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Public Space, Facadism and Other Illusions.
Scuola Grande di San Marco in Venice

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Abstract
The controversial, complex and asymmetrical composition of the facade of Scuola Grande di San Marco in Venice constitutes an anomaly for its time. In contrast with the traditional practice of the Renaissance, the Scuola's elaborate shell was built at the same time as rebuilding the structure which was damaged in a fire in 1485. This unusual and speedy decision indicated the key importance of the Scuola's staging and its role in Venice's public life in the Quattrocento. An opportunity to explore a historical case example which portrays not only the reconstruction of a confraternity but the re-imagination of a wealthy institution in a contested public space. A politically-charged urban presence which went beyond the richness and physical limitations of its architecture but shed light on a renovated urban presence that boosted civic identity, social stability, and the city's elite, mercantile-driven economy. This paper uses formal analysis and XR technology to help understand an unconventional design of a facade by the architect Pietro Lombardo. A masterful piece of pictorial illusionism that was ahead of its time. A virtual space that, rather than functioning only as a scenographic device, portrayed a deep complex spatial and perceptual dynamic.

Keywords: illusion, virtual space, Quattrocento, depth, perception

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1. Introduction

Space, like all resources, is subject to scarcity. And in those circumstances where it is impossible to overcome the zero-sum limitations, a range of means has developed by which this constraint has been exceeded, if not physically, as in the case example of Scuola Grande di San Marco in Venice, then at least perceptually. Such techniques are not only matters of artistic concerns of optical sleights of hand but a series of ingenious mechanisms of architectural space, which constitute a genealogy of space and its substitute. As an example of this, the opportunity to bring back to life a new facade for the Scuola Grande di San Marco in Venice, after being destroyed by a fire in the late 1400's, marked a milestone in the integration of real architectural elements (physical artifacts) and virtual effect (perspectival illusion). An overlapping of real physical elements and implied which achieved the simulation of three-dimensional depth by using the limitation of a two-dimensional plane.

The Scuola Grande di San Marco was part of a network of confraternities, or brotherhoods, founded as devotional institutions. These 'Big Schools' were organizations with the collective purpose of being involved in all sources of charitable, religious, political and social activities in the city. In the fifteenth century, the Venetian society hosted more than two hundred of these *scuole*, among which six were *scuole grandi*. A *Scuola Grande* played a vital role in providing social safety networks for its elite members and wealthy families through mutual aid. This helped maintain a social cohesion among the merchant class, which was crucial for the economic stability of Venetian society during its peak dominance. As a result, these buildings were the perfect canvases to display art and wealth of the time (Perry, 1993). Their activities grew beyond the boundaries of their private buildings by encompassing a stronger urban presence in the format of processions, sponsoring festivities, distribution of money, food and clothing to poorer members, provision of dowries to daughters, burial of paupers, and supervision of hospitals (Chambers, 1970). Venice's major religious events and processions, as well as military victories, political strategies and alliances were celebrated by the fraternity members and presented in the public spaces in front of their large *scuole*. A fact which undoubtedly led these buildings to become far from dormant built interfaces, active actors in serving a critical role in the complex political, religious and symbolic content of Venetian Renaissance at the time (Smith, 2018).

Today, the liberation of space for public use in a contested and densified urban setting as Venice, reinforces the key institutional weight of the *scuole* and their importance for the city's public logistics. The generous size of the *piazzas* next to these *scuole* consequently had a direct influence towards public accessibility, practices of civic or community participation, inclusivity, cultural democracy and the significance of the social impact on perceptions of sacred and civic space. In the case of the Scuola di San Marco, named after the primary patron saint of Venice, it owned a privileged urban setting at the Campo Santi Giovanni e Paolo, one of the largest piazzas in the city, holding two main assets.

On the one hand, it reinvented the orientation of Scuola's main facade towards the south piazza. This guaranteed a permanent sunlight marble facade that amplified the power dynamics and presence of the institution. A strategic location perpendicular to the canal, Rio Mendicanti, and the predominant Basilica del Santi Giovanni e Paolo, one of the biggest churches in the city, allowed the facade to act as a giant billboard and play an active role in the public realm. This placement intensified an unexpected visual

prominence of the building that already started in aquatic surroundings, not from the piazza. In a crowded and narrow context of the Venetian canals, it is easy to imagine the impact of a theatrical effect. An urban void with the potential to transform the perception of the facade, filled with exuberant details, that reflected the sunlight in its colourful marbles and intricate reliefs (Figures 1 and 2).
On the other hand, the asymmetry in which the facade was presented, contrary to the traditional standards of Renaissance, contributed surprisingly to expose the programmatic interior to the exterior. In a closer look at its reliefs and details, the facade was instrumental in bringing together different actors to debate and think about the changes to come. Only decolonizing the way spatial hierarchy was traditionally achieved, democratizing decisions through larger networks of cooperation, as these confraternities did, created a framework to produce something new[1]. In a new social safety institution, it was possible to create a framework where the idea of recreating a virtual interior to ensure sustainable access for those in need could be a reality. Therefore, this was a different architecture as the result of a collective intelligence, an architecture at the service of the health of the citizens which portrayed an ideal interior in a public, static and physically shared nature of the Quattrocento.

