Preface

Logistics Management and Optimization through Hybrid Artificial Intelligence Systems is an adequate source of information that compiles interdisciplinary perspectives about diverse issues related with Logistics, Optimization, Social applications and Technology applications each one with a different perspective about the correct solution of this kind of methodologies. This book is a collective effort to introduce new ideas from a variety of perspectives using innovative techniques and methodologies.

A book specialized on optimization considers different aspects to realize this “Optimization” tries to improve with innovative techniques and methodologies different daily aspects of our lives, in each one of them is possible understand the necessity of improve time, costs, spaces and a plethora of features associated with the modern life.

We received manuscripts from renowned researchers from all around the world with expertise on improving optimization related with Logistics of products and services, Optimization of different elements in the time and location, Social Applications to enjoy of a visit at the zoo, collect items and obtain recommendation in a specialized Thematic Web Radio, and finally, Technologies Applications of diverse ways to increase our Life Quality.

The book open with a section entitled Logistics of Products and Services, featuring three chapters on the improvement of services and products through the use of new paradigms on Logistics are Evolving Compute and Vehicle Route Problem to understand the best way to resolve this kind of problem. The first chapter of this section is “Logistics Applied to Improve Bottling Water Distribution,” which aboard the resolution of a small company in the North of Mexico and the improvement of their routes of delay using Data Mining and a Bioinspired Algorithm.

The Chapter “Logistics for the Garbage Collection through use of Ant Colony Algorithms,” explains a real problem about the logistics to organize a Waste System in a Society and the best options to organize this service on the time take as important factor the locations and ubiquities of each point in the city.

Finally in this section is presented “Grid Platform Applied to the Vehicle Routing Problem with Time Windows for the Distribution of Products,” this chapter proposes new ideas related with the delivery of products and detailed a novel technique to analyze the restriction of Time Windows.

The next section is named Improve of Optimization Applied Intelligent Techniques, featuring seven chapters related with different comparatives of Logistics in the search to improve resources in diverse aspects of our lives.

The chapter of “Hybrid Algorithm Applied to the Identification of Risk Factors on the Health of Newly Born in Mexico” discusses a new paradigm related with the health babies on Mexico.
In the next chapter entitled “An Evolutionary Algorithm for Graph Drawing with a Multiobjective Approach,” a novel paradigm is explained related with an application to determine a graph in a variety of uses as Social Networking and Topologies.

The chapter “Handwritten Signature Verification Using Multi objective Optimization with Genetic Algorithms in a Forensic Architecture” explains the correct way to determine the authenticity of a signature and the comparative with another in the search to characterize an individual on Forensic applications.

“Looking for Reverse Transformations between NP-Complete Problems” explains many topics related with the diminution on NP-Complete problems and their approach from a more soft perspective.

In the chapter “Variants of VRP to Optimize Logistics Management Problems” it is possible understand different variants of Vehicle Routing Problem associated with time, locations and process different.

“Heuristic Algorithms: An Application to the Truck Loading Problem” describes a variety of Bioinspired algorithms to resolve different problems associated with Logistics.

The importance of chapter “Analysis of Recombination Operators in Permutation-Based Evolutionary Algorithms for the Travelling Salesman Problem” is the value of Bioinspired applications on different aspects related with travel on Logistics.

In the section entitled Social Application on Logistic grouped three different papers related with solutions derived of specific aspects try to improve daily activities on social topics.

In the chapter “Crowdfunding to Improve Environmental Projects’ Logistics” explains the way to obtain funds to conservation parks and natural reserves to protect flora and fauna and improve routes in a Zoo to different kind of people.

“Improve Card Collection from Memory Alpha using Sociolinguistics and Japanese Puzzles” describes the way to collect thematic objects and improve these collections using sociolinguistics and Japanese puzzles related with the Social Networking associated with these collectors group.

The chapter entitled “Mass Media Strategies: Hybrid Approach using a Bioinspired Algorithm and Social Data Mining” explains different strategies to access to Mass Media including Music, Web and Merchandise.

Finally the last section Technological Application using Intelligent Optimization, is a group of chapters which involved Technology and their effect on the society.

In the chapter “Optimization of a Hybrid Methodology (CRISP-DM)” is described a novel technique which permits improve data mining processes.

“Data Mining Applications in the Electrical Industry” is an interesting chapter related with novel proposes in the Electrical Industry try to improve processes which implicate many different tasks in diverse locations where is produced the energy and send to another locations where this is used by people.

An Industrial Application is presented in “Decision Making Approaches for Advanced Manufacturing Technology Evaluation and Selection” describing an interesting study related with ergonomics and their applications in diverse aspects of our lives.

The next chapter “Optical Application improved with Logistics of Artificial Intelligent and Electronic Systems” involves an innovative proposal related with the use of Electronics and Artificial Intelligence to improve the use of Optics in the Industry and a new paradigm on the art state of this kind of applications.

Finally the chapter “Optimization of the Impeller and Diffuser and Hydraulic Submersible Pump Using Computational Fluid Dynamics and Artificial Neural Networks” is a novel technique used on Mechanics to improve the feature of a system based on mechanical geometries and propose to adequate the necessities of Industrial sector on Mexico.
The research community must be alert to investigate all these issues in a timely fashion, opening avenues for subsequent edition of this interesting book.

The chapters were selected following a rigorous analysis done by the book editors, and each chapter was double-blind peer-reviewed by at least two experts in the area. This would not have been possible without the valuable help of the Editorial Advisory Board; our sincere appreciation to: Dra. Lourdes Margain, Dra. Dolores Torres, Dra. Sayuri Quezada, Dr. Julio Ponce, Dr. Francisco Ornelas, Dr. Christian Correa, and two Ph.D. students in their last year: Sergio Enriquez and Rubén Jaramillo; finally, at Dr. Alberto Hernández by your dedication to write the Foreword.

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A book that aims to improve our lives without affect to environment would not be complete without giving to this cause. Therefore, from the very beginning of the project, we decided to humbly donate all of our revenue generated by this book to World Wild Foundation.

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