

PREFACE

Complex decision-making is one of the key areas of application information technologies. Information Technology and Management Science is a scientific journal of the Information Technology Institute of Riga Technical University focusing on the application of information technology in decision-making and management science. Proliferation of data processing technologies has evoked increasing interest in data intensive decision-making problems. This trend is well represented in the current issues of the journal. It includes papers on intelligent decision-making methods using neural networks and fuzzy logic, data analytics and database technologies, modelling technologies as well as papers on management of development of complex information technology solutions.

The current volume contains 19 papers by senior researchers as well as Doctoral and Master students. The papers have been submitted by the authors from four countries.

Bodyanskiy et al. investigate machine learning techniques in their paper “Neo-Fuzzy Encoder and Its Adaptive Learning for Big Data Processing”. Structure and properties of neural networks are analysed by Romanuke in “Appropriate Number of Standard 2×2 Max Pooling Layers and Their Allocation in Convolutional Neural Networks for Diverse and Heterogeneous Datasets”, by Namatēvs in “Deep Convolutional Neural Networks: Structure, Feature Extraction and Training” and by Radiuk in “Impact of Training Set Batch Size on the Performance of Convolutional Neural Networks for Diverse Datasets”. Applications of intelligent decision-making techniques are analysed by Užga-Rebrovs and Kuļešova in “Comparative Analysis of Fuzzy Set Defuzzification Methods in the Context of Ecological Risk Assessment”, by Grabusts in “Different Approaches to Clustering – Cassini Ovals” as well as by Radionovs and Užga-Rebrovs in “Software Tool Implementing the Fuzzy AHP Method in Ecological Risk Assessment”.

The track of development of complex systems is explored by Petunova and Bērziša in “Test Case Review Processes in Software Testing”, by Bergmane et al. in “A Case Study: Software Defect Root Causes” and by Platonova and Bērziša in “Gamification in Software Development Projects”. This theme is further elaborated by Rizoto-Vidala-Pesoa and Kuzņecova in “The Role of the Super User in Achieving Business Process Management Maturity” by researching user involvement in complex business processes.

Data analytics and database technologies are investigated by Balan et al. in “Data Analysis of Cybercrimes in Businesses”, by Gorskis in “Database Concepts in a Domain Ontology”, by Gončarovs in “Data Analytics in CRM Processes: A Literature Review” and by Kauliņš in “Supporting Problem Solving Process of Expert System Architecture in Database Administration”.

The complex decision-making models are developed and analysed by Grinde in “A Bi-Modal Routing Problem with Cyclical and One-Way Trips: Formulation and Heuristic Solution”, by Šitova and Pečerska in “A Concept of Simulation-based SC Performance Analysis Using SCOR Metrics”, by Rubenis and Matvejevs in “Valuation of European Call Option via Inverse Fourier Transform” and by Cjoskāns and Lektauers in “An Application of Graphics Processing Units to Geosimulation of Collective Crowd Behaviour”.

Editorial Board