Lecture Notes on Data Engineering and Communications Technologies 217

Kazuki Takenouchi *Editor*

ICGG 2024 - Proceedings of the 21st International Conference on Geometry and Graphics

Volume 2

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Kazuki Takenouchi
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Preface

It is widely acknowledged that geometry and graphics, as subjects and tools of our perception and thought, encompass a broad range of related fields and continue to demonstrate remarkable advancements in both analog and digital realms. The International Conference on Geometry and Graphics (ICGG) is an international forum that prioritizes these themes. Since its inaugural conference in 1978, and under the auspices of the International Society for Geometry and Graphics (ISGG), it has been held regularly for over 40 years. These proceedings are from the 21st edition of the International Conference on Geometry and Graphics (ICGG 2024).

The contents of the proceedings are organized into eight parts. In the first part, we are pleased to present the reflections proposed by Prof. Luigi Cocchiarella, President of ISGG, on being a Scientific Society on Geometry and Graphics. It is followed by six parts associated, respectively, with the traditional topics of the conference that depict the wide spectrum of the related fields with remarkably different subjects, approaches, and formats. In ICGG 2024, we have added Related Topics to consider the ever-expanding scope of the subjects to which Graphics and Geometry are related and to reduce the difficulty of selecting one topic for submission among traditional topics.

- Theoretical Graphics and Geometry
- Applied Geometry and Graphics
- Engineering Computer Graphics
- Graphics Education
- Geometry and Graphics in History
- Related Topics

Then the last part is composed by the poster papers.

This edition, following the 20th edition, is published by joining the Springer Series Lecture Notes on Data Engineering and Communications Technologies (DECT), contributing to the high-quality documentation of the presentations at the conference. Moreover, to provide a smoother peer-review process and ensure publication quality in a relatively short period, the workflow from paper submission to preparation of the conference proceedings, again continuing the 20th edition's idea, involves the direct submission of full papers or poster papers. Submitted papers were reviewed by at least two reviewers, with the reviewers inviting sub-reviewers as needed. As a result, from 173 submissions from 28 countries, 110 were approved in the first review and 136 were accepted for publication after the second phase.

We hope that the contents of this proceedings and the various aspects of geometry and graphics reported here will help to promote synergistic international exchanges between different disciplines and new interdisciplinary research towards novel discoveries and innovative solutions for a better future, and that this will be a good opportunity for new researchers and educators interested in the field of diagrams and graphics to participate in our activities.

On behalf of the conference committees, we extend our heartfelt gratitude to all authors for their contributions, which have enriched the conference. Our thanks also goes to the highly competent and dedicated international program committee. Despite the demands of a very tight schedule and numerous submissions, they supported the authors by providing high-quality reviews and detailed comments that enhanced the value of the submitted papers. We also acknowledge the support of ISGG and the Japan Society for Graphic Science, JSGG. Furthermore, we are thankful for the financial support provided by JSPS KAKENHI Grant Number JP23HP0701. Finally, our sincere appreciation goes to the local committee members and the staff at the host site, who worked extremely hard with great dedication in preparing for the conference and managing it throughout its duration.

Kazuki Takenouchi
Kazuya Saito

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Contents

Applied Geometry and Graphics

Solid Theatrical Perspective: From Archival Documents to Three-Dimensional Models

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Abstract. This paper presents the initial outcomes of a project focused on reconstructing the set design for the 1937 inaugural opera at the "Maggio Musicale Fiorentino" foundation in Florence, featuring Giuseppe Verdi's "Otello" with Primo Conti's scenography. Employing a meticulous methodology and archival documents, the study addresses the geometric aspects of the opera's scenes and their audience perception. Framed into a broader initiative, the project documents historical theatres in Florence, particularly the Maggio Musicale Fiorentino and Pergola theatres, aiming to revive lost or transformed spaces using graphic, photographic, and documentary materials from historical archives. The Maggio Musicale archive, dating back to 1933, provides a wealth of set design projects. The research involves the study and critical interpretation of archival documentation for the 3D virtual reconstruction of theatres and stage designs. The project foresees augmented reality applications to implement the 3D models of historical scenes, offering a novel approach to reimagining and staging historical dramas on contemporary stages. Beyond its historical value, the research yields tools for cultural and creative industries (CCIs) and education, emphasising the integration of diverse data sources for preserving cultural heritage in physical and digital spaces. The study highlights the potential of acquired data to deepen our understanding of historical theatres and transform them into immersive digital experiences.

