# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td>xxii</td>
</tr>
<tr>
<td>Preface</td>
<td>xxvii</td>
</tr>
</tbody>
</table>

## Volume I

### Chapter 1
Color Acquisition, Management, Rendering, and Assessment in 3D Reality-Based Models Construction

_Marco Gaiani, Università di Bologna, Italy_

### Chapter 2
The Surveying and Representation Process Applied to Architecture: Non-Contact Methods for the Documentation of Cultural Heritage

_Carlo Bianchini, Sapienza University of Roma, Italy_
_Carlo Bianchini, Sapienza University of Roma, Italy_
_Cristiana Bartolomei, University of Bologna, Italy_

### Chapter 3
On Visual Computing for Architectural Heritage

_Stefano Brusaporci, L’Aquila University, Italy_

### Chapter 4
Digital Photogrammetry and Structure from Motion for Architectural Heritage: Comparison and Integration between Procedures

_Elena Ippoliti, Sapienza University of Rome, Italy_
_Alessandra Meschini, University of Camerino, Italy_
_Filippo Sicuranza, Sapienza University of Rome, Italy_

### Chapter 5
Comparative Study of Graphic Representation Methods on Architectural Heritage

_José Teodoro Garfella, Universitat Jaume I, Spain_
_María Jesús Máñez, Universitat Jaume I, Spain_
_Joaquín Ángel Martinez, Universitat Jaume I, Spain_
Chapter 6
Shape and Geometry in the Integrated Digital Survey .................................................. 210
Leonardo Paris, Sapienza University of Rome, Italy

Chapter 7
Historic Building Information Modelling (HBIM) .......................................................... 233
Conor Dore, Dublin Institute of Technology, Ireland
Maurice Murphy, Dublin Institute of Technology, Ireland

Chapter 8
BIM and Interoperability for Cultural Heritage through ICT ........................................ 274
Anna Osello, Politecnico di Torino (DISEG and DAUIN), Italy
Andrea Acquaviva, Politecnico di Torino (DISEG and DAUIN), Italy
Daniele Dalmasso, Politecnico di Torino (DISEG and DAUIN), Italy
David Erba, Politecnico di Torino (DISEG and DAUIN), Italy
Matteo Del Giudice, Politecnico di Torino (DISEG and DAUIN), Italy
Enrico Macii, Politecnico di Torino (DISEG and DAUIN), Italy
Edoardo Patti, Politecnico di Torino (DISEG and DAUIN), Italy

Chapter 9
Semantic Representation of Accurate Surveys for the Cultural Heritage: BIM Applied to the Existing Domain .................................................................................................................. 292
Simone Garagnani, University of Bologna, Italy

Chapter 10
The SIArch-Univaq: An Architectural Information System for Cultural Heritage ................ 311
Romolo Continenza, University of L’Aquila, Italy
Ilaria Trizio, ITC-CNR, Construction Technologies Institute, Italian National Research Council, Italy

Chapter 11
Integrated Multi-Scalar Approach for 3D Cultural Heritage Acquisitions .......................... 337
Michele Russo, Politecnico di Milano, Italy
Anna Maria Manferdini, University of Bologna, Italy

Chapter 12
A Possible Method for 3D Photo Scanning Speed Survey: The Case Study of the Bridge of Saint Angelo above Auso ................................................................. 361
Davide Barbato, Università degli studi di Salerno, Italy

Chapter 13
The Advantages of Using Laser Scanners in Surveying in Protected Sites: A Case Study in Historical Peninsula in Istanbul ................................................................. 382
Gülhan Benli, Istanbul Medipol University, Turkey
Chapter 14
Digital Tools for Urban and Architectural Heritage .......................................................... 403
Michela Cigola, University of Cassino and South Latium, Italy

Volume II

Chapter 15
Cities over Space and Time: Historical GIS for Urban History ........................................... 425
Alessandra Ferrighi, Università Iuav di Venezia, Italy

Chapter 16
Communication, Technology, and Digital Culture for the Conservation and Enhancement of the
Architectural Heritage ........................................................................................................... 446
Francesca Fatta, Mediterranea University of di Reggio Calabria, Italy

Chapter 17
Digital Reconstruction of Demolished Architectural Masterpieces, 3D Modeling, and Animation:
The Case Study of Turin Horse Racing by Mollino ................................................................ 476
Roberta Spallone, Politecnico di Torino, Italy

Chapter 18
Female Architecture: Unbuilt Digital Archive ........................................................................ 510
Alice Franchina, University of Palermo, Italy
Francesco Maggio, University of Palermo, Italy
Starlight Vattano, University of Palermo, Italy

Chapter 19
The Image of Historic Urban Landscapes: Representation Codes ........................................ 550
Giuseppe Amoruso, Politecnico di Milano, Italy

Chapter 20
A New Cloud Library for Integrated Surveys: The Ancient Via Flaminia and the Nextone Project. 579
Paolo Clini, Politecnic University of Marche, Italy
Ramona Quattrini, Politecnic University of Marche, Italy
Emanuele Frontoni, Politecnic University of Marche, Italy
Romina Nespeca, Politecnic University of Marche, Italy

Chapter 21
A Virtual Journey through 2D and 3D Elaborations Recorded with Range-Based and Image-Based Method: The Experience of Vitelleschi Palace in Tarquinia ........................................................................... 607
Mariella La Mantia, La Sapienza, Università di Roma, Italy
Chapter 22
Understanding and Conserving Fortified and Difficult to Access Architectures through Digital Survey: A Case History in Southern Sicily

Mariateresa Galizia, University of Catania, Italy
Alessandro Lo Faro, University of Catania, Italy
Cettina Santagati, University of Catania, Italy

Chapter 23
3D Reconstruction for the Interpretation of Partly Lost or Never Accomplished Architectural Heritage

Paola Casu, University of Cagliari, Italy
Claudia Pisu, University of Cagliari, Italy

Chapter 24
Using Advanced Approaches in Urban Design Researches: A Mutation from 3D Digital Models to Virtual Reality

Amir Shakibamanesh, Tehran Art University, Iran
Mahshid Ghorbanian, Tehran Art University, Iran

Chapter 25
Integrated Methodologies for the Study and Documentation of the Architectural and Archaeological Heritage: The Treasury of Petra in Jordan

Emanuela Chiavoni, Università Sapienza Roma, Italy

Chapter 26
The Landscape Cultural Construction: A Recognition of the Roman Tradition

Isabel Sousa Rosa, University of Lisbon, Portugal
Joana C. Lopes, University of Lisbon, Portugal
Ricardo J. Ribeiro, University of Lisbon, Portugal

Chapter 27
Digital and Mechatronic Technologies Applied to the Survey of Brownfields

Assunta Pelliccio, University of Cassino and Southern Lazio, Italy
Erika Ottaviano, University of Cassino and Southern Lazio, Italy
Pierluigi Rea, University of Cassino and Southern Lazio, Italy

Compilation of References

About the Contributors

Index