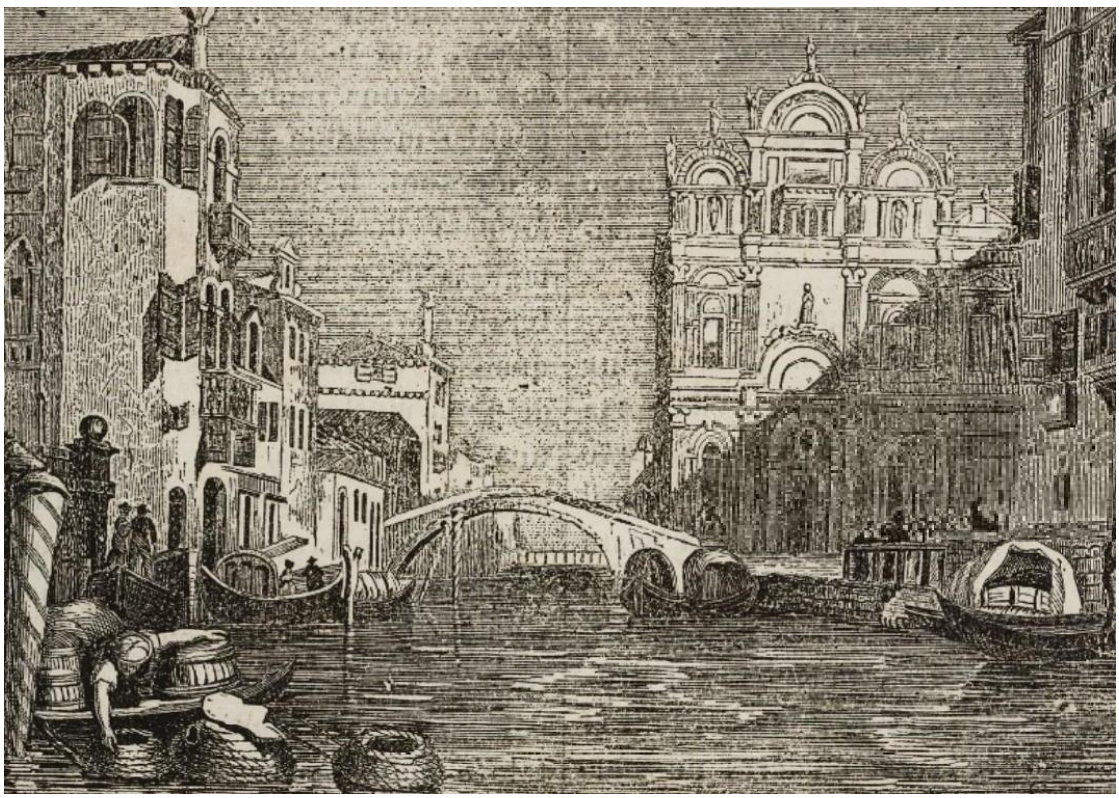


Figure 1. View of the Scuola Grande di San Marco (to the right), Venice, Italy, illustration from Teatro universale, Raccolta enciclopedica e scenografica, No 654, January 23, 1847.

[1] Note of the authors: The processions reached such extravagant propositions and the intense competition between the *scuole* led to such infrared efforts, that in some cases resulted in physical violence between the participants and members of the *scuole* during these presumably solemn processions. Source: Pullan, B. (1970). *Rich and Poor in Renaissance Venice: The Social Institutions of a Catholic State*, to 1620. (Oxford, Basil Blackwell): 127-129.



Figure 2. Highlight of the location of Scuola facade perpendicular to the canal. Pencil drawing by: Minty Sainsbury (2017). Drawing Size 100 x 55cm. Courtesy by the author, Minty Sainsbury. Access available at: https://www.mintysainsbury.com/scuola-grande-di-san-marco

Lombardo's contribution transcended the architectural register and reshaped the potential role that mechanisms of illusion could play in the public realm. By associating and blurring real elements and virtual perception, he heightened an effect of uninterrupted extension of reality. An architectural canvas which not only questioned the boundaries of what was real and what was not but also explored the potential of how space was occupied and perceived from individual expression to collective reflection. The analysis of this Renaissance architecture sets a precedent and invites us to reflect on today's challenges in digital turns and their attendant extensions of reality. This is a five-hundred-year-old lesson on the perception of space within the urban context, and a manifestation of the long trajectory of mechanisms of spatial illusion that have played political and social roles in the public realm. It illustrates a relationship between content and context, which implies the exercise of virtually completing what potentially exists, at the time of finding the use of the archetype that triggers our memory.

2. On the construction of the virtual in the "real" space

2.1. Asymmetry

The conceptual leap from Renaissance illusionism in Lombardo's work presents a provocative composition using a non-traditional arrangement of architectural surfaces. The very first rupture in the facade took place by dividing the surface into two unequal wings, (Figure 3) which was not exempt from controversy. The composition of the

facade reflected the form of the interior of the building and denoted the different functions of the fraternity. The left side contains the main entrance to the former hospital or the city, while on the right the entrance to a pharmacy. This fusing of facade and interior echoed a functional necessity to maintain the building's traditional Venetian "double-house" structure while applying a modern, "all'antica" Renaissance vocabulary. This was a different spatial layout which prepared the viewer to understand the symbolic content of the two distinct programs. Although this apparently broke the rules of Renaissance harmony, author Richard Schofield defended the asymmetry "as a deliberate architectural choice" intended to reconcile the confraternity complex internal logic with its public realm. For Schofield (2006, p.194) the asymmetry creates a "balancing act", an idea in which themes of charity were strategically placed to temper the potential public resistance or rejection against a facade material exuberance. An opulent design which could potentially send a different message of its own collective purpose (Schofield, 2006).

