

# **Lecture Notes in Geoinformation and Cartography**

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Georg Gartner · Haosheng Huang  
Editors

# Progress in Location-Based Services 2014

 Springer

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# Preface

Recent years have witnessed rapid advances in location-based services (LBS) with the continuous evolvement of mobile devices and communication technologies. LBS have become more and more popular not only in citywide outdoor environments, but also in shopping malls, museums, and many other indoor environments. They have been applied for emergency services, tourism services, intelligent transport services, gaming, assistive services, etc.

This book provides a general picture of recent research activities related to this field. Such activities emerged in the last years, especially concerning issues of outdoor/indoor positioning, smart environment, spatial modeling, personalization, context awareness, cartographic communication, novel user interfaces, crowd-sourcing, social media, big data analysis, usability, and privacy. The innovative and contemporary character of these topics has led to a great variety of interdisciplinary research and studies, from academia to business, from computer science to geodesy.

The contributions in this book are a selection of peer-reviewed full papers submitted to the 11th International Symposium on Location-Based Services in Vienna (Austria) in November 2014, organized by the Research Group Cartography, Vienna University of Technology. We are grateful to all colleagues who helped with their critical reviews. Please find a list of their names in the “Reviewers” section.

The conference series on LBS has been held at

- 2002—Vienna, Austria
- 2004—Vienna, Austria
- 2005—Vienna, Austria
- 2007—Hong Kong, China
- 2008—Salzburg, Austria
- 2009—Nottingham, UK
- 2010—Guangzhou, China
- 2011—Vienna, Austria

- 2012—Munich, Germany
- 2013—Shanghai, China
- 2014—Vienna, Austria

The conferences themselves were a response to an increased interest in providing anyone, anything, anytime, and anywhere services. These conferences together offer a general overview of how LBS-related research has been evolving in the last years. The contributions of this book reflect the recent main areas of interest, including wayfinding and navigation, outdoor and indoor positioning, spatial-temporal data processing and analysis, usability, and application development.

We would like to thank our colleagues Manuela Schmidt, Felix Ortog, Florian Ledermann, and Günther Retscher for their help during the production of this book.

Vienna, Austria, September 2014

Georg Gartner  
Haosheng Huang

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# Reviewers

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