Keywords: Scenography · cultural heritage digitalisation · descriptive geometry

1 Introduction

The paper presents the initial results of a project concerning the reconstruction of a set design created for the opening opera of the first edition of the "Maggio Musicale Fiorentino" foundation in Florence (Italy) in 1937. The case study is an exemplary application to refine a methodology that allowed us to study and reconstruct the geometric

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aspects of the scenes in the four acts of Primo Conti's stage design[1] for Giuseppe Verdi's "Otello" based on archival documents, as well as aspects related to their perception by the audience. The project is part of a broader research aimed at documenting the archives of historical theatres in Florence, currently started by the historical archive of the Maggio Musicale Fiorentino[2] theatre and the historical archive of the Pergola theatre, two of the most significant theatrical institutions still active in the city of Florence.

The research aims to reconstruct currently lost or transformed theatrical spaces and stage areas, starting from the graphic, photographic, and documentary materials preserved in the historical archives of the involved theatrical institutions. A rich and well-organized documentary collection is maintained in the Maggio Musicale historical archive, where there is a collection of set design projects dating back to the establishment of the Maggio Musicale Fiorentino institution in 1933. A significant portion of the documents consists of floor plans and sketches representing the views from the audience, as well as detailed layouts of various technical installations and acoustic arrangements, all related to the old theatre venue that is now lost.

1.1 Case Study Description: Framework and Scenic Apparatus

The first part of the research produced a virtual reconstruction of the old Teatro Comunale in Florence, located at the intersection of Corso Italia and via Magenta. This theatre has been replaced by a new construction at a different location, near the entrance of Parco delle Cascine, close to the former Leopolda Station. The building was constructed around 1860 according to the design by Telemaco Bonaiuti [4] and underwent several renovations until its abandonment and subsequent demolition in 2020. The second part of the work focuses on reconstructing the set designs created by Primo Conti for "Otello", which was performed in this theatre in 1937[3].

In the initial stage, we catalogued and reproduced architectural drawings, photos, and sketches from various archives in Florence that hold documents related to the construction and subsequent modifications of the theatre architecture (Figs. 1 and 2). These

[1] Primo Conti is an Italian Futurist artist born in Florence on October 16, 1900. From a young age, he demonstrated remarkable musical, poetry, and painting talent. Embracing Futurism in 1913, he developed a unique painting style fusing Art Nouveau, Fauvism, Expressionism, and Orphism. In 1917, after encounters with Giacomo Balla and Filippo Tommaso Marinetti, Conti officially joined the Futurist movement, contributing literary works and metaphysical-style paintings. During the 1920s, Conti explored various art forms, such as Mannerism, Exoticism, Pittura Metafisica, historical painting, and religious themes. His interests extended to the theatre and literature world, leading him to establish the Viareggio Prize in 1929. In the 1930s, he participated in designing opera house stage sets with the Maggio Musicale Fiorentino's foundation [1].

[2] The collaboration with the Maggio Musicale Fiorentino Theatre, based on an agreement with the Department of Architecture of the University of Florence, started within the European project AURA – Auralisation of acoustic heritage sites using augmented and virtual reality, co-funded by the Creative Europe program [2, 3].

[3] The theatre, initially constructed by a private company, came under the ownership of the Municipality of Florence in 1929. It underwent a comprehensive renovation project for lyric performances initiated in 1933 with the establishment of the Maggio Musicale.

archives include the Historical Archive of the Municipality of Florence (ASCFi), the State Archive of Florence (ASFi), the Historical Archive of the Teatro del Maggio Musicale Fiorentino, and the Archive of the Primo Conti Foundation. Subsequently, the available documents were studied and compared with bibliographic references to obtain a comprehensive overview of the documentation. This effort aimed to reconstruct the building's floor plans, elevations, and sections, defining its appearance at the time of the first performance of "Otello" as it stood before the bombing in 1944[4]. The research created reliable technical drawings and was completed with the three-dimensional modelling of the theatre in the 1937 version.