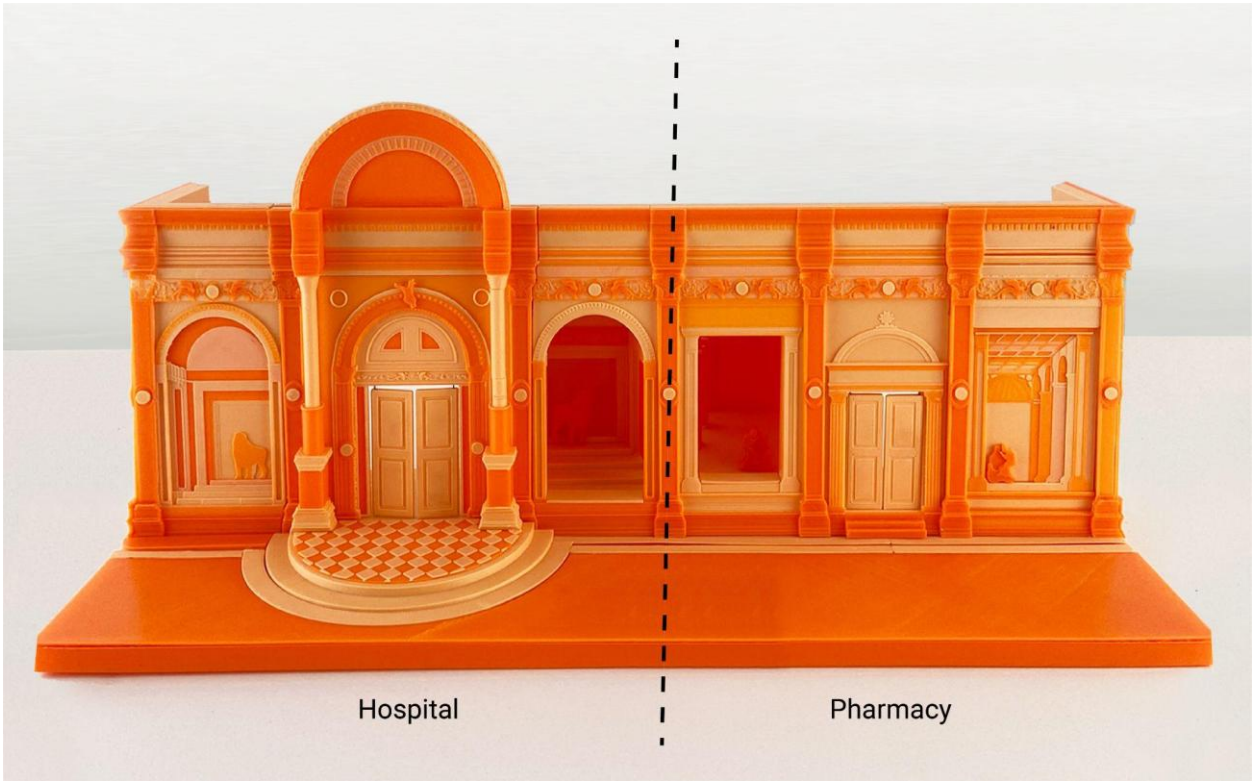


Figure 3. Ground level elevation of Scuola Grande reflects the asymmetrical composition between the hospital entrance and the pharmacy one. Photograph by the authors (2024).

In addition to the difficulties translating existing medieval footprints into new Renaissance ideals, the oddly asymmetrical composition of the overall facade was a clear consequence of an internal "confrontation" between different architectural minds. Pietro Lombardo directed the ground level but a contractual dispute with the building commissioners led his rival, the architect Mauro Codussi, to finish the first level of the confraternity. This change of architects led to a facade oddly divided into two different

front stages, which promoted a complex interrelation with its surroundings. On the ground level, Lombardo introduced in each half of the facade the same strict logic: a double tripartite layout, following the composition of triumphal arches or city gates. Following this, Lombardo promoted a delicate internal hierarchy where both central bays of the facade hosted the entrances of each space -the city's hospital and the pharmacy-, while the decoration of the screen oriented towards the outside was reserved to the smaller porticos (Figure 3).
Lombardo took advantage of the space flanked by both entrances as an opportunity to shape a new collective representation of the confraternity. For doing this, Lombardo proposed two elaborate pairs of illusionistic reliefs. The main idea was to create the illusion of a fictitious interior space oriented towards the piazza. To push this goal, he articulated a series of oversaturated openings full of elements which were accentuated by a masterful control of perspectival effect in the recreation of reliefs. Lombardo's porticos embraced a virtual space which was able to be incorporated within the physical constraints of the site. The implied interiors are an illusion, a projection of simulated space that renders an apparently thin facade as thickened thresholds as shown in the model below (Figure 4).

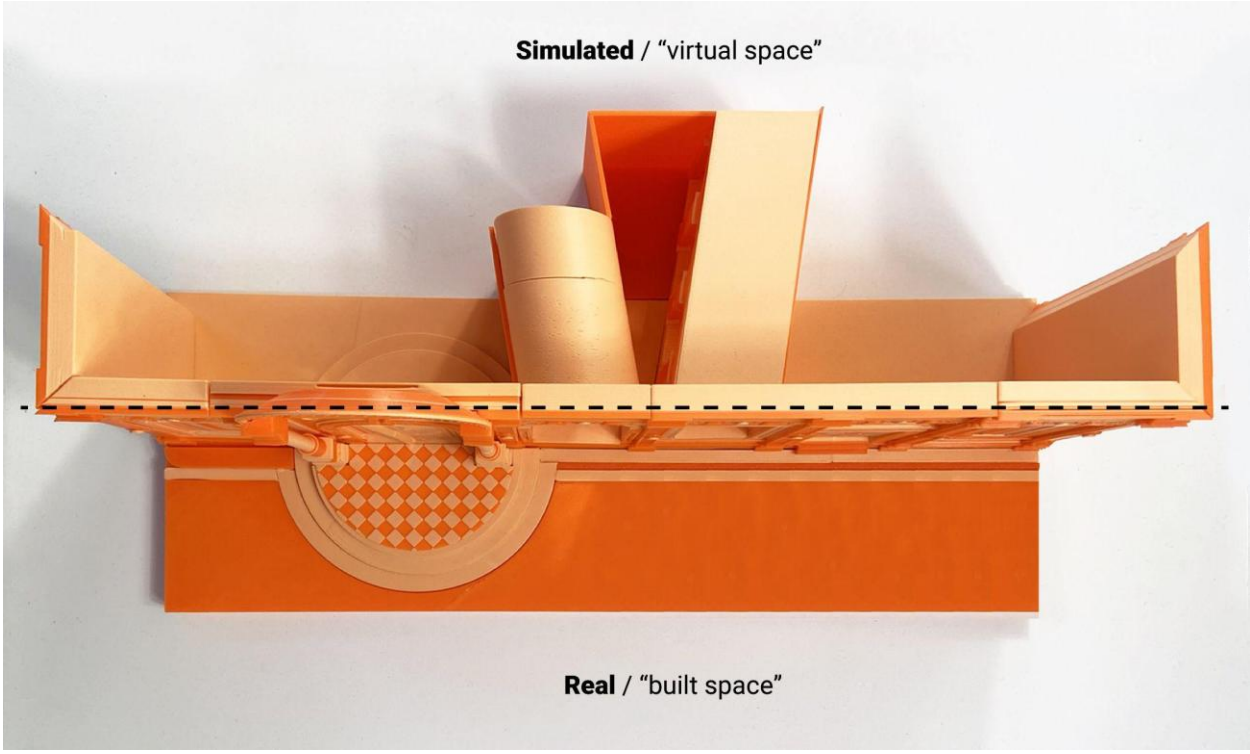


Figure 4. Virtual depth of the built facade. In a physical model, the visual analysis recreates the real and simulated space. Photograph by the authors (2024).

