

Studies in Systems, Decision and Control 347

Alberto Ochoa-Zezzatti  
Diego Oliva  
Aboul Ella Hassanien *Editors*

# Technological and Industrial Applications Associated With Industry 4.0

 Springer

# **Studies in Systems, Decision and Control**

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Aboul Ella Hassanien  
Editors

# Technological and Industrial Applications Associated With Industry 4.0

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# Contents

<b>Mobile Applications and Web Applications to Improve Competitiveness in Industry 4.0</b>	
<b>Implementation of an Intelligent Model Based on Convolutional Neural Network for the Detection of Diseases in Citrus Crops Caused by Bird Pests Using an Intelligent Drone</b> .....	3
Antonio Romero, Eddy Sánchez-DelaCruz, and Alberto Ochoa	
<b>Intelligent Application to Detection of Arachnid Bites in Children Implementing Deep Learning Techniques, an AmI-Based Solution</b> .....	23
Ivette Mendoza, Eddy Sánchez-DelaCruz, and Alberto Ochoa	
<b>Evacuation Route Optimization in the Plaza de la Mexicanidad, Using Humanitarian Logistics</b> .....	41
María Inés Borunda-Aguilar, Iván Juan Carlos Pérez-Olguín, Alberto Ochoa-Zezzatti, Erwin Adan Martinez-Gomez, and José Alberto Hernández	
<b>Automatic Fall Detection for the Care of Older Adults in Smart Cities</b> .....	57
Sara Judith Ríos Dueñas, Jose Mejia, Alberto Ochoa, Jose Díaz, Lidia Rascon, Nelly Gordillo, and Eddy Sánchez-DelaCruz	
<b>Automatic Tumor Segmentation in Mammogram Images for Healthcare Systems in Smart Cities</b> .....	75
Alberto Ochoa-Zezzatti and Jose Mejia	
<b>Impact of Industry 4.0: Improving Hybrid Laser-Arc Welding with Big Data for Subsequent Functionality in Underwater Welding</b> .....	87
Alberto Ochoa-Zezzatti, Raúl Méndez, and Elías Carrum	
<b>Interpersonal Relationships and Reciprocity: Their Influence in Knowledge Transfer Inside of Mexican Hotels</b> .....	95
Aurora Máynez, Hilda Zorrilla-Nuñez, Alberto Ochoa-Zezzatti, and Andres Hernández Gómez	

**Modern Technology Applications Including Metaheuristics and Artificial Intelligence Based Applications for Industry 4.0**

**Brainwaves Behavior During the Learning Curve Associated with the Manufacturing of a Product with Legos** ..... 115  
 Félix Lira-Casas, Ana García-Acosta, Jorge de la Riva-Rodríguez, and Marco Gallo

**Audio Features Extraction to Develop a Child Activity Recognition Model Using Support Vector Machine to Monitoring Security in a Smart City** ..... 131  
 Antonio García-Domínguez, Carlos E. Galván-Tejada, Laura A. Zanella-Calzada, Jorge I. Galván-Tejada, Alberto Ochoa-Zezzatti, and Javier Martínez

**Sentiment Analysis Using Natural Language Processing Through a Speech Recognition System Using a Hybrid Mobile App** ..... 141  
 Alejandro Acosta, Alberto Ochoa-Zezzatti, Lina M. Aguilar-Lobo, and Gilberto Ochoa-Ruiz

**Logistics of Hospitalization Patients with COVID and Ambulances Required** ..... 155  
 Marco Del Moral, Alberto Ochoa, Alberto Lasserre, and Gastón Cedillo

**A Heuristic Method for Oil Distribution Networks Applied to the Switching Behavior in the Oil Industry** ..... 169  
 Mario M. Monsreal-Barrera and Oliverio Cruz-Mejía

**Metaheuristics for Order Picking Optimisation: A Comparison Among Three Swarm-Intelligence Algorithms** ..... 177  
 Jared Olmos, Rogelio Florencia, Vicente García, Martha Victoria González, Gilberto Rivera, and Patricia Sánchez-Solís

**Implementation of an Intelligent Framework for the Analysis of Body Movements Through an Avatar Adapted to the Context of Industry 4.0 for the Recruitment of Personnel** ..... 195  
 Javier Andres Esquivias Varela, Alberto Ochoa-Zezzatti, and Humberto Garcia Castellanos

**Industry 4.0 Optimization and Its Future Effects on Z Generation Focused on the Paradigm Shift of an Innovation Ecosystem**

**Selection of Factors Influencing for Reliable Electrical Power Transmission Design in Industry 4.0** ..... 217  
 Rubén Jaramillo-Vacio, Javier Cruz-Salgado, and Alberto Ochoa-Zezzatti

**Analysis of Transport Logistics Operations at a Link in a Reverse Supply Chain that Values Used Cooking Oil** ..... 231  
Benito Sánchez-Lara, Efraín Medina-Toribio, Reyna Gayosso-García, and Mayra Elizondo-Cortés

**The Transformation of Supply Chains in the Circular Economy from International Experiences to the Mexican Cases** ..... 249  
Mariana Hernández-González, Benito Sánchez-Lara, Mayra Elizondo-Cortés, and Luisa Fernanda Diego-Villegas

**Nanostores’ Density and Geographical Location: An Empirical Study Under Urban Logistics Approach** ..... 271  
Raul Soto-Peredo, Benito Sánchez-Lara, and Mariana Gómez-Eguiluz

**Blockchain Model Implementation to Select the Best Bid in an Industrial Supply Chain** ..... 291  
María Inés Borunda-Aguilar, Iván Juan Carlos Pérez-Olguín, Alberto Ochoa-Zezzatti, Erwin Adan Martinez-Gomez, and Gilberto Ochoa

**Sociodemographic Analysis of the Location of MSW Collection Centers in Mexico City** ..... 315  
Javier Gómez-Maturano and Benito Sánchez-Lara

**Classification System to Detect Diseases in Apples by Using a Convolutional Neural Network** ..... 331  
Alejandro Acosta, Alberto Ochoa, Erick Rodriguez-Eparza, Diego Oliva, Angel A. Juan, and Gonzalo Pajares



# Blockchain Model Implementation to Select the Best Bid in an Industrial Supply Chain



María Inés Borunda-Aguilar, Iván Juan Carlos Pérez-Olguín,  
Alberto Ochoa-Zezzatti, Erwin Adan Martínez-Gomez, and Gilberto Ochoa

**Abstract** This paper presents an intelligent model which uses Artificial Intelligence within the Industry 4.0. It is of utmost importance to be able to choose the best supplier in order to identify a competitiveness model associated with the reduction of direct and indirect costs. The present investigation describes a novel *Blockchain* that uses big data for adequately determining critical factors of the purchasing department and then using a hashing model verifying and validating with real data from a manufacturing company as a components supplier within the automotive industry. This research focuses mainly on specifying the mathematical modelling involved in Blockchain and its implementation using innovative factors from the financial area.

**Keywords** Blockchain · Supply chain · Optimal bid using artificial intelligence

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