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António Gomes Correia
Joaquim Tinoco
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Luís Lamas *Editors*

Information Technology in Geo-Engineering

Proceedings of the 3rd International Conference (ICITG), Guimarães, Portugal

Springer

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ISSN 1866-8755 ISSN 1866-8763 (electronic)
Springer Series in Geomechanics and Geoengineering
ISBN 978-3-030-32028-7 ISBN 978-3-030-32029-4 (eBook)
https://doi.org/10.1007/978-3-030-32029-4

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The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

The 3rd International Conference on Information Technology in Geo-Engineering (3rd ICITG) is organized in the framework of the activities of the Joint Technical Committee 2 (JTC2) on Representation of Geo-Engineering Data of the Federation of International Geo-Engineering Societies (FedIGS), by the Portuguese Geotechnical Society (SPG) and the University of Minho (UM). FedIGS is an umbrella organization linking the main international professional societies in the field of "Geo-Engineering": the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE), the International Society for Rock Mechanics and Rock Engineering (ISRM), the International Association for Engineering Geology and the Environment (IAEG) and the International Geosynthetics Society (IGS). The conference is also supported by the Transportation Research Board (TRB) and the Deep Foundations Institute (DFI).

This 3rd conference, held in the city of Guimarães, a UNESCO World Heritage Site, in Portugal, from 29 September to 2 October 2019, followed the successful conferences of this series held in Shanghai in 2010 (ICITG2010) and in Durham in 2014 (ICITG2014).

The 3rd ICITG aims to address the most updated developments in information communication and technologies in Geo-Engineering. It covers the application to laboratory and field tests, as well as the monitoring and survey of geo-structures. It embraces also intelligent geo-materials, intelligent construction and all the aspects related to design, construction and maintenance of geo-structures.

The response to the call of abstracts for the 3rd ICITG was overwhelming. A total of 167 abstracts was accepted, from around 500 authors from 40 countries around the world. After a very rigorous review process of the full papers, 77 articles from 28 countries and regions were accepted for publication in these proceedings, with a total of 919 pages. The proceedings also include three Keynote Lectures written by internationally renowned experts. The articles were categorized into chapters as follow:

1. Use of information and communications technologies (ICT)
2. Big data and databases
3. Data mining and data science
4. Imaging technologies
5. Building information modelling (BIM) applied to geo-structures
6. Artificial intelligence
7. Smart geo-materials and intelligent construction
8. Sensors and monitoring
9. Asset management
10. Case studies in design, constructions and maintenance

The Editors hope that you find the contents of these proceedings useful in your academic and research work, as well as in professional practice, and that they help drive the geo-engineering community into the digital age we are living in.

António Gomes Correia
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