2.2. Use of perspectival view and horizon line
While Lombardo didn't have the opportunity to complete the entire façade, his position to introduce a single delineated "horizon line" broke with standard drawing conventions implying a bigger repercussion to the perception of the facade from the square. The

horizon line is the term used to define the actual height of the viewer's eyes, and it is a mechanism reserved generally for outdoor scenes. In this case, Lombardo recreated an indoor space following outdoor drawing standards. In addition to this, the introduction of two different sets of vanishing points on the horizon line flanking both entrances of the building, creates a binocular effect. Each entrance has its own focal point, therefore the binocular effect is achieved by forcing converging lines towards each bay. In this case, two different one-point perspectives (left and right from the entrance) with two different vanishing points on each relief completes the effect of the spatial alteration (Figure 5).



Figure 5. Detail of the elaborate pairs of illusion reliefs with opposite perspectival forced points creating a binocular effect from the piazza. Photograph by the authors (2024).

This was a perspectival gimmick that the scholar Phil Sohm (1978, p. 132) described as a fresh achievement: "The illusionistic space of the reliefs also complements the openings of the two portal bays, so that the wall of each bay is pierced by either fictitious or real voids. The creation of a pictorial space which, by associating real and virtual architecture, seems to be a logical and interrupted extension of reality" (Sohm, 1968).

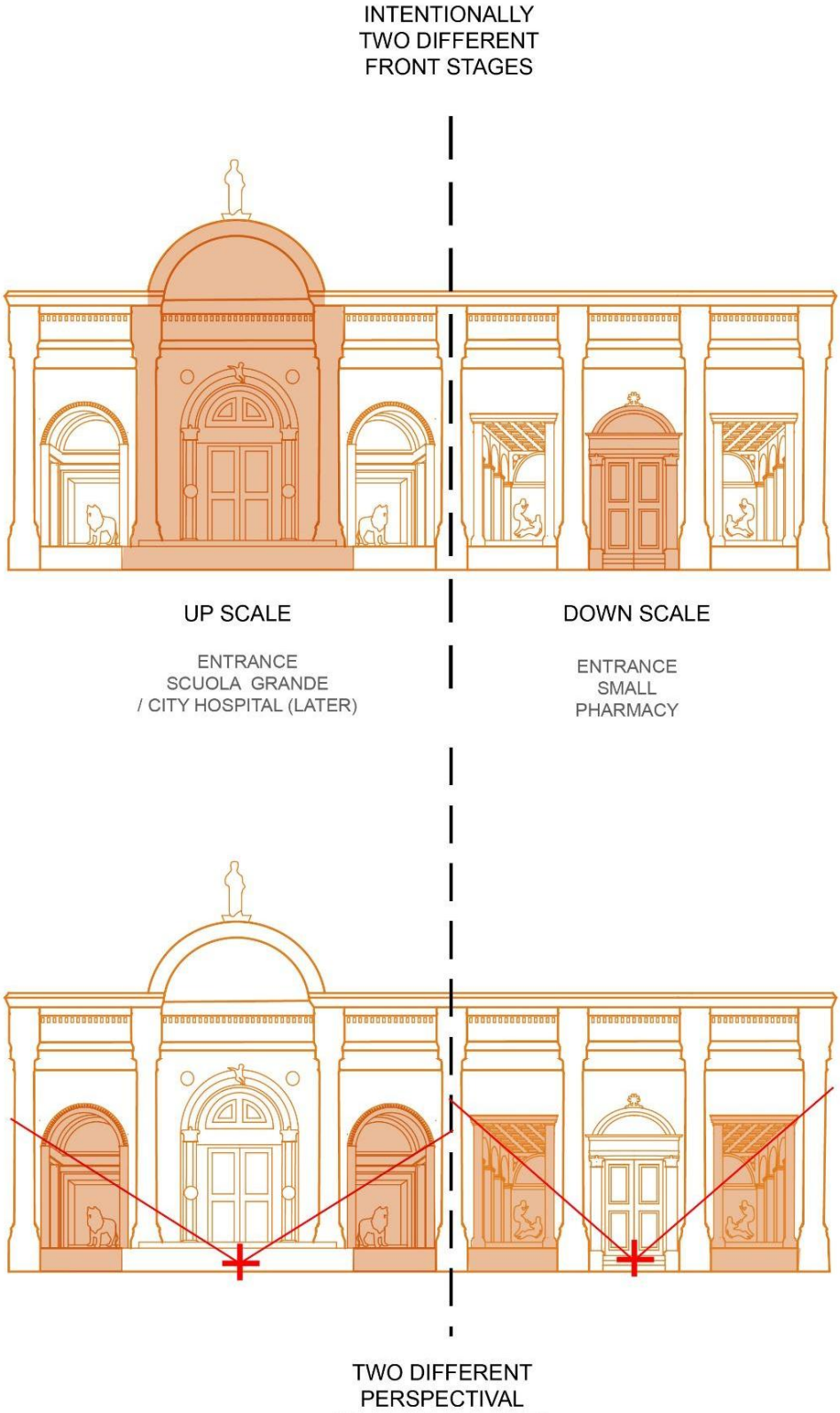


Figure 6. Asymmetrical composition. Two different perspectives challenge central vision. Lombardo intentionally destabilized the eye-centric perspective of the subject. Drawings by the authors (2024).

