## Contents

### Methodologies and Technologies

An Investigation on Compound Neighborhoods for VRPTW ........................ 3  
*Binhui Chen, Rong Qu, Ruibin Bai, and Hisao Ishibuchi*

Product Modularization Using Cuckoo Search Algorithm ........................... 20  
*Hayam G. Wahdan, Sally S. Kassem, and Hisham M.E. Abdelsalam*

A Family of Models for Finite Sequential Games Without a Predetermined Order of Turns .......................................................... 35  
*Rubén Becerril-Borja and Raúl Montes-de-Oca*

Solving Chance-Constrained Games Using Complementarity Problems ........ 52  
*Vikas Vikram Singh, Oualid Jouini, and Abdel Lisser*

### Applications

Distributed Patrolling with Two-Speed Robots (and an Application to Transportation) ................................................................. 71  
*Jurek Czyzowicz, Konstantinos Georgiou, Evangelos Kranakis, Fraser MacQuarrie, and Dominik Pajak*

Inventory Routing with Explicit Energy Consumption: A Mass-Flow Formulation and First Experimentation ................................. 96  
*Yun He, Cyril Briand, and Nicolas Jozefowiez*

Delineation of Rectangular Management Zones and Crop Planning Under Uncertainty in the Soil Properties ........................................... 117  
*Víctor M. Albornoz, José L. Sáez, and Marcelo I. Véliz*

Towards the PhD Degree: A Reflection and Discussion of the PhD Process ... 132  
*Marta Castilho Gomes*

Competition and Cooperation in Pickup and Multiple Delivery Problems .... 142  
*Philip Mourdjis, Fiona Polack, Peter Cowling, Yujie Chen, and Martin Robinson*

Exploring Techniques to Improve Large-Scale Drainage System Maintenance Scheduling Using a Risk Driven Model ....................... 161  
*Yujie Chen, Fiona Polack, Peter Cowling, Philip Mourdjis, and Stephen Remde*
A Comparison of One-Pass and Bi-directional Approaches Applied to Large-Scale Road Inspection. ........................................... 180
  Yujie Chen, Fiona Polack, Peter Cowling, and Stephen Remde

Assessment of Risks in Manufacturing Using Discrete-Event Simulation .... 201
  Renaud De Landtsheer, Gustavo Ospina, Philippe Massonet,
  Christophe Ponsard, Stephan Printz, Sabina Jeschke, Lasse Härtel,
  Johann Philipp von Cube, and Robert Schmitt

Ramsey’s Discrete-Time Growth Model: A Markov Decision Approach with Stochastic Labor ........................................... 223
  Gabriel Zacarias-Espinoza, Hugo Cruz-Suárez,
  and Enrique Lemus-Rodriguez

An Investigation of Heuristic Decomposition to Tackle Workforce Scheduling and Routing with Time-Dependent Activities Constraints .... 239
  Wasakorn Laesanklang, Dario Landa-Silva,
  and J. Arturo Castillo-Salazar

Author Index ............................................................. 261