EDITORIAL

Soft computing in smart logistics

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Logistics refers to the process of moving goods or materials from the point of origin to the point of destination, with the utilization of various resources including personnel, vehicles, facilities and equipment. In recent years, smart logistics based on soft computing is an ongoing hot topic, mainly concerning on how to integrate and allocate resources efficiently to reduce cost and improve efficiency.

Nowadays, with the development of individuation and diversification of customer demand, logistics has become a complex system engineering, involving the integration of information flow, handling, packaging, inventory, transportation and warehousing. Moreover, what is the concerning is no longer limited to reduce cost and increase efficiency. It extends to the issues related to economy, society and the environment. All of these give rise to a lot of new challenges, which are significantly difficult to solve. Therefore, advanced soft computing methodologies or techniques are urgently needed to respond to these challenges, which is of great theoretical and practical significance for the implementation of smart logistics.

This special issue of soft computing in smart logistics is devoted to gathering together high-quality papers that involve new theories, algorithms and applications about soft computing in smart logistics. It not only reports recent significant developments but also highlights potential directions and future trends on the research of theories, algorithms and applications about soft computing in smart logistics.

This special issue finally selects a collection of 22 innovative and profound papers, all of which comply with

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the relevance and review criterions specified by the Springer Soft Computing Journal. In this issue, a particular set of papers present the new applications of soft computing in smart logistics, and the others provide the emerging theoretical achievements about logistics systems or soft computing methodologies or techniques, which are crucial for the further development of smart logistics. The twenty-two accepted papers can be broadly classified into the following three groups.

The first group of papers focuses on the new applications of soft computing in smart logistics. In the paper entitled "Robust multi-product inventory optimization under support vector clustering-based data-driven demand uncertainty set", a robust multi-product inventory optimization approach is developed with an uncertainty set constructed from the available data using support vector clustering. Product sales forecasting would directly impact inventory management and customer service level and thus plays an important role in logistics systems. For product sales forecasting, the paper entitled "Product sales forecasting using macroeconomic indicators and online reviews: A method combining prospect theory and sentiment analysis" develops a novel method based on macroeconomic indicators and online reviews, in which a nonlinear logarithmic autoregressive model is constructed by combining the prospect theory and sentiment analysis. The paper entitled "Urban hazmat transportation with multi-factor" designs an improved biogeography-based optimization algorithm for the urban hazmat transportation problem with multiple factors. In the paper entitled "A dynamic line generation and vehicle scheduling method for airport bus line based on multi-source big travel data", a dynamic line generation and vehicle scheduling method is proposed to improve the bus station coverage, passenger demand compatibility and the scheduling flexibility of Beijing International Airport bus line. The paper entitled "The risk path selection problem in uncertain network" characterizes the minimum risk path selection problem in an uncertain network and builds three uncertain risk programming models. The paper entitled "Optimizing stop

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plan and tickets allocation for high-speed railway based on uncertainty theory" proposes a stop plan and tickets allocation collaborative optimization model for high-speed railway transportation, followed by a Lagrangian relaxation heuristic algorithm to find good solutions in short time. In order to analyze the coupling degree and coordinated development level of ports, the paper entitled "Port collaborative development based on rough set theory" uses the rough set reduction method based on information entropy to determine the attribute weight and importance of the system-order parameter index and uses the port group system coupling measure model to obtain the port coupling degree. The paper entitled "A Bayesian network model for the reliability control of fresh food e-commerce logistics systems" uses a Bayesian network to analyze the importance of each influential factor in fresh food e-commerce logistics systems and thereafter establishes an intelligent logistics model for reliability control of fresh food.