However, Sohm is not alone as other scholars described Lombardo's achievement as a "surprisingly compact result" that merged sculpture and architecture to create a "picturesque" effect. (Figure 6) The composition challenged traditional human centric perception. Rather than using perspective as a neutral window into a scene, Lombardo deployed the two different perspectival vanishing points to emphasize the autonomy of architectural form from the human observer. An idea which clearly echoes contemporary approaches to challenge the conventional perspective of the subject which relies on a single viewpoint (the human eye)[2]. In this case, Lombardo purposefully destabilized the traditional relationship of seeing which placed the observer at the centre of the spatial experience. This is potentially an early criticism of traditional linear perspective as an "artificial" imposition that limited architectural possibility.

2.3. Use of colour and figuration

In addition to the perspectival rupture, different colours of marble were intentionally applied to achieve the greater impact on the audience. Marble was a rare material which was heavy, required to be transported over a great distance and was consequently extremely costly to build with at the time. In his facade, Lombardo not only used marble but a rare selection of Istrian stone for orders and relief decoration. Yellow Carrara marble and pink Veronese marble were applied for the main facade's reliefs, and strips of grey Bardiglio indicated the divisions between bays and pediments. The luxurious material - not exempt from controversy for a charity house- and intricate composition were understood as an artistic proclamation of excellence and hence a challenge[3]. The work pointed out by Sohm, revealed the power of the sketch to which the premonitory order of the colour emerged as an inevitable consequence in the surprising order of the construction[4].

Using colour collisions and a tense connection between mass and void, the elevation of the Scuola manifested a rigorous sculptural exploration. On the main left wing, two vigilant wingless lions sit on either side of the main portal, which leads to the lower hall. This left arcade enframes two virtual alcoves and serves as the support of the facade's figural decoration. Parallel to this, the right wing is flanked by two illusionistic reliefs of a group of figures of St. Mark's scenes. (Figure 7) The use of the duplicated figure enables our appreciation of the dislocations among them. Some authors argue that the St. Mark's scenes are recycled from previous work before the fire in a scenography where both reliefs accentuate the binocular effect: while in the main portal the lions face the outside, and the St. Mark's scenes are oriented toward the inside. Whether the reliefs were recycled or intended for space, each loggia appears to be a free-standing structure bathed by yellow light. The composition absorbs and expands light regardless of the restrictions of the orthogonal requirements. The facade's specific chromatic palette, sunbathed by southern light, constantly projects signs of mutual accord, the desire of a reciprocal correspondence to see and be seen. Prevailing as a dominant institution, the facade concept is a malleable mass that introduces a complex message to the public.

[2] See Colomina, B. and Wigley, M. (2016). *Are We Humans? Notes on an Archeology of Design* (Lars Muller Publishers).

[3] For types of stone, see Rodolioc, F. (1965) *Le Pietre della Città d'Italia* (Florence).

[4] Ibid. Sohm: 122.

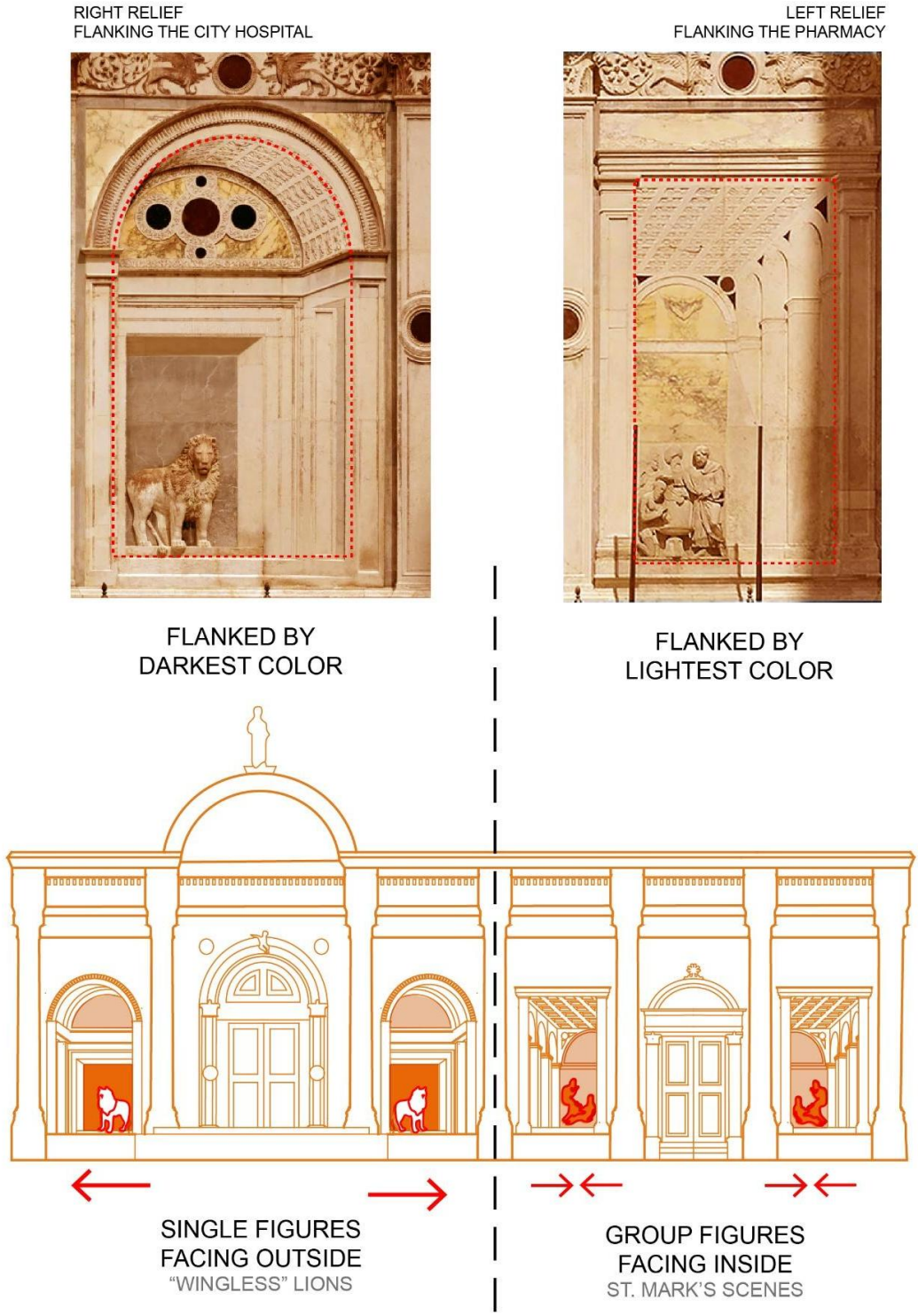


Figure 7. Use of colour and figuration in the pictorial illusionistic scenes. Inverted positions both highlighted the different symbolisms of each program. The individual lions flanked the main hospital institution, at the time that the collective scenes of St. Mark flanked the public pharmacy for the city of Venice. Drawings by the authors (2024).