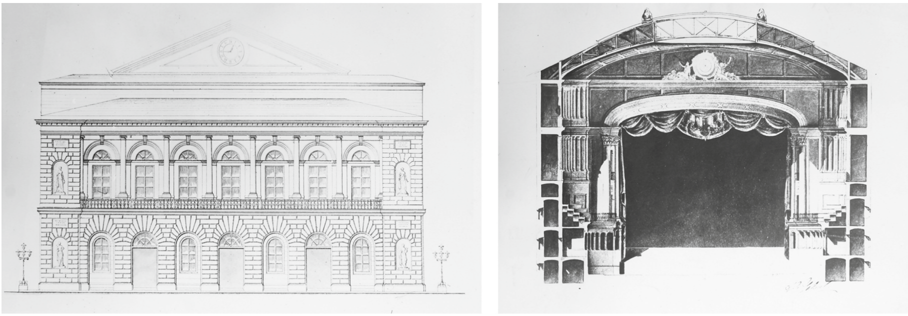

Fig. 1. Technical drawings representing the main facade on Corso Italia and a cross-sectional view illustrating the roof structure and the stage area, as it was supposed to appear according to the project by Engineer Giuntoli of 1933.

The Historical Archive of the Teatro del Maggio Musicale Fiorentino also preserved a wooden model of the stage and the scenery, a crucial element for the study. This model served as a tool during the stage design process, allowing the testing of installations on a reduced scale and evaluating lighting conditions. The wooden model played a crucial role in the comprehensive reconstruction of the theatre's interior and stage spaces, integrating the information derived from archival documents and historical pictures.

The second stage of the research involved reconstructing the sets for the four acts of "Otello" based on existing floor plans and sketches. This reconstruction primarily relied on establishing the solid perspective of the set from its flat representation of technical drawings and sketches, understanding the space in which the actual three-dimensional perspective was set.

These studies conducted for all the scenes of the four acts of "Otello" required an analysis of technical drawings starting from inverse perspective methods, leading to the reconstruction of the actual accelerated solid perspective implemented in that specific theatrical stage space.

[4] The theatre was bombed During the Second World War, and the stage and installations were partially destroyed. It reopened for the subsequent 1945–1946 season.

Fig. 2. Historical photograph taken from the stage, facing towards the audience, before 1940s works. Archivio Storico del Maggio Musicale Fiorentino.

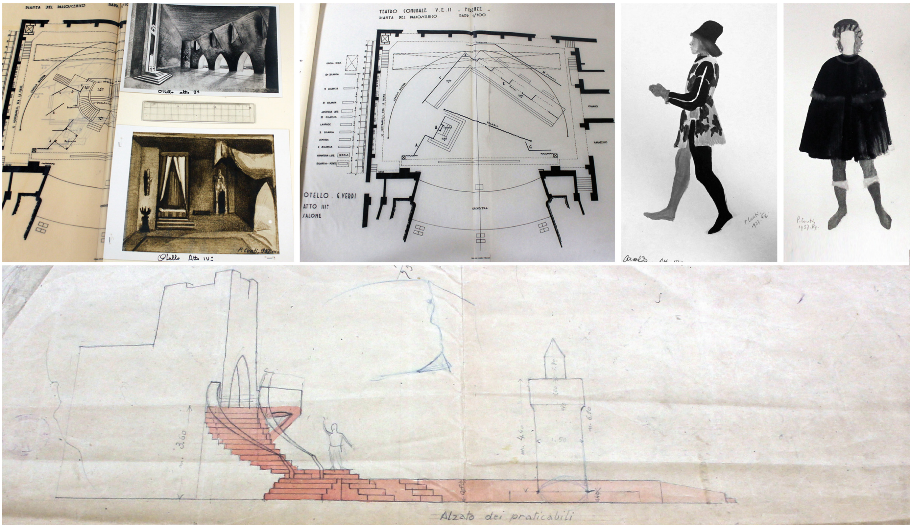

Fig. 3. Archive material of 1937 Giuseppe Verdi's opera "Otello" with the stage designs by the artist Primo Conti. The examined documentation includes technical floor plans, quoted elevation of the first act and sketches of the staging. Archivio Storico del Maggio Musicale Fiorentino.

Critical elements for the reverse reconstruction of the perspective included study sketches by Primo Conti, technical floor plans extracted from historical archival documentation, and dimensions of the stage and scenery from the old theatre's maquette and technical drawings (Fig. 3). However, the available documentation, consisting of 1:50 scale plans with technical details, did not include measurements for the heights of scenic elements, nor were there indications of elevations or sections. Therefore, creating reliable models with archival documentation required the development of hypotheses based on the sketches and conventions of theatrical perspective [5–8].

1.2 The Study and Digitisation of Archival Documentation

The first stage of the research involved gathering the necessary documents for the study from various archives. Regarding the architectural drawings (floor plans, elevations, sections) of the theatre, the online database of the Historical Archive of the Municipality of Florence was crucial. Here, each document is dated, indicating the period to which it belongs, making it easier to define the historical phases of the building. Based on these phases, the documents were categorised into specific folders[5].

