Preface

Geometry is the center of the architectural design process and omnipresent from the initial stages of form finding to novel fabrication techniques, construction and monitoring during the use of the building. It does not only influence the modeling of environments and the processing of sensor data, but also enables new, efficient design, analysis and fabrication of complex forms through advanced geometric calculations. Furthermore, algorithmic processes play an increasingly crucial role in the integration of disciplinary input and open up new horizons for architecture. As the architectural context constantly poses new challenges, the research field of architectural geometry is in ongoing evolution and of steady interest.

This book contains a collection of 34 technical papers presented at the "Advances in Architectural Geometry Conference 2023", organized by the Cluster of Excellence IntCDC (Integrative Computational Design and Construction for Architecture) and held in Stuttgart from October 4 to October 7, 2023. The AAG is a biennial event. It was held first in 2008 and 2010 in Vienna, 2012 in Paris, 2014 in London, 2016 in Zurich, 2018 in Gothenburg and 2020 in Paris.

The conference series is renowned for the presentation of both theoretical and practical work related to new geometric developments. Over the years, the symposium has become a reference point for research and practice, as well as a platform for sharing cutting-edge advancements and fostering collaboration between academia and industry. It also aims to connect researchers from architectural and engineering practices, academia, and industry. It provides an interdisciplinary link between architecture, applied geometry, computational design, mathematics, and manufacturing and attracts architects, engineers, computer scientists, mathematicians, software and algorithm developers, and contractors.

The papers in this book reflect the wide range of expertise and interests of the authors. The main topics include architecture, geometry, engineering, and the application of artificial intelligence in construction. All papers offer unique insights and perspectives and contribute to the advancement of architectural geometry as a discipline. This book, as a valuable resource, presents a broad and diverse collection of contributions that highlight innovative approaches, novel applications, and emerging trends in the field of architectural geometry. It includes a broad spectrum of topics, from parametric design strategies to advanced computational methods, tracing the role of geometry in shaping our built environment.

We would like to thank all the authors whose contributions have made this publication possible. Their commitment and expertise have ensured the high quality and relevance of this book. Furthermore, we would like to thank the organizing committee, reviewers and sponsors of the AAG 2023 for their invaluable support. We are honored

to take you on this intellectual journey through the pages of "Advances in Architectural Geometry 2023". May they provide you with insights into cutting-edge research and innovation in architectural geometry and inspire new ideas, foster interdisciplinary collaboration, and contribute to the advancement of the architectural design process.

The Editors