2.4. Pictorial illusionistic reliefs

Reimagining the two-dimensional reliefs was the main outcome of Pietro Lombardo's concern in pictorial illusionism. When looking at the two two-dimensional reliefs, our gaze is unable to focus on either the right or the left and instead wavers between one and the other in search of the centre, a virtual point created by the observer. This search for virtual depth can be observed in Lombardo's previous works such as the Tomb of Dante in Ravenna and the Relief of the Holy Family in the Museum del Seminario Patriarcale in Venice. The revolutionary idea of delineating a three-dimensional composition in the limitations of pictorial frame associates real and implied architecture, achieving an uninterrupted extension of reality, a mechanism which was not new in Italy in the Quattrocento. A key precedent of this illusionistic work can be seen in Donato Bramante's altar in Santa Maria presso San Satiro in Milan, commissioned a decade before Lombardo's Scuola. In Bramante's work, the surprising effectiveness of the spatial trick simulates a choir depth comparable to the transept's length, an architectural mechanism known as "Mirabile Artificio" (Buratti et al., 2022). A perspective strategy where the vantage point collimates Santa Maria's fake choir in nave perspective, the "Mirabile Artificio" is a case of anamorphosis, an example of a distorted projection which appears normal when viewed from a particular point or with a suitable mirror or lens.

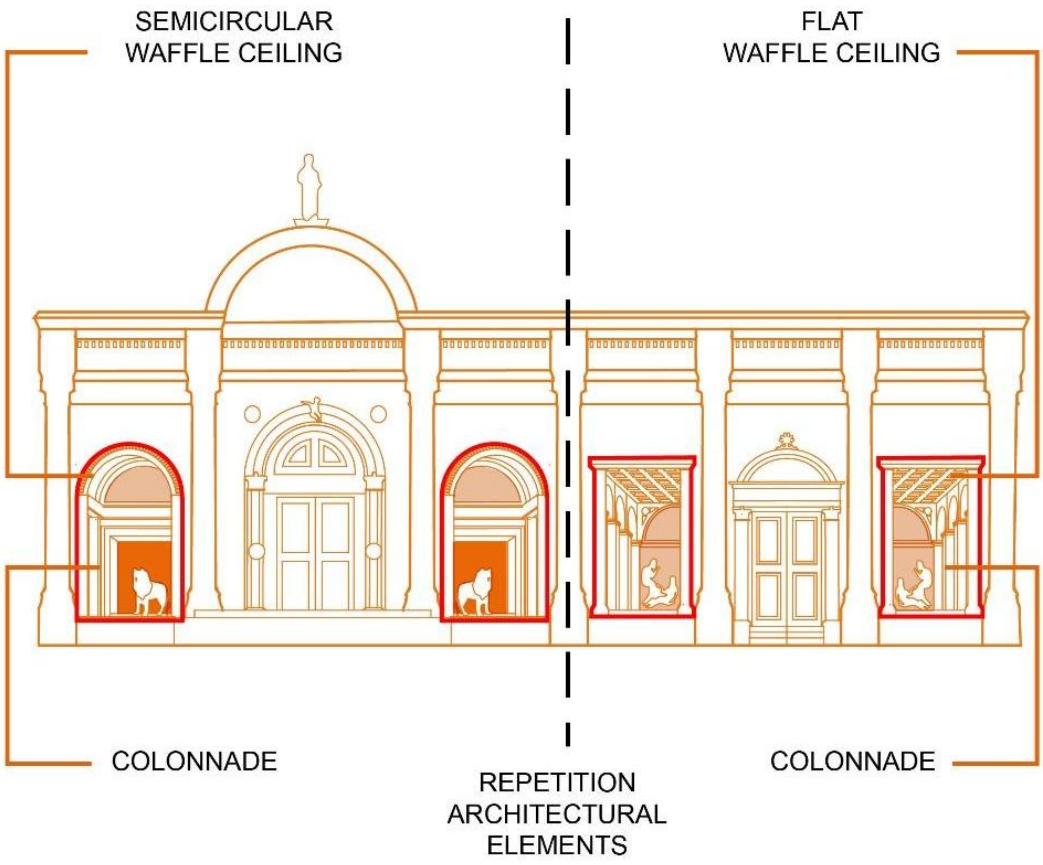


Figure 8. Use of repetition of the architectural elements in the pictorial illusionistic reliefs. Different types of waffle ceilings achieve spatial depth. Drawings by the authors (2024).

However, if Bramante used the perspectival illusion for an interior space, Lombardo was the first who used this mechanism in the interface of a facade of exquisite marble to enhance the pictorial definition of space. At the Scuola, Lombardo expanded on the coloristic definition of supporting and non-supporting elements by introducing the effect of extension of the real space in a facade. Beyond Bramante, Lombardo didn't rely on painting but the use of architectural materials. As an example of this, the use of yellow Carrara marble above the loggias helped to identify the front place of the illusionistic space. By demarcating marble fields behind the figures defining the backplane, it played a key role in the virtual effect of perspective. These two decisions contribute to resolve formally the distinct reliefs to define the facade's bilateral asymmetry. In Lombardo's illusionistic reliefs, in addition to the use of colours and figures, the important repetition of the background architectural elements such as pilasters and circular ceiling coffers (above the lions) or flat waffle ceiling and arches (above St. Mark's scenes) reinforced the effect of the fake depth definition. Here, the doubling process of pairing the reliefs emerged from the surprising relationship between container and content. A spatial manipulation which portrayed a series of dense, rhythmically virtual *aedicules* or "rooms", (Figure 8) which prepares us to read each interior scene from the piazza. Scenes were perfectly demarcated by the image of an entablature and supported by the representation of ceilings, columns or pilasters which frame the caged sentinels who were guarding the facade of the Scuola. Correspondence between figures clustered together or separated, depending on the viewer's position, were able to generate intermediate spaces. The illusion is of a hidden interior that reveals activities that once took place at the Scuola.