What is documented as 1938, however, could also relate to 1937. Similarities are observed with the stage floor plan drawn for the placement of the set designs for the performance of "Otello", which took place during the Maggio Musicale Fiorentino in 1937. These drawings highlight differences from those dating back to 1933, implying the occurrence of possible construction work on the structure between these four years.

Furthermore, the documentation from the State Archive of Florence concerning the building, located within the Cetica collection (named after the architect who collaborated with Engineer Giuntoli on the theatre works in 1933), was crucial. In addition to the floor plans already in the Historical Archive of the Municipality of Florence, a series of photos represents the hall, entrance foyer, and building facade between Corso Italia and Via Magenta.

Additional photographs of the theatre were obtained from the archive of the Maggio Musicale Fiorentino. These capture the structure at various historical periods, including the reconstruction of the stage following the bombings of the Second World War and the demolition of the building for its reconstruction in 1956. In general, it can be asserted that the photographs have shown how the documents made available by the archive are incomplete and often not attributable to the project's final phase. Numerous differences have indeed been found between the architectural drawings and the photos. For this reason, many elements, including the structural stratigraphy of the hall roof, have been redesigned based on the observation of the images themselves.

[5] The phases are as follows: 1862/1864 (floor plans, elevations, and sections of the Politeama Fiorentino); 1870/1875 (plan of the Politeama integrated into the urban context); 1875/1882 (sections and details of the new roof); 1930/1935 (advertising billboard); 1930/1933 (survey of the current state of the Politeama, floor plans, elevations, and project sections for the Teatro Comunale); 1938 (construction details of the hall and stage tower roof, floor plans, elevations, and sections of the theatre, perspective sketches of the spaces); 1939 (studies related to horizontal movements of the hall roof); 1947 (ground floor plan of the theatre); 1955 (stage floor plan and dimensioned section of the theatre).

Regarding the set design for “Otello”, the documentation includes information provided by the archive of the Maggio Musicale Fiorentino, namely a series of floor plans for the set design related to the opera’s four acts. In addition to the floor plans, a sketched section drawing of the set design for the first act, with corresponding dimensions, was examined. Other materials included pencil and coloured sketches for all four acts, sketches related to stage costumes, and the entry ticket with all the information about the opera, such as the director and conductor. To gather additional information for the set design reconstruction, a series of preparatory sketches by the artist Primo Conti were analysed in the archive of the homonymous Foundation in Fiesole.

The starting point for defining the structure of the theatre was redrawing the floor plans based on archival sources. There was insufficient data for determining the annexes, so the analysis focused on the hall and the stage tower. Each floor plan was compared with the photos from the archives, and any inconsistencies were analysed.

For the floor plans, the details of the columns and mouldings were redrawn based on the laser scanner survey of the wooden model preserved at the Historical Archive of the Teatro del Maggio Musicale Fiorentino. These details were simplified due to significant differences found in the photos. From the archival documents, only one elevation drawing of the theatre on Via Magenta was available. However, this might represent the current state of the building before the modifications of 1933–1937 or, in any case, a purely conceptual phase. The differences with the photos from the years under consideration mainly concern the right side, which should essentially replicate the design and materials of the facade on Via Corso Italia.

The Maggio Musicale Fiorentino Archive allows the performance of a laser scanner survey on the 1:20 scale model related to the backstage side of the theatre from the 1930s. A Faro Focus M70 was used for data acquisition. Each scan was linked to the previous one, meaning each had common points with the preceding one. This approach allowed merging individual point clouds obtained from each scan into a complete 3D point-cloud model by overlapping common points, scan by scan, through Leica Cyclone software. The complete point cloud was then imported into Autodesk Recap Pro software and opened in Autodesk AutoCAD, where various section planes were set up for architectural drawing. Two section planes were established: the first at 3.30 m (relative to the model’s scale) for drawing the stage floor plan up to the orchestra. The redesign of the latter was crucial since the space of the mystic gulf was only hinted at in the floor plans obtained from the Historical Archive of the Municipality of Florence.

