

**LBS 2021**

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Anahid Basiri, Georg Gartner and Haosheng Huang (Editors)

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*Editors*

Anahid Basiri, Ana.Basiri@glasgow.ac.uk

School of Geographical & Earth Sciences, University of Glasgow, UK

Georg Gartner, Georg.Gartner@tuwien.ac.at

Research Group Cartography, TU Wien, Austria

Haosheng Huang, Haosheng.Huang@ugent.be

Department of Geography, Ghent University, Belgium

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The conference is organized by the ICA Commission on Location Based Services, and the School of Geographical & Earth Sciences at the University of Glasgow.

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## Preface

We are now living in a mobile information era, which is fundamentally changing science and society. Location Based Services (LBS), which deliver information depending on the location and context of the (mobile) device and user, play a key role in this mobile information era. In recent years, lots of progress has been achieved in the research field of LBS, due to the increasingly maturity of the underpinning communication technologies and mobile devices. LBS have become more and more popular in not only citywide outdoor environments, but also shopping malls, museums, and many other indoor environments. They have been applied for emergency services, tourism services, intelligent transport services, social networking, gaming, assistive services, etc.

Since its initiation by Georg Gartner from TU Wien in 2002, the LBS conference series has become one of the most important scientific events decided to LBS. The conferences have been held in Vienna (2002, 2004, 2005), Hong Kong (2007), Salzburg (2008), Nottingham (2009), Guangzhou (2010), Vienna (2011), Munich (2012), Shanghai (2013), Vienna (2014), Augsburg (2015), Vienna (2016), Zurich (2018), Vienna (2019). Starting from 2015, the LBS conferences have become the annual event of the Commission on Location Based Services of the International Cartographic Association (ICA). In November 2021, the 16th LBS conference (LBS 2021) will be hosted by the University of Glasgow.

The conference proceedings contain a selection of short papers submitted to LBS 2021. The book provides a general picture of recent research activities related to the domain of LBS. Such activities emerged in the last years, especially concerning issues of outdoor/indoor positioning, wayfinding and navigation systems, location tracking, mobility and activity analytics, social media, usability and privacy, and innovative LBS systems

We would like to thank all the authors for their excellent work. We hope you enjoy reading these papers, and look forward to your participation in the future LBS conferences.

Anahid Basiri, Georg Gartner and Haosheng Huang

November 2021 in Glasgow, UK, Vienna, Austria and Ghent, Belgium

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