The 19th 3D GeoInfo Conference: Preface Annals

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The critical importance of 3D geospatial information in today's world is beyond measure. As urbanization accelerates and cities expand vertically, the need for precise, multidimensional geospatial data has become critical for efficient planning, sustainable development, and effective management of urban environments. 3D geoinformation enhances our ability to visualize complex structures, analyse spatial relationships, and simulate various scenarios for disaster management, infrastructure development, and environmental conservation. 3D geoinformation also plays a pivotal role in the advancement of smart cities and digital twins, providing a robust framework for integrating real-time data and Internet of Things (IoT) technologies to optimize urban operations and improve quality of life for citizens. By leveraging 3D geospatial data, stakeholders across government, industry, and academia can make more informed decisions, driving innovation and resilience in our built environments.

The series of 3D GeoInfo conferences has been instrumental in advancing the field of 3D geospatial sciences, serving as a key platform for the dissemination of innovative research and fostering collaboration among academia, industry, and government. These conferences have highlighted significant advancements in 3D data acquisition and processing technologies, such as LiDAR and photogrammetry, which have transformed spatial data utilization. They have also promoted the integration of 3D geoinformation with Building Information Modelling (BIM) and Geographic Information Systems (GIS), enhancing the precision of digital twin models and smart city initiatives. Moreover, the 3D GeoInfo conferences have contributed to the standardization of geospatial data formats and protocols, facilitating more reliable data sharing practices and broader adoption across various sectors. The focus on Artificial Intelligence in recent years has opened new avenues for automated analysis of geospatial datasets, further enhancing predictive modelling.

Over the years, the conference organizers have hosted 3D GeoInfo in conjunction with various national and international events. The 19th edition of 3D GeoInfo conference was jointly organised with 31st EG-ICE International Workshop on Intelligent Computing in Engineering at the University of Vigo, Spain. Together, these conferences, 3D GeoInfo and EG-ICE, provide unique opportunities to explore synergies between 3D modelling, geospatial information technologies, and the application of computer engineering in civil engineering. Collaboration between these communities has the potential to drive innovative developments in areas such as sustainable urban planning and digital construction, leveraging the capabilities of 3D modelling and information technologies to enhance efficiency and effectiveness. The call for papers encompassed the following topics: 3D Modelling, Digital Twins, GIS, Semantic Segmentation, Urban Planning, BIM, Point Clouds, Machine and Deep Learning, Georeferencing, CityGML, IoT, Data Integration, Image Processing, Sensor Networks, Augmented Reality, Simulation, Infrastructure Resilience and Urban Heat Islands. Figure 1 illustrates the word count in titles of the accepted papers.

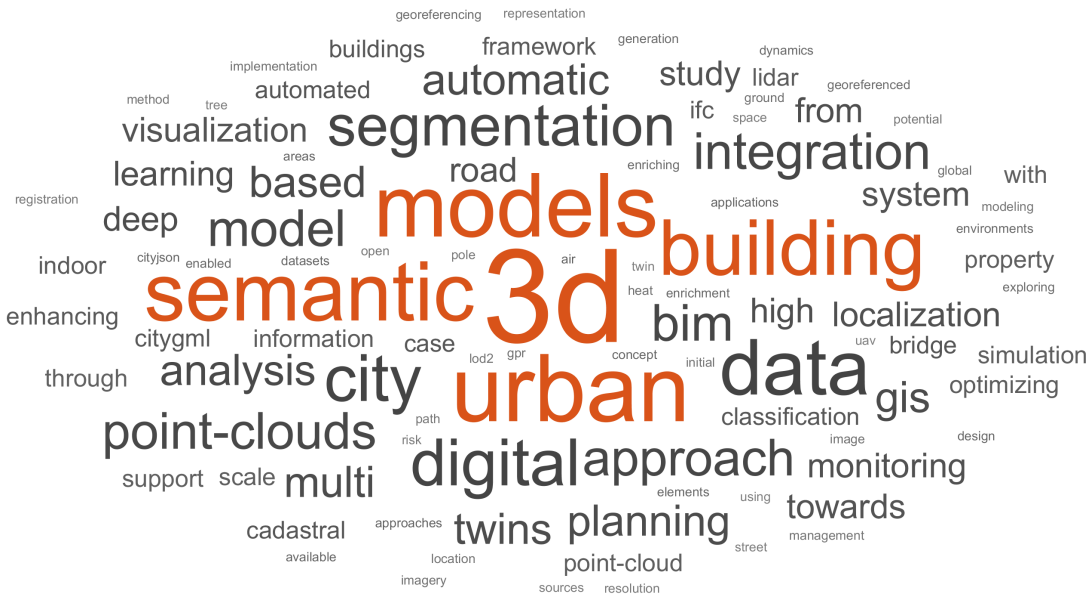

Figure 1. Visualisation of the most repeated words.

This volume consists of 42 peer-reviewed scientific papers. These papers were selected based on double-blind review of full papers among the works submitted to the 3D GeoInfo. Each paper was reviewed by two scientific reviewers. The authors of the full papers were encouraged to revise and adapt their work considering the feedback provided by the reviewers.

The editors of this volume extend their gratitude to the reviewers for their valuable comments, which greatly contributed to the high quality of papers in the ISPRS Annals: Alias Abdul-Rahman (Malasya), Abbas Rajabifard (Australia), Andreas Donaubauer (Germany), Antonio Fernández (Spain), Claire Ellul (United Kingdom), Daniele Treccani (Italy), Debra Laefer (United States), Dessislava Petrova-Antonova (Bulgaria), Edward Verbree (Netherlands), Efi Dimopoulou (Greece), Elena González (Spain), Eliseo Clementini (Italy), Filip Biljecki (Singapore), Francesca Noardo (Belgium), Gilles Gesquiere (France), Giorgio Agugiaro (Netherlands), Hande Demirel (Turkey), Hugo Ledoux (Netherlands), Ihab Hijazi (Germany), Jacynthe Pouliot (Canada), Jesús Balado (Spain), Jörg Blankenbach (Germany), Ki-Joune Li (South Korea), Kourosh Khoshelham (Australia), Lars Bodum (Denmark), Lars Harrie (Sweden), Liu Liu (China), Lucía Díaz-Vilariño (Spain), Mario Soilán (Spain), Martijn Meijers (Netherlands), Martin Kada (Germany), Mercedes Solla (Spain), Mila Koeva (Netherlands), Mohsen Kalantari (Australia), Moigan Jadidi (Canada), Pawel Boguslawski (Poland), Roland Billen (Belgium), Sander Oude Elberink (Netherlands), Sisi Zlatanova (Australia), Thomas H. Kolbe (Germany), Umit Isikdag (Turkiye), Volker Coors (Germany), Youness Dehbi (Germany)