A second section plane, perpendicular to the first, was created to redraw the columns of the galleries and mouldings, later adjusted based on the photos. From this section, it was possible to verify the inclination of the stage, comparing it with that derived from the drawings of the Historical Archive. It is found to be at 3°, and this data proved essential in the subsequent virtual reconstruction of the four scenes of Othello. Additionally, the statues originally on the tympanum above the proscenium arch were documented through photogrammetry Structure from Motion (SfM) (Fig. 4). These statues are now reintegrated into the new Teatro del Maggio Musicale di Firenze spaces.

Fig. 4. 3D laser-scanner and SfM photogrammetric survey of the wooden model and statues.

2 The Elements of Theatrical Solid Perspective

The elements of solid perspective are the same as those of linear perspective, albeit with some exceptions. The viewpoint (PV) represents the centre of projection coinciding with the observer's eye. Generally, it is located at a distance from the ground of 1.5 m if the person is standing and 1.2 m if sitting, as in the case of theatre spectators. The visual cone intersects the picture in the field of vision (orthogonally represented with the visual circle), where the figure is projected onto the plane. Anything outside the circle will be seen in a distorted manner (aberrant vision). To avoid this, the positioning of the viewpoint concerning the width of the theatre stage is considered. Consequently, a viewpoint is chosen at a distance equal to 1.5 times the width of the stage (for a width of 37°) or equal to 2 times the width of the stage (for a width of 28°).

Since, in the past, it was the central stage (or royal box) that had the privileged view of the stage, the viewpoint was at a distance from the stage equal to twice the width of the stage itself. The stage plane is where the actual object to be represented is located. To accelerate the perspective (use less space for scenic representation), it is inclined relative to the geometrical plane at an angle ranging from 3° to 5°. The stage set plan will thus be represented in an accelerated perspective on the stage plane, as shown in the results of the previous survey of the backstage model. The vanishing point plane is where all lines' directions (vanishing lines) belong. If this is behind the frame, there is an accelerated solid perspective.

Conversely, a delayed solid perspective occurs if the viewpoint is between the vanishing point plane and the frame. Regarding visual perception, there is a sensation of a larger environment in the first case, while in the second, it appears smaller. The ground line (GL) represents the line of intersection between the stage plane and the ground in the frame. The horizon line (HL) indicates the line of intersection between the projecting plane (i.e., passing through the viewpoint and parallel to the ground plane), the geometrical plane, and the main plane. The principal point (V_0) is the orthogonal projection of the viewpoint onto the picture. Consequently, it belongs to the visual axis. The station point (SP) is the orthogonal projection of the viewpoint onto the geometrical plane. The intersection of the visual axis determines the vanishing point (VP), the line to which it belongs, with the vanishing point plane.

Once all these aspects are considered, it becomes possible to proceed with perspective restitution, which allows obtaining the actual measurements of the stage elements, ensuring the view is equal, or very similar, to that indicated by the sketch.

We thus have two representations of the same stage elements: the perspective view of the sketches, namely the frame of the perspective representation, and the plans showing the arrangements of these elements in the stage space, represented in actual size (at a scale of 1:50) on the inclined floor plane of the stage itself.

The two available documents for the reconstruction are the result of the stage construction site. Therefore, the stage plan may need to be more perfectly congruent with the perspective of the sketch as it was produced later. The process we deemed most fruitful for obtaining a three-dimensional reconstruction of the stage space and all its elements was guided by the fact that, ultimately, what matters is the audience's perception of the stage space.

Thus, we considered that the two documents could have intrinsic coherence due to continuous control carried out during the work and on the scale model of the stage space by the opera's author and director.

Every scenic element is drawn in an accelerated perspective on the plan. This implies that finding a common vanishing point for the lines belonging to the stage and the objects resting on it should be straightforward. By connecting the lines passing through at least two points of each stage element, it is concluded that there is no unique vanishing point. Even when considering the sketches, this is not easy to find, where a rigid geometric construction is lacking.

This aspect is evident in much of Primo Conti's futurist artwork. To give an example, the painting titled "Saltimbanco", housed at the Fondazione Primo Conti in Fiesole, created in 1919 with Cubist influences, showcases themes like the truncated cone turret, also seen in the first act scene of Otello.

Another consideration that could be made concerns the size of the perspective projection frame. Since this coincides with the plane between the proscenium arch and the defining walls, we know the base and height measurements. The former is 17 m, while the latter, without considering the fixed backdrop, would be 16 m. However, the fixed backdrop is present and serves to frame the upper part of the scenery. This means that the height becomes 12 m. Comparing the sketches, the scene framing is rectangular and much lower in height than the width. To achieve a view as close as possible to that proposed by Primo Conti, it becomes necessary to hypothesise the presence of a movable harlequin, a curtain that, connected to the grid, could be lowered to make the height 10 m as suggested by the sketch.