The second group of papers focuses on the theoretical achievements about logistics systems, which can provide a foundation for the further development of smart logistics. Inventory management is a key issue in logistics systems. The paper entitled "Impact of decision style on newsvendor ordering behaviors: Mean anchoring, demand chasing and overconfidence" has studied the impact of inventory manager's decision style on ordering behaviors. For the water transport logistics systems, the paper entitled "Coordination of port service chain with an integrated contract" proposes an integrated contract that combines the revenue sharing and service cost allocation to coordinate the port service chain, involving port, carriers and many other departments. The paper entitled "Constructing a multilayer network for stock market" constructs a multilayer network to characterize stock market by considering both the linear and nonlinear relations between stocks, which is also applicable to characterize transportation or logistics systems. The paper entitled "Agency models based on different measures with comparison" presents a comparative review of random agency model, fuzzy agency model and uncertain agency model, aiming at guiding on how to identify the most suitable agency model for each specific principal agent problem. The paper entitled "An improved diffusion model for supply chain emergency in uncertain environment" studies the diffusion effect of emergency in supply chain. The paper entitled "The dilemma phenomenon, logistics for monetary independence policy and foreign exchange reserves" explores whether the emerging market countries which adopt floating exchange rate system have realized, at the same time, in the aftermath of a crisis, free movement of capital flow and independence of monetary policy. The paper entitled "Supply chain pricing and effort decisions with the participants' belief under the uncertain demand" formulates Stackelberg models to study the impact of the confidence levels on pricing and effort decisions for the decentralized and centralized supply chains. The paper entitled "Strategy analysis of governments and new energy product manufacturers and consumers based on evolutionary game model" develops three scenarios based on the evolutionary game model to analyze the interactions among the customers' purchases, the manufacturers' product strategies and the regulation policies. The paper entitled "Supply chain partnership, inter-organizational knowledge trading and enterprise innovation performance: The theoretical and empirical research in project-based supply chain" proposes a conceptual model for the relationships among supply chain partnership, inter-organizational knowledge trading and enterprise innovation performance.

The third group of papers focuses on the emerging soft computing methodologies or techniques. The combination of these new soft computing methodologies or techniques and smart logistics is to be expected. The paper entitled "An adaptive differential evolution with combined strategy for global numerical optimization" proposes a novel differential evolution variant, in which two mutation operators with different characteristics are adopted to produce the mutant vector. Moreover, the paper combines a periodic function based on one modulo operation, an individualindependence macro-control function and an individualdependence function based on individual's fitness value information to adaptively produce scaling factor and crossover rate. The paper entitled "Change points detection and parameter estimation for multivariate time series" proposes a method which is based on group Lasso and information criterion to estimate the number and locations of change points for piecewise stationary vector autoregressive models. For the anomaly analysis of dynamic networks, the paper entitled "An unsupervised ensemble framework for node anomaly behavior detection in social network" proposes an unsupervised ensemble framework for node temporal behavior modeling and node behavior real-time anomaly detection. In terms of prediction technology, the paper entitled "A new uncertain regression model and its application" extends the symmetric triangular uncertain coefficients to asymmetric triangular uncertain coefficients and builds two methods for estimating the parameters of uncertain linear regression model, with the aim of minimizing the differences of the uncertain membership functions between the observed and estimated values.

In summary, this special issue covers a rich collection of research papers that illustrate significant advances to the applications of soft computing in smart logistics, the theoretical achievements about logistics systems and the soft computing methodologies or techniques. In addition, the paper entitled "Mapping the evaluation results between quantitative metrics and meta-synthesis from experts' judgements: evidence from the Supply Chain Management and Logistics journals ranking" constructs a framework to quantitatively evaluate the journals from the supply chain management and logistics field. We believe that all the papers in this special issue will greatly promote the application and development of soft computing in smart logistics. We hope that the readers will enjoy this special issue and find it stimulating and thought-provoking.

In the end, we would like to express our sincere thanks to the authors who have shared their recent research ideas, results and achievements in this special issue. Our thanks also extend to the reviewers for their expert and constructive comments, which are crucial in achieving the high standards of these papers. Acknowledgements This work was supported by the National Natural Science Foundation of China (No. 71722007, 71931001), the Funds for First-class Discipline Construction (XK18025) and the Fundamental Research Funds for the Central Universities (buctrc201926).

Compliance with ethical standards

Conflict of interest All authors declare that they have no conflict of interest.

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