Graphical Heritage
Volume 1 - History and Heritage
This book, titled ‘Graphical Heritage,’ contains the contributions to the XVIII International Congress of Architectural Graphic Expression, held at the School of Engineering and Architecture of the University of Zaragoza. The call for papers was answered by 239 contributions, which underwent a blind peer-review process. The initial analysis of the extended abstracts and, subsequently, of the full contributions discarded 59 papers and finally accepted 180. As a complement to the review performed by international experts, the contributions have been submitted to an anti-plagiarism software check and an examination of their English language academic style, in order to obtain a publication of the highest scientific level.

The geographical origin of the accepted contributions is very varied. With 126 from Spain and 54 from an international origin, it can be said that it is a clear exposition of the most contemporary knowledge in the Architectural Graphic Expression field of research.

As previous congresses, the main theme has been established. This theme has been heritage, understood as architectural heritage, as graphic heritage and as the graphics of heritage; its study, documentation, intervention, conservation, inventory and recovery ultimately point out its value. In support of this theme, invited conferences will be held, including speakers such as Rafael Aranda of RCR Arquitectes, Antonio Almagro, Professor Emeritus of the CSIC or Asunción Hernández, professor at the University of Zaragoza, as well as Luis Franco, architect, Ricardo Usón, PhD architect and Javier Ibargüen, architect, experts in restoration and intervention in architectural heritage.

This congress not only addresses the matter of heritage but every scientific research line related to the area of knowledge, geometry, architectural drawing, color, formal research, representation, diagrams, conceptualization, modeling, rendering, BIM, GIS, cartography, landscape, virtual reality, augmented reality, without forgetting teaching research.
To collect all these initiatives, the following topics have been considered:

1. Heritage and history.
2. Representation and analysis.
3. Concept and creation.
4. Mapping, cartography and landscape.
5. Teaching innovation.

From drawing, the creator’s first decision in architecture, painting or sculpture, as the ability to transfer an idea onto a support, the ability to direct the hand in a specific line, as the first creative element, to virtual reality, the virtual building, far beyond reality. It all is reflected in the communications included in this book and in this congress.

The chapters included in this book, the first in a set of three volumes, pertain to the topic: *Heritage and History.*

**Heritage and History**

The architectural heritage, conceived not only as a series of real estate but as the ensemble of structures that form the physical context in which society has developed throughout history, has been one of the main fields of study of the area of architectural graphic expression throughout the years. Based on this fact, multiple approaches to architectural reality have been possible, whether it was built or not.

Heritage documentation and graphic restitution remain the fundamental basis for its study, protection and recovery, collaborating in this task several systems and tools, from the most traditional ones, such as sketches or stratigraphic studies, to those which use the most up-to-date technical possibilities, such as laser scanning or colorimetric analysis, creating interactions and synergies between tradition and innovation.

The historical studies, archives and graphic representations from the past that have lingered on, as well as the current surveys and constructive research, allow for the realization of virtual reconstructions of missing architectures, even of those that were not built, and reinforce the role of the architecture as a chronicler of the time that generated it.

The virtual graphic representation, with applications such as augmented reality, is a powerful tool both to facilitate research and to disseminate it, allowing for direct reading and interpretation by the observer of the different phases, present, past and future, of the architectural object.
This topic includes the following:

– Documentation and graphic restitution
– Low tech/high tech: interactions between tradition and innovation
– Techniques to analyze, rebuild and show what no longer exists, or never did
– Virtual and augmented reality to understand and communicate the present, past and future

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The Participatory Graphics of Cultural Heritage. New Methods of Analysis, Knowledge and Valorisation

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Abstract. The paper describes a project for the understanding of Cultural Heritage, through experimental procedures that can provide scientifically measurable results. The project, called HeGo (HeritageGo), provides for the creation of a model of social and participatory interaction applied to surveys in archaeological, architectural and urban contexts. The procedure is structured principally around the voluntary participation of various “players/users” (tourists, students, ordinary citizens, cultural associations, etc.). The key elements of the project are a specially designed App and a “Totem/Target” to be strategically placed near the site to be studied. They will allow metrically reliable processing, exploiting the potential of Structure From Motion (SFM) procedures. The direct participation of the players in the acquisition process, through recourse to the logic of gamification, is an innovative and easy-to-use procedure, which can stimulate the knowledge and evaluation of the Cultural Heritage of our country. The final objective is the constitution of a scientifically validated Database, obtained through the contribution provided, in the context of a “social game”, by the participation of users who are not necessarily technically or scientifically experts, transforming them into an active part of the process. The system opens up new perspectives for the knowledge and assessment of the Cultural Heritage, both in terms of involvement of players/users and in terms of cost savings with respect to the standard survey methods. In particular, the procedure of the HeGo project was checked in a small historic centre, limiting the area of interest to several monuments.

Keywords: Cultural heritage · Citizen science · Gamification · Survey · Valorisation

1 The HeGo Project

The project proposes a new approach to the knowledge, analysis and valorisation of the Cultural Heritage thanks to active participation in a “social game” [1]. Through the creation of a generic interaction model, applied to the survey, various players/users...
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 Presents cutting-edge findings related to architectural heritage

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About this book

This book presents the proceedings of the 18th International Conference on Graphic Design in Architecture, EGA 2020, focusing on heritage – including architectural and graphic heritage as well as the graphics of heritage. This first volume gathers selected contributions covering theories, and new technologies and findings to help shed light on current questions related to heritage. It features original documentation studies on historical archives, 3D and solid representation of architectural
An interesting aspect is certainly the potential of the project for the knowledge and diffusion of the “minor” Cultural Heritage that, thanks to gamification, can be transformed into a playing field. In fact, the system introduces alternative ways of representing and using Cultural Heritage that can make the “lesser” Cultural Heritage more well known. In fact, it is destined to remain in the background in a country like Italy that has Cultural Heritage of exceptional interest.

Our team believes that the task of scholars is not only to study Cultural Heritage, but also to promote knowledge about them in various ways. One of which may be to create digital platforms that make certain processes simpler and easier to use for the widest possible audience. But at the same time, maintaining these scientifically valid processes for the knowledge and valorisation of Architectural, Archaeological and Urban Heritage.

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