2.1 Geometric Reconstruction of the Theatrical Stage Designs

The starting point for defining the viewpoint position was to evaluate the two canonical distances from the frame. Considering an observer positioned at 1.5 times the width of the stage (1.5×17 m $= 25.5$ m), the horizon line would be at an elevation of 0.63 m from the stage floor. This value proves to be too low when considering the framing offered by the sketch. For example, the surface of the stage floor would be much less visible. On the other hand, if we examine the case where the observer is positioned at a distance from the frame equal to twice the width of the stage (2×17 m $= 34$ m), we will obtain a horizon line height of 2.63 m and an image much more like that proposed by the sketch artist. It follows that the privileged observer sits at the centre of the royal box (Fig. 5).

The definition of the horizon and vanishing lines is determined above. It is possible to find the intersection of the projecting plane, parallel to the geometrical one and passing through PV, which we know is positioned 1.2 m above the floor of the royal box, coinciding with the horizon line on the frame. Meanwhile, the ground line is the simple intersection of the geometrical plane with the main one, a piece of information that is already available. Once all the elements of the solid perspective are defined, it is possible to proceed with the actual restitution phase of the elements of each scene. Having the plan of the scenery, given by a set of points belonging to the stage floor plane, the starting point of the process is to find their projection on the frame. To do this, it is necessary to find the projection of those lines that belong to the points and the stage floor plane. For F and 1, a line is sent that intersects the ground line at a point common to the

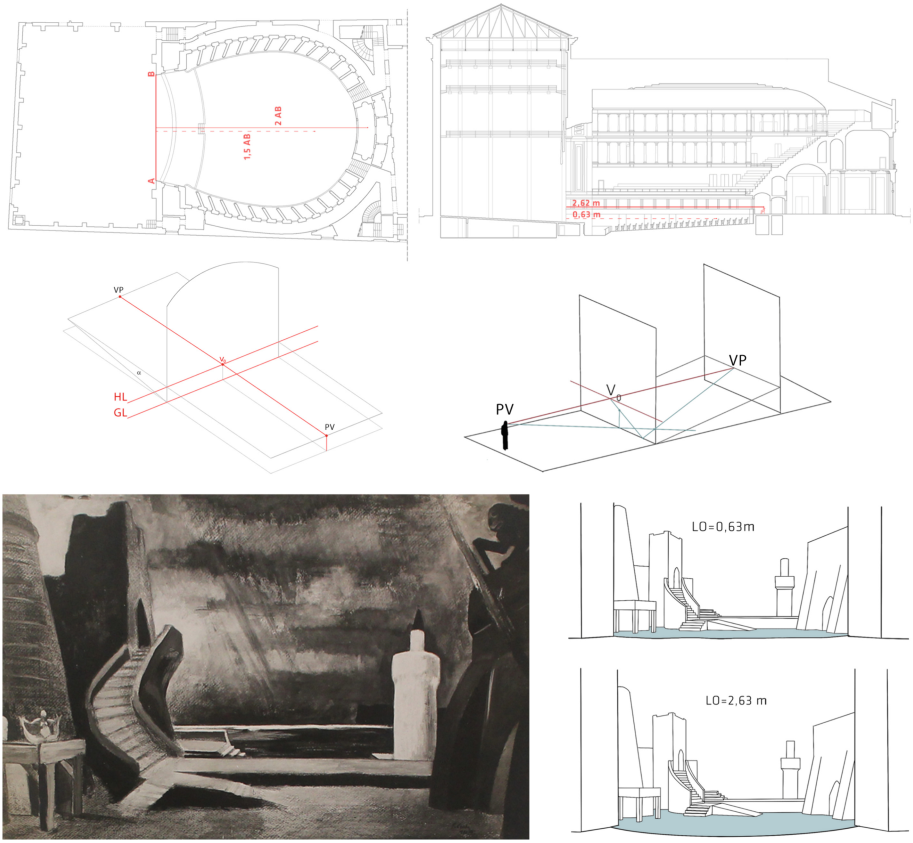

Fig. 5. Geometric analysis for the reconstruction of stage sets. Next to the sketch, two restitution tests to check the positioning of the height of the PV point of view. The hypothesis below shows the floor surface most like the sketch's.

line belonging to the stage floor plane and the frame. Connecting this to V_0, coinciding with F on the frame, we find the line (r′) projection on the main plane. To find the actual position of the point on r′, a projective line is sent connecting V and point 1. The point of intersection of this with the ground line, in common with the stage floor plane and the frame, is orthogonally projected onto the belonging line (r′), finding, in this way, 1′.

