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Jesica de Armas · Helena Ramalhinho ·
Stefan Voß (Eds.)

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Editors
Jesica de Armas
Universitat Pompeu Fabra
Barcelona, Spain

Helena Ramalhinho
Universitat Pompeu Fabra
Barcelona, Spain

Stefan Voß
Universität Hamburg
Hamburg, Germany

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Preface

The increasing availability of information, together with current complex logistics operations have led to the need of better optimization proposals. Recently, important efforts and initiatives from all sides of optimization have been undertaken to improve logistics operations with sophisticated algorithms and information systems. This resulted in advances in several logistics sectors, such as maritime shipping, urban logistics, warehousing, production and supply chain management. Computational logistics, as the driver between decision making and operations, has become a key component for economic and industrial growth.

Computational logistics covers the management of logistic activities and tasks by the combined use of computational technologies, advanced decision support and optimization techniques. It is applied in several areas such as the flow and storage of goods and services, as well as the flow of related information. In this context, modeling and algorithmic approaches are developed, verified, and applied for planning and execution complex logistics tasks, including identification of the most efficient routing plans and schedules to transport passengers or distribute goods. The models and algorithms are integrated with computing technologies, not only for getting satisfactory results in reasonable times, but also exploiting interactivity with the decision maker through visual interfaces, and for extracting knowledge from data to improve future decision making. This promotes the joint effort of practitioners and scholars for better understanding and solving the logistics problems at hand.

The International Conference on Computational Logistics (ICCL) is a forum where recent advances in the computational logistics research area are presented and discussed. This volume offers a selection of 32 peer-reviewed papers out of 64 contributions submitted to the 13th ICCL edition, held at the University Pompeu Fabra, Barcelona, Spain, during September 21–23, 2022. The papers show various directions of importance in computational logistics, classified into five topic areas reflecting the interest of researchers and practitioners in this field. The papers in this volume are grouped according to the following parts:

1. **Maritime and Port Logistics**
   Maritime and port logistics are the backbone of global supply chains and international trade. The performance and functioning of its related activities are remarkably influenced by the quality of its planning and management. In ICCL 2022, the contributions that fall into this category relate to, among others, berth allocation, bulk logistics, crane scheduling, and various real-world maritime applications.
2. **Vehicle Routing and Urban Logistics**
   Vehicle Routing is a well-known family of optimization problems that constitutes an important part of real-world transport and logistics activities. Due to the many specific real-world features, there is a strong necessity of modeling and developing efficient solution approaches that permit advancements in this area. Additionally, the progress in urban transport as well as the development of cities and other

regions require current systems to be adapted and updated to cope with changes that involve new transportation means, such as drones, integrated planning, and intermodal transport. The papers in this category relate to a diverse range of topics, such as waste collection, school bus routing, green routing, drone-assisted delivery, long-haul transportation, and last mile delivery, among others.

3. **Warehousing and Location**
   Warehousing is an important piece of the supply chain and logistics puzzle. Warehousing and inventory storage affect everything from sourcing raw materials and, efficiently managing inventory, to getting orders delivered to customers on time. Though the principles of warehousing have not changed much over the years, warehousing solutions have evolved. In the same vein, the location of warehouses impact on all other logistics operations. Contributions considering cross-docking, block stacking, palletizing, warehouse layouts, energy savings and facility location fall into this category.
4. **Supply Chain and Production Management**
   The management of supply chains and production covers different relevant logistics operations. The works included in this category pursue the efficient organization and management of the diverse resources and operations involved. Thus, the papers that appear in this category relate to a range of topics concerning distribution, workforce management, lot sizing, production scheduling, risk tolerance, freight costs, information sharing and collaboration, and other supply chain-related topics.

The ICCL 2022 was the 13th edition of this conference series, following the earlier ones held in Shanghai, China (2010, 2012), Hamburg, Germany (2011), Copenhagen Denmark (2013), Valparaiso, Chile (2014), Delft, The Netherlands (2015), Lisbon, Portugal (2016), Southampton, UK (2017), Salerno, Italy (2018), Barranquilla, Colombia (2019) and Enschede, The Netherlands (2020, 2021). The editors thank all the authors for their contributions as well as the program committee and reviewers for their invaluable support and feedback. We trust that the present volume supports the continued advances within computational logistics and inspires all participants and readers to its fullest extent.

November 2022

Jesica de Armas
Helena Ramalhinho
Stefan Voß

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