

Preface

*Original*

Preface / Giordano, Andrea; Russo, Michele; Spallone, Roberta. - STAMPA. - (2024), pp. 7-8.

*Availability:*

This version is available at: 11583/2991723 since: 2024-08-16T07:30:58Z

*Publisher:*

Springer

*Published*

DOI:

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Digital Innovations in Architecture,  
Engineering and Construction

Andrea Giordano  
Michele Russo  
Roberta Spallone *Editors*

# Advances in Representation

New AI- and XR-Driven  
Transdisciplinarity

 Springer

# Digital Innovations in Architecture, Engineering and Construction

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- Risk and disaster management.

Andrea Giordano · Michele Russo ·  
Roberta Spallone  
Editors

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ISSN 2731-7269 ISSN 2731-7277 (electronic)  
Digital Innovations in Architecture, Engineering and Construction  
ISBN 978-3-031-62962-4 ISBN 978-3-031-62963-1 (eBook)  
<https://doi.org/10.1007/978-3-031-62963-1>

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# Preface

The volume *Advances in Representation. New AI- and XR-Driven Transdisciplinarity* collects the outcomes of experimental transdisciplinary research carried out by international teams. The discipline of representation emerges as an explorer, inventor, and creator of new methodologies, technologies, and fields of application, catalyzing and promoting unprecedented connections with other knowledge.

The volume we are about to release results from a year-long work. It was a matter of selecting international research that would show the most up-to-date panorama of innovative and experimental research in the field of artificial intelligence (AI) and extended reality (XR) and guiding them through the different stages of double-blind review to the achievement of scientifically validated results.

The contributions have been collected according to eight topics, in which the AI&XR binomial, through the mediation of representation, is experimented in the different fields of heritage, design, and education, articulated in the focus on Historical Sources, Archaeological/Museum Heritage, Heritage Routes, Classification/3D Analysis, Building Information Modeling, Building/City Monitoring, Education, Shape Representation.

Our thanks go to Francesca Fatta, president of the Unione Italiana Disegno (UID), for her advice and constant support during all phases of our work, to Alessandro Luigini, president of the IMG Network, for sharing ideas and insights, to the scientific and review committee, consisting of Marco Giorgio Bevilacqua (University of Pisa), Stefano Brusaporci (University of L'Aquila), Valeria Cera (University of Naples Federico II), Francesca Fatta (Mediterranea University of Reggio Calabria), Alessandro Luigini (Free University of Bozen-Bolzano), Federica Maietti (University of Ferrara), Barbara Ester Adele Piga (Politecnico di Milano), Cettina Santagati (University of Catania), for their proactive proposals, hard work, and continuous support. Special thanks go to Giulia Flenghi and Enrico Pupi for carefully editing this volume.

Finally, our heartfelt thanks go to the scholars who responded to the call rigorously and skillfully, with high-quality contributions that exceeded our expectations.

We hope that their papers will stimulate interest and inspiration for innovative research in readers.

Padua, Italy  
Rome, Italy  
Turin, Italy  
April 2024

Andrea Giordano  
Michele Russo  
Roberta Spallone



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