Its position can be verified even by considering the sectional drawing. For V_0 and 1, a line is sent that intersects the frame at a point. This point is orthogonally projected until it intersects the line, in perspective, to which it belongs. Naturally, the frame, in section, must always be at a distance from V (V_0) equal to 2 times the width of the stage (34 m).

The same reasoning applies to elevation. If the height values of each scenic element are available, proceed with their drawing. The elevation of point 1 is represented by point 2. For 2 and V_0, a projecting line intersects the main, sectioned plane at a point. This point is projected onto the line parallel to the stage floor and passes through 1′. The point of intersection between the two lines coincides with 2′. The elevation line is parallel to the frame when it belongs to planes that are parallel to it. This is true for the stage flats but not for the stage platforms, which, from a functional point of view, need to follow the incline of the stage.

Take the elevation of a staircase as an example; it is situated on a plane inclined relative to the frame. Consequently, an additional step is necessary to determine the

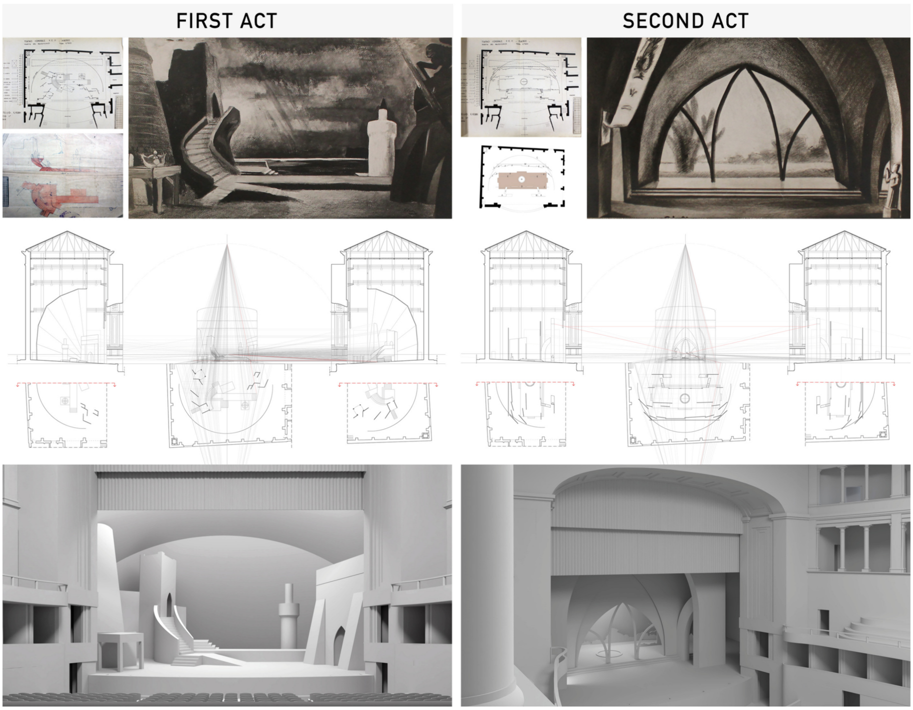

Fig. 6. Analysis, geometric interpretation, and 3D reconstruction of Otello's first two acts.

point's elevation. For point 2, a line is drawn parallel to the stage floor. This intersects the stage floor at point 3. Based on the procedures described above, the projection of point 3 onto the frame is found. As mentioned above, it is possible to see the elevation of point 3 coinciding with 2′. For 2′ and 3′, the line (s′) parallel to the stage floor passes a line to which 1′ does not belong. 2′ is a point that belongs to both s′ and the line representing the elevation of the stage platform. The line connecting points 2′ and 1′ is drawn, and the elevation of the tread is found. This process is repeated for each point until the complete elevation is obtained (Fig. 6). It is emphasised that the same procedure can be applied in reverse if a sketch is available to derive the actual elevations of scenic elements.

