

Information Processing and Optimization in Control Solutions

Editors:

Yuriy P. Kondratenko, Petro Mohyla Black Sea National University;
Institute of Artificial Intelligence Problems of Ministry of Education and
Science and National Academy of Sciences of Ukraine, Ukraine
Arkadii O. Chikrii, Glushkov Institute of Cybernetics of NAS of Ukraine,
Kyiv, Ukraine; Yuriy Fedkovich Chernivtsi National University, Chernivtsi,
Ukraine.

Oles Honchar Dnipro National University, Dean of the Faculty of Applied
Mathematics and Information Technologies, Dnipro, Ukraine

Nikolay N. Salnikov, Space Research Institute of the National Academy
of Sciences of Ukraine and the State Space Agency of Ukraine, Kyiv,
Ukraine

This monograph presents significant scientific advances across intelligent control, information processing, optimization, optimal set partitioning, and modern numerical methods. It explores both classical and emerging techniques, with emphasis on neural networks, machine learning, contextual data analysis, large-scale data processing, cloud computing, and computational methods.

The theoretical developments are complemented by a wide range of practical applications. These include modeling the dynamics of financial markets, solving complex logistics tasks, and addressing technical challenges in 3D printing. The work also highlights solutions of direct practical relevance, such as information system design for cybersecurity, digital platforms for optimizing military personnel training, and data-driven diagnostic methods for assessing the human body under high physical stress. Additionally, the monograph examines optimal scheduling techniques and software development for analyzing unstructured time series.

The content is organized into three integrated parts: Artificial Intelligence and Control Solutions, Advances in Optimization Theory, and Information Processing Techniques and Their Applications. Together, these sections offer a comprehensive perspective for researchers and professionals working with intelligent systems, computational technologies, and applied problem solving.

TABLE OF CONTENTS

Part 1. Artificial Intelligence and Control Solutions

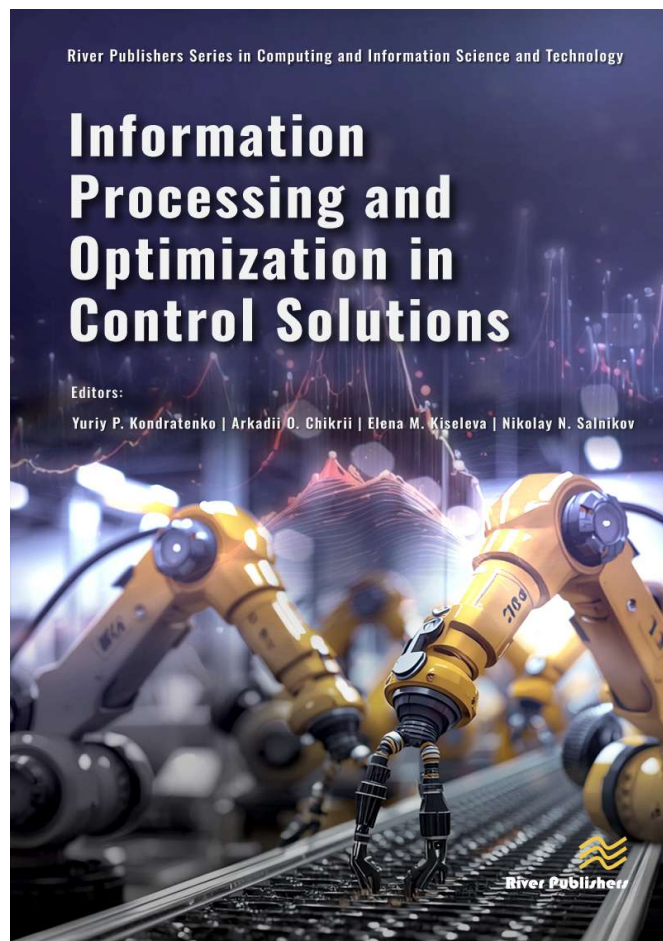
- 1 Normalization Invariance: A New Approach to Foundations of Fuzzy Control
- 2 Practical Analysis of Solutions to Optimize the Computational Requirements of Neural Models
- 3 Exploring Machine Learning Methods for Fuzzy Logic-based Sentiment Analysis of Written Context
- 4 Comparative Analysis of Object Detection Models on Different Dataset Sizes
- 5 Deep Learning-Based Fire and Smoke Detection for Safety Systems
- 6 Hybrid Missing Data Imputation Method Based on Regression and Entropy Approach
- 7 Financial Forecasting Strategies: Integrating Data-driven Approaches and Advanced Models

Part 2. Advances in Optimization Theory

- 8 Two-stage Proximal Algorithms for Equilibrium and Optimization Problems in Hadamard Spaces
- 9 Solving Geospatial Analysis and Logistics Problems Based on the Synthesis of Optimal Set Partitioning Methods and Cluster Analysis
- 10 Three Variants of the Generalized Ellipsoid Method
- 11 On One Procedure for Generating Aggregate α -subgradients
- 12 Justification of the Feasibility of Allowing Interruptions in a Single Scheduling Theory Problem
- 13 Using Discrete and Continuous Algorithms to Build Optimal Trajectories in 3D Printing

Part 3. Information Processing Techniques and Their Applications

- 14 Universal Soft Computing Models: Division of Triangular Fuzzy Numbers with Various Asymmetrical Shapes
- 15 Intelligent System for Optimizing the Training of Female Military Personnel
- 16 Development of a Mixed Reality Fitness Game with Real-world Objects Interaction
- 17 Application of Deployment Models Cloud Technology
- 18 Information Processing for Assessing the Body's Adaptation Capabilities to Increased Loads
- 19 Business Analysis of a Mobile Application for Learning Classical Music



River Publishers Series in Computing and Information Science and Technology

ISBN: 9788743812524

e-ISBN: 9788743812531

Available From: November 2026

Price: \$ 126.51

KEYWORDS:

Control solutions, artificial intelligence, information processing, optimization, fuzzy control



www.riverpublishers.com
marketing@riverpublishers.com