

Guest editorial

Special issue: fuzzy decision making and applications in knowledge management

Justin Zhang*

Coggin College of Business, University of North Florida, Jacksonville, FL, USA

Abstract. This special issue of the *Journal of Intelligent & Fuzzy Systems* contains selected articles of fuzzy decision making and applications in knowledge management.

1. Introduction

In cognition of things, people may not possess a precise or sufficient level of knowledge of the problem domain, due to the complexity of the socio-economic environment. In such cases, they usually have some uncertainty in providing their preferences over the objects considered, which makes the results of cognitive performance exhibit the characteristics of affirmation, negation, and hesitation. Thus, the field “Fuzzy Decision Making and Applications in Knowledge Management” has been expanding its topic and boundary in the past decades in order to reflect the complex requirements of the information society since its introduction by Zadeh (1965) in the 1960 s. Central to the fuzzy set is the extension from fuzzy set to intuitionistic fuzzy set, hesitant fuzzy set, picture fuzzy sets, bipolar fuzzy set, Pythagorean fuzzy set and so on. In recent years, more and more researchers have investigated the fuzzy decision making and their applications in various areas, such as enterprise’s development planning of strategy initiatives, site selection, supplier selection in a supply chain, safety evaluation performance evaluation, and pattern recognition; however, few of them are in the Knowledge Management (KM) area. Thus, it is our pleasure to release this special issue of *Journal*

of Intelligent & Fuzzy Systems, which represents a cross-section of research in fuzzy decision making and applications in KM that touches both social sciences and engineering technologies. The key areas and topics of selected papers include:

Model for evaluating the enterprise financial performance with interval-valued intuitionistic uncertain linguistic information; EDAS method for Multiple Criteria Group Decision Making under 2-tuple Linguistic Neutrosophic Environment; Research on the Construction Noise Appraisal Models with Hesitant Interval-Valued Fuzzy Information; Models for Economic Benefit Evaluation of Investment Project of Electric Power Enterprise with triangular fuzzy Information; Model for Art Effect Evaluation of Fashion photography with Triangular Intuitionistic Fuzzy Information; Study on the Security of Information System Authentication Scheme Based on the Fuzzy Number Intuitionistic Fuzzy Information; An intuitionistic fuzzy multi-attribute group decision making method with incomplete weight information based on improved VIKOR; Methods for Technical Innovation Efficiency Evaluation of High-Tech Industry with Picture Fuzzy Set; Research on the Evaluation of Public Policy Execution Ability with Picture Fuzzy Information; Model for Evaluating the Operation Performance of High-Tech Zone Technology Business Incubator Network with Pythagorean Fuzzy Information; Research on evaluating brand marketing of leisure

*Corresponding author. Justin Zhang, Coggin College of Business, University of North Florida, Jacksonville, FL 32224, USA

tourism city with fuzzy information; Performance Evaluation of Supply Chain Cooperation for Manufacturing Corporations with hesitant triangular fuzzy information; Research on Evaluation of Airport Environment Capacity; Approaches to strategic supplier selection under interval neutrosophic environment; TODIM method for Performance Appraisal on Social-Integration-based Rural Reconstruction with Interval-Valued Intuitionistic Fuzzy Information; Research on the Application of the Financial Investment Risk Appraisal Models with Some Interval Number Muirhead Mean Operators; Research Evaluation on Impact of Mobile Phone Information Technology on the Urban Public Space Development under the Internet Background; Economic Evaluation of Power System Dispatch with hesitant fuzzy uncertain linguistic information; TODIM method for multiple attribute decision making with 2-tuple linguistic Pythagorean fuzzy information; Some novel similarity and distance and measures of Pythagorean fuzzy sets and their applications; Research on Performance Evaluation of Leisure Agriculture Supply-Side Structural Reform with Interval-valued Dual Hesitant Fuzzy Linguistic Information; Multi-dimensionality Reputation Evaluation Model for C2C E-commerce in hesitant triangular fuzzy setting; Models for Evaluating the Benefit Risk and Performance of Internet Financial Product with Triangular Fuzzy Information; Model for Reliability Evaluation of Electrical Engineering Automation with 2-tuple Linguistic Information; Novel Model for Evaluating the Finance Achievements of Transnational Corporation with hesitant triangular fuzzy information; The generalized Dice similarity measures for Evaluating the Development Level of the Mass Sports Culture Organization with 2-tuple linguistic information; Research on the Management Performance Appraisal for the Transnational Corporation with 2-tuple Linguistic Information; Decision Making Using New Category of Similarity Measures and Study Their Applications in Medical Diagnosis Problems; A decision making approach based on multi-fuzzy bipolar soft sets; An emerging online business decision making architecture in a dynamic economic environment; An evaluation of the role of fuzzy cognitive maps and Bayesian belief networks in the development of causal knowledge systems; Research on Credit Risk Evaluation of Online Supply Chain Finance with Triangular Fuzzy Information; Study on Evaluation of the Foreign Trade Sustainable Development

with Interval-Valued Intuitionistic Fuzzy Information; Models for Evaluating the Display Systems quality of Excavator Instrumentation with 2-tuple Linguistic Information; VIKOR method for Effect Evaluation of Ancient Village Landscape Planning Based on the Heritage Historical Context under 2-tuple Linguistic Environment; Research on Hotel Supply Chain Risk Assessment with dual generalized triangular fuzzy Bonferroni mean operators; Model for Evaluating the Art Education Teaching Quality with Uncertain Information; Models for Multiple Attribute Decision Making with Picture Fuzzy Information; Model for Evaluating the Service Quality of Elderly Institutions with Hesitant Fuzzy Linguistic Information; Fuzzy Comprehensive Evaluation Model for Evaluating the Competitiveness of High Technological Parks with Fuzzy Information; VIKOR method for financing risk assessment of rural tourism projects under interval-valued intuitionistic fuzzy environment; Study on Risk Assessment of Pharmaceutical Distribution Supply Chain with Bipolar Fuzzy Information; Methods for Evaluating the Government Administrative Power under the Whole Area Tourism with Hesitant Fuzzy Linguistic Information; Comprehensive Evaluation Analysis of Mental Health Status of Poverty-Stricken College Students at Present Age with Interval-Valued Intuitionistic Fuzzy Information; Model for Evaluating the Microdefects of Textile Composites with Picture Fuzzy Information; Research on the Lightning Disaster Risk Assessment of Electronic Information System with Intuitionistic Fuzzy Information; Model for Evaluating the Teaching Effect of the College English Public Speaking Course under the Flipped Classroom Hybrid Teaching Mode with Intuitionistic Trapezoidal Fuzzy Numbers; Research on Evaluating the Design Effect of Clothing and Accessories with 2-tuple Linguistic Information; Formation Mechanism of Yellow Soil Aggregate of Tea Garden and Quality Assessments under hesitant fuzzy environment; TODIM method for evaluating the service quality of boutique tourist scenic spot with 2-tuple linguistic information.

This edition is the continuation of our publishing activities. All the included contents were anonymously reviewed by experts to maintain academic excellence and integrity. We wish to thank all, including authors, reviewers, and all the other participants, who have directly and indirectly contributed to the release of this special issue by their engagement.