3 Conclusions

Through a collaboration with the Hochschule für Technik und Wirtschaft (HTW) in Berlin, the model of individual scenes was enhanced by developing an augmented reality experience using Microsoft HoloLens. This application allowed the reconstructed scenes to be placed on the stage of Teatro Della Pergola, which has dimensional characteristics like the one that initially hosted the opera at Teatro Comunale or Teatro del Maggio Fiorentino. This part of the project focuses on the ability to evoke historical dramas on contemporary stages through digital models created by studying documentation, authors, costumes, and theatrical works. This work could provide new tools for tourism, cultural and creative industries, and the education of younger generations.

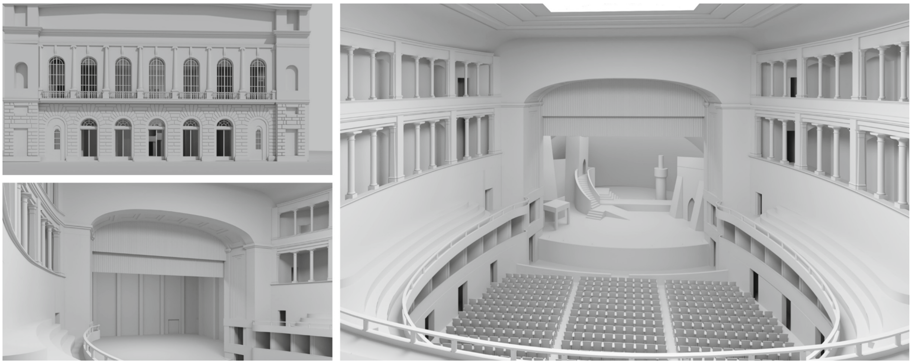

Fig. 7. 3D reconstruction of the theatre façade and interiors based on the archival documentation and insertion of the first act scene of Otello within the stage.

The strategies for investigating and safeguarding tangible and intangible cultural heritage tend towards greater integration and use of acquired data, often from heterogeneous documentary materials and research areas. These data can find exciting ways

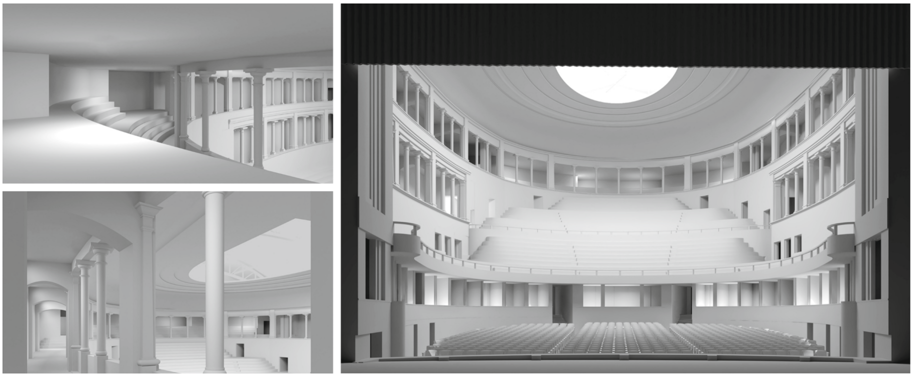

Fig. 8. Perspective views of the interior spaces and a view from the stage towards the audience.

of preservation, either through specific museum spaces or appropriate utilisation in the constantly evolving digital world[6] (Figs. 7 and 8).

Credits

The paragraph 1 (Introduction), the sub-paragraph 1.1 (Case study description: framework and scenic apparatus) and the paragraph 2 (The elements of theatrical solid perspective) are written by Stefano Bertocci. The sub-paragraph 1.2 (The study and digitisation of archival documentation), the sub-paragraph 2.1 (Geometric reconstruction of the theatrical stage designs) and the paragraph 3 (Conclusions) are written by Federico Cioli. Enrica Cosentino created the technical drawings and 3D models.

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[6] From the perspective of the architectural heritage of theatres, an interesting example is the Teatro San Cassiano in Venice. Built in 1637, it was the first to open its doors to a paying audience, transforming opera into a public spectacle. The proposed project in Venice involves a faithful reconstruction of the destroyed theatre, based on meticulous scientific research of archival material, to create a Global Center for the study and explorative experimentation of historically accurate performances of Baroque opera [Link to the website: https://www.teatrosancassiano.it/it]. In the context of studying archival material and reconstructing the historical elements critical to the birth of the work, we find the project for rebuilding the first Baroque opera in history, "Euridice". The project aims to virtually resurrect the opera for contemporary appreciation, despite the spatial and acoustic elements of the original being no longer accessible, as the venue where the opera was performed no longer exists. The project results have been published in the volume "Staging Euridice" [9].

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