Hernandez-De- Leon, Sabino Velazquez-Trujillo, Jorge A. Sarmiento-Torres, Carlos V. De-Coss-Perez</i>	
Applying Machine Learning Techniques to Localize Quadcopter Sensor Failures.....	1542
<i>Stanislav Kim, Alexey Margun, Anton Pyrkin, Oleg Evstafev</i>	
Intelligent Flight-Data-Recorders; a Step Toward a New Generation of Learning Aircraft.....	1545
<i>S. M. Malaek, E. Alipour</i>	
Enhancement of DFIG Operation Using a STATCOM Under a Voltage Grid Faults .....	1550
<i>Sayahi Kamel, Baazouzi Mansour, Bacha Faouzi</i>	
Embedding a Hybrid Dynamical System Consisting of Two Sub-Systems into an Elliptic Curve.....	1556
<i>Mihaela R. Cistelean</i>	
Magnetic-Powered Swimming Soft-Milli Robot Towards Non-Invasive Applications.....	1562
<i>Xiuzhen Tang, Laliphat Manamanchaiyaporn</i>	
On Checking Observability of Formal Languages in DES Control Problems.....	1567
<i>Artem Davydov, Aleksandr Larionov, Nadezhda Nagul</i>	
Virtual Reality Simulation of a Robotic Laparoscopic Surgical System.....	1573
<i>Alexios Karadimos, Anthony Tzes, Nikolaos Evangeliou, Evangelos Dermatas</i>	
Game Theoretical Control Frameworks for Multiple Energy Storage Services in Energy Communities .....	1580
<i>Nicola Mignoni, Paolo Scarabaggio, Raffaele Carli, Mariagrazia Dotoli</i>	
Suitable ASP U-Net Training Algorithms for Grasping Point Detection of Nontrivial Objects .....	1586
<i>Petr Dolezel, Dominik Stursa, Dusan Kopecky</i>	
Multiobjective Evolutionary Algorithm for Home Health Care Routing and Scheduling Problem .....	1592
<i>Mariam Belhor, Adnen El-Amraoui, Abderrazak Jemai, Francois Delmotte</i>	
A Comparative Study of Three AI Prediction Algorithms Based on Measured Databases for an Optimal Smart Grid.....	1597
<i>Ferdaws Ben Naceur, Achraf Jabeur Telmoudi, Mohamed Ali Mahjoub</i>	
Optimization of PV-Grid Connected System Based Hydrogen Refueling Station.....	1603
<i>El Manaa Barhoumi, Paul C. Okonkwo, Manaf Zghaibeh, Ikram Ben Belgacem, Slah Farhani, Faouzi Bacha</i>	

Comparative Study of P&O and PSO Particle Swarm Optimization MPPT Controllers for Photovoltaic Systems.....	1608
<i>Mahbouba Brahmi, Chiheb Ben Regaya, Hichem Hamdi, Abderrahmen Zaafour</i>	
Improved Multi-Particle Swarm Optimization Based on Multi-exemplar and Forgetting Ability .....	1614
<i>Jaouher Chroua, Aymen Aloui, Nadia Hamani, Abderrahmen Zaafour</i>	
Autonomous Accidents Detection and Alert for Vehicles.....	1620
<i>Abdul Mateen, Zahid Hanif, Seung Yeob Nam</i>	
A Two-Stage Stochastic Programming for the Cooperative Supply Network Planning .....	1624
<i>Aymen Aloui, Nadia Hamani, Jaouher Chroua, Laurent Delahoche</i>	
An Improved Procedure for Solving Minimum Makespan on a Flowshop.....	1630
<i>David Freud, Amir Elalouf</i>	
The Influence of the Battery Technology Choice on Motor Optimisation for Electric Vehicles .....	1635
<i>Aissam Meddour, Nassim Rizoug, Anthony Babin, Christopher Vagg, Richard Burke</i>	
Prediction of Aging Electric Vehicle Battery by Multi-Physics Modeling and Deep Learning Method .....	1641
<i>Jamila Hemdani, Laid Degaa, Moez Soltani, Nassim Rizoug, Achraf Jabeur Telmoudi, Abdelkader Chaari</i>	
The Influence of Magnetic Materials Technologies on the Design of IPMSM for Automotive Applications.....	1646
<i>Khalil Abdelali, Bachir Bendjedia, Nassim Rizoug</i>	
Design of Hybrid Energy Source for Automotive Applications.....	1652
<i>Degaa Laid, Rizoug Nassim, Larouci Cherif, Meddour Aissam Riad</i>	
Upper Limb Exoskeleton Robot Control Using Input Output Switching.....	1658
<i>Ratiba Fellag, Fouad Yacef, Mohamed Guiatni, Mustapha Hamerlain, Laid Degaa, Nassim Rizoug</i>	

**Author Index**