Lecture Notes in Computer Science

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Computational logistics refers to the planning and implementation of logistics tasks using computations and advanced decision support. It covers significant work regarding theory and application of systems and methodologies for advancing planning and operations in logistics. It is applied in various areas including the flow and storage of goods or services as well as related information from their source to their destination. Typically, optimization models and algorithms are developed, verified, and applied for planning and executing complex logistics tasks, e.g., for finding the most efficient scheduling/plan for the transport of passengers or goods. These models and algorithms are integrated with advanced information and communication technology (IT) to obtain satisfactory results in appropriate time even for large-scale problem instances and providing interactivity, visualization, etc. for a better understanding, problem solution, and decision support. Furthermore, computational logistics involves the use of information systems and modern IT tools for the design, planning, and control of logistics networks as well as the complex tasks within them.

The International Conference on Computational Logistics (ICCL) provides an opportunity for researchers and practitioners in the field of computational logistics to present their latest results and findings in a fruitful and open-minded environment. This volume of Lecture Notes in Computer Science consists of selected papers presented at the 3rd International Conference on Computational Logistics, held at the Shanghai Jiao Tong University in Shanghai, China, September 24–26, 2012.

The ICCL 2012 was the third of its kind. The first was held in 2010, also in Shanghai, and the second one in Hamburg, Germany (see Volume 6971 of the LNCS). The idea of inviting participants to go back to Shanghai was motivated by the fact that computational logistics has become very visible in Shanghai with continuous developments to be seen in action. As a port city, Shanghai has moved from record to record, e.g., regarding container turnover, making it the largest port worldwide in that respect. For instance, Yangshan Deepsea Water Container Terminal upgraded its ranking in the world, increasing research interests to a great extent; Zhenhua Port Machinery Corporation (ZPMC) has developed advanced terminal handling systems based on information system design, matching very much the scope of the ICCL. Moreover, Hongqiao Airport Terminal II has applied advanced engineering management mechanisms, inspiring further research on computational logistics; an underground logistics system has been researched in Shanghai for a few years and is expected to be implemented in the near future. Technical excursions to these places, together with the academic submissions included in this special issue, brought the participants the flavor of the state of the art of computational logistics and its scientific outputs and implementations as well as applications.
The contributions presented at the conference as well as the papers in these proceedings show that computational logistics are gaining more and more importance in various areas. Academics as well as practitioners are deeply involved in the development of the field, which is going from strength to strength. This is well reflected in the advances seen in the contributions presented at the conference as well as the selected papers in these proceedings. Following the focus of the papers accepted, we grouped the contributions into four parts as follows:

- Part I: Maritime Shipping
- Part II: Logistics and Supply Chain Management
- Part III: Planning and Operations
- Part IV: Case Studies

While we believe that these proceedings provide insights into the state of the art of the field, we also hope and know that the story is never-ending. That is, new advances on different levels are expected, taking into consideration innovations in all areas of computational logistics, building upon what we have developed.

Organizing a conference and publishing the proceedings is a task that relies on the help and support of many people in various roles. Many thanks go to all the authors and presenters for their contributions. In addition, we greatly appreciate the valuable help and cooperation of the members of the international program committee and the referees. While preparing the conference and compiling the proceedings we also received enthusiastic support from Julia Bachale (IWI Hamburg) as well as the team of local organizers in Shanghai.

September 2012
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