Preface
OPTIMIZATION METHODOLOGY
Statistical Optimization with Averaging applied to a 125 Variable and 125 Nonlinear System of Equations William Conley
Statistical Optimization applied to a large Nonlinear System of Equations William Conley11
On Parallel Conformant Planning as an Optimization Problem Adam Galuszka, Tomasz Grzejszczak, Jaroslaw Smieja, Adrian Olczyk and Jerzy Kocerka17
Multi-Objective Optimization Driven Construction of Uniform Priors for Likelihood-Free Parameter Inference Prashant Singh and Andreas Hellander22
A Simulation Based Technique for Continuous Space Embedding of Discrete Parameter Queueing Systems Neha Karanjkar, Madhav Desai and Shalabh Bhatnagar28
MACHINE LEARNING AND AI
Application of Machine Learning to model a Biological Reactor in a Wastewater Treatment Plant Bartosz Szeląg and Jan Studziński39
Modeling Emergence by Integrating DEVS and Machine Learning Daniel Foguelman and Rodrigo Castro44
Hand Gesture Classification with Use of Convolutional Neural Networks Tomasz Grzejszczak, Robert Roth and Reinhard Moller49
The Problem with Asynchronous Updating Joseph Kehoe54
SIMULATION DRIVEN ENGINEERING
Model-Based Simulation of a Hydraulic Open Loop Rotary Transmission with Automatic Regulation of Hydraulic Motor (Part 1: Modelling) Mait Harf and Gunnar Grossschmidt

CONTENTS

Model-Based Simulation of a Hydraulic Open Loop Rotary Transmission with Automatic Regulation of Hydraulic Motor (PART 2: Simulation) Mait Harf and Gunnar Grossschmidt69
PRODUCTION PLANNING
Coupling of Rigid Body Dynamics with Structural Mechanics to include Elastic Deformations in a Real-Time Capable Holistic Simulation for Digital Twins Max Krause, Kai-Uwe Schröder, Dorit Kaufmann, Tobias Osterloh and Jürgen Rossmann
Process-based Ship Production System Modeling for Supporting Decision Processes Dongsu Jeong and Yonnho Seo
Development, Implementation and Evaluation of a Complexity Measure for the Work of Assembly Teams in One-Piece-Flow Assembly Systems Employing Simulation Studies Benedikt A. Latos, Peyman Kalantar, Florens L. Burgert, Matthias G. Arend, Verena Nitsch, Philipp M. Przybysz and Susanne Mütze-Niewöhner88
Integrated EPQ and Periodic Condition-Based Maintenance Alp Darendeliler, Dieter Claeys, El-Houssaine Aghezzaf and Abdelhakim Khatab95
ASSEMBLY LINE OPTIMIZATION
Optimization of a Supply Chain Game Orders with Order Cost Florian Boyrie, Nicolas Pech-Gourg and Thibaud Serieye103
The Influence of Line Balancing on Line Feeding for Mixed-Model Assembly Lines Hendrik Wijnant, Nico André Schmid and Veronique Limère106
Implementation of a Cyber-Physical Systems Simulation Components Allocation Tool Henrick Deschamps, Gerlando Cappello, Janette Cardoso and Pierre Siron112
SUPPLY CHAIN ANALYSIS AND VEHICLE SCHEDULING
Variable and Class-Dependent Service Capacity with a Multi-Class Arrival Process Jens Baetens, Bart Steyaert, Herwig Bruneel and Dieter Claeys123

CONTENTS

ENVIRONMENTAL SIMULATION

Stochastic Model of the Joint Time-Series of Air Temperature and Atmospheric Pressure Nina A. Kargapolova
Temporospatial Epidemic Simulations using Heterogeneous Computing Dhananjai M. Rao205
SIMULATION IN ECONOMICS AND FINANCE
Volatility Regime Analysis of Bitcoin Price Dynamics using Markov Switching Garch Models Anna Bonello and David Suda213
Models as Part of the Welfare System as Part of The Economic Measures for The State of Crisis in Building Resilience Jozef Ristvej, Roman Ondrejka, Ladislav Šimák, Michal Titko and Michaela Jánošíková