3. On the construction of the real in the "virtual" space

3.1 Extended Reality

There is a Western imaginary that assumes virtual recreation of a space belongs to a contemporary field relegated to the individualized sphere and the world of entertainment and videogames. However, exploring how an historical visual analysis might inform contemporary debates about digital access, spatial democracy and technological mediation of public experience is potentially refreshing. The perception of something that is not built has indeed a profound impact on the collective realm, as the example of Scuola Grande di San Marco illustrates. What we understand today as XR, an acronym (in English) for Extended Reality[5], refers to the juxtaposition of real and virtual environments that are accessed through human-device interactions. To be more specific, Extended Reality (XR) is a term which bridges all immersive technologies that blend physical and digital realms. This includes Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR), as well as 360-degree capture and other related technologies. XR aims to create new modes of interaction, engagement, and immersion by merging real and virtual environments.

The binary relationship between virtual and real remain equipotential despite their clear distinctions and the scope that separates them. Learning from the Scuola Grande

[5] For research on XR, see Vasarainen, M., Paavola, S., & Vetoshkina, L. (2021). A Systematic Literature Review on Extended Reality: Virtual, Augmented and Mixed Reality in Collaborative Working Life Setting. *International Journal of Virtual Reality*, 21(2), 1-28.

example, the incursion and engagement of the virtual world into the physical one and, vice versa, invites us to reflect on how we understand the interface between the private and the public, how we interact in it, and how we relate to others. When Lombardo proposed the representation of the effect of portraying the activity of interior rooms in the facade of the Scuola, not only was he suggesting a revolutionary idea of materializing what was not physically there but was opening a wide range of possibilities of what the virtual dimension of a domestic scene could mean from the point of view of a collective realm. From the visualization of the city's layers, the design of immersive experiences, to the empowerment of anonymous citizens and local communities; the expanded reality, in the past and present, offers a revolutionary application in the most comprehensive, broad and participatory public dimension. Recent scholars, such as Crugl and Leong (2025) defend a practice for implementing an active and meaningful participatory process in cultural heritage management using extended realities (Grugl and Wong, 2025).

3.2. Virtual extension on a real stage

Lombardo's strategy used to overcome the difficulties of the collision between illusory indoors and the real outdoors consisted of the insertion of an ideal order, an order that lent its full support to the anonymous, artistic condition of the blank canvas of the facade. In this case, Lombardo worked according to this principle, distributing the open or dense spaces in accordance with the requirement dictated by the facade rhythm. This was a structural framework which was not only formally linked to the Scuola's interior and its program, but most importantly reflected a clear staging of an exultant institution towards its symbolic civic role towards the piazza and the immediate building adjacent to it. In this case, the resistance to the classic composition had two main rivals. On one hand, the Scuola facade design needed to enter in conversation with the piazza Campo Santi Giovanni e Paolo as the primary public space for the Scuola ceremonial display; and on the other hand, its next-door neighbour: the massive brick facade of St. Giovanni e Paolo Basilica. Although the Scuola's site enjoyed a privileged condition in the city, it also was not exempt from physical constraints. The larger dimensions of the neighbouring church and its predominant gothic style imposed several limitations. Neither the differences between styles, Renaissance (Scuola) vs. Gothic (Basilica), nor the size of Lombardo's elements, much smaller, implied an intense opposition from the very beginning. The oppressive brick mass of the church's exterior required the design to masterfully play up its urban theatricality towards the piazza. A framework where a sum of opposites needed to be adjusted to highlight the authenticity of a human experience in a unique setting. The actions taken in the facade addressed critical circumstances to better understand not only proportions and new ideals of the Renaissance but also explore what hinders the active involvement of the public.

In order to accommodate this human engagement in a public realm, Lombardo used a strategy of harmonization and urban dialogue between the two facades (Scuola and Basilica) with a scenography following a twofold strategy. On the one hand, Lombardo focused on the smallest element of the Basilica by borrowing the lower physical arcade to introduce it as a new rhythm for the facade of Scuola. However, he achieved this in a modified form. Instead of a mere repetition, Lombardo simulated a series of virtual *aedicules*, with a non-traditional arrangement of three niches with a circular top (main portal), and three other rectangular niches (secondary portal) (Figure 9). The small

reliefs on each bay of the facade introduce a virtual layer of *aedicules* into the physical layer of the architecture. This not only provides an illusion about what happens inside of the Scuola but also offers an immersive experience constructing an extension of an imagined version of an ideal interior scene from the exterior of the piazza. In this case, the Scuola's domestic space is changed from one that is contained (and not experienced by the public outdoors) to one that leaks into an ideal shared virtual container (the Scuola facade). The merging of real and fictitious architecture revealed a dense interconnection of spatial design, societal influence, and cultural significance at the time. On the one hand, as a dual dialogue, interior vs. exterior, real vs. fictitious, private vs. public which is always effective. And on the other hand, by taking advantage of the small scale. A smaller detail can relate to a human scale, spreading a penetrating wave that invites the passers-by to look closer. Reinventing a framing apparatus transcended, far from Lombardo's intention, the societal norms of the time, transforming the perception and breaking the boundary between virtual and real-world architecture.
This way of thinking about an inherent participation in how we perceive and understand our perceived environment opens a rich debate on the role of architecture and, more specifically, on facade design, on the manipulation and understanding of public space within a public context. This framework of study not only questions how we mechanically react to stimuli, but how we can easily manipulate the perception of what we look at. As the art critic John Berger (1972, p. 7-34) pointed out:

> "To look is an act of choice" (Berger et al., 1972). But more importantly he reinforced the idea that our perception is never objective, we never look at just one thing; we are always looking at the relation between things and ourselves. Our vision is continually active, continually moving, continually holding things in a circle around itself, constituting what is present to us as we are".
> (Benjamin, 2008)

Reflecting on this example allows a reductive virtual extension of an architecture which is intended to reveal the real and unreal relationship in the manipulation of both forms and forms within. It is early architecture which projected itself to the world as a resistance, not as a model, by seeking to replace or almost vanquish it, instead of looking on. Each passer-by could mentally reconstruct their ideal version of the activities of the Scuola from each of the Scuola's facade scenes, as an exercise which consists of completing virtually what physically exists. The virtual scenes in the facade have the potential to reveal and suggest that it is not tangible, but it is achieved as it is. Indeed, today "virtual" reality is not very different from Lombardo's work. Today, however, virtual reality has rested on the city's capacity to divest itself of the costs of rapidly changing demands by operating outside traditional representational imaginaries.



Figure 9. Urban dialogue between the lower level of S. Giovanni e Paolo Basilica's loggia (left) and the San Marco Scuola's new ground level (right). Lombardo translated the tripartite composition of the Basilica to the Scuola's lower façade composition, completing the façade while addressing smaller architectural elements. Drawings by the authors (2024).

2.3. Virtual extension on a virtual stage

Lombardo's ambiguity between the real and the virtual, the indoors and outdoors, the public and the private, compressed our research to dissect the analysis of both real and fictitious realms by looking at the Scuola facade from every potential new angle. The last visual outcome generated a new representation of Lombardo's facade using a digital model of the facade in the XR stage of the Center of Academic Innovation at the University of Michigan[6]. Using computer aid design software, the team recreated a three-dimensional digital model of the ground level of the Scuola facade as a virtual object to be displayed on the physical LED stage. The advantage of the large-scale LED screen provided a physical set to render high-quality, real time 3D virtual environments. A goal to recreate an immersive learning environment to "transport" students and faculty into a virtual Scuola facade, as a real-time interaction with the digital recreation of an historical precedent.

Digitally reproducing the facade at 1:1 scale, the work focused on a close zoom into the four aedicules that hosted each of the pictorial reliefs. By merging live user interaction (faculty seen in Figure 10) with the different digital layers, the outcome had the potential to challenge the illusion of depth. By recreating the view of the spectator from the piazza, the digital device demonstrates the potential immersion of a figure in-and-out of the different layers of the facade. (Figure 10) Through this non-normative use of spatial technology, the exploration adapted the systems of embodied physicality, play and performance for a virtual representation of the Venetian facade on the virtual stage, as an aspiration to engage spatial manipulation.

The use of advanced representation tools complemented the results that couldn't be achieved merely through traditional visual analysis of the architecture's facade. The live interaction in the immersive environment of the LED stage expanded the capacity to understand architectural strategies, scale and composition, while enabling the analysis of the perceptual effects in both the facade design itself and the public space it helps to structure. This process elucidated virtual reality as a method of working that undercuts binary assumptions of perception and physicality, as well as taking advantage of new representation tools in architecture. From this approach, we were clearly determined to look at the Scuola's facade from a decontextualized perspective, intentionally different from a real physical experience from the piazza in Venice. In this case, the LED stage created a new extension between the boundary of architecture and the public imagination by offering a glimpse into the possibilities of facade design when the virtual and physical spaces merged. This immersive technology holds a promise to decolonize the way we think about history, by democratizing experiences and opening potential directions to new domesticities at the intersection between the physical and the virtual. This methodology can help us to understand what we see, in the real world and on the digital screen. Today, in the context of a global digital world and AI, the debate is to underpin where information comes from, why it is that way, and to propose that a

[6] The research and digital installation were made possible by a grant from the Taubman College of Architecture and Urban Planning at the University of Michigan, generously supported by The Alan and Cynthia *Berkshire Fund for Prototyping Tomorrow*. Project title: *More Room at the Table.* (2024) Faculty team: Jonathan Rule, Julia McMorrough, Ana Morcillo Pallarés, and John McMorrough. Students' collaborators: Ann Borek, Ella Eldestein, Qilmeg Doudatcz and Axel Olson.

more critical assessment makes for better spatial citizens of the real, the virtual, and their entanglement.



Figure 10. Multiple scenes showcase different engagements between real figures and the 3D virtual recreation of the façade's Scuola. Location: XR stage at the Center of Academic Innovation at the University of Michigan. Photograph by the authors (2024).

Ultimately, to underscore the real dimension of perspectival manipulation is to reassert the centrality in the containment of the physical limitations. The aftereffect increasingly becomes more complex to analyse when the perception of the Scuola facade is not limited to its own physical boundaries nor the virtual model in which the potential users

may interact with, but the social containers surrounding all variables around the time and the space, the building was conceived. It is an exploration of the limits of virtual architecture that, according to Ryan Scavnicky (2025, p. 342-354): "rests upon understanding these mixed mechanics layered with social interactions that are structured, staged, and organized into an intentional spatial experience" (Hui et al., 2025). The conflict between wanting more but having less is where the real opportunity for design occurs.

Yet our traditional understanding of perception - rooted deeply in outdated paradigms of technical perspective, dominance and human centric control - proves inadequate means to articulate the emerging social complexities and urgencies surrounding virtual extension today. In this case, modern western perception limits our ability to envision and therefore enact altered relationships with a holistic perception of the world. If we are to reimagine our future at the interstices between the real and the virtual, we first must understand examples which can help us to describe, interpret and engage with the illusionary blurry realm. In order to concentrate on architecture's capacity to achieve space, it is important to understand current mediums of representation to explain the complex interrelations between virtual and physical interfaces. In this sense, the Scuola di San Marco in Venice proves an adequate and strikingly early example of how a building envelope could conceal a vibrant repertoire of architectural choices which extended the building beyond its own physical limits. The facade design promoted a cultural, social and political shift with a new architectural vocabulary; a lexicon which emerged precisely at the threshold where public engagement implemented an active and meaningful participatory process in the vicissitudes of Renaissance confraternity management using extended realities. It is an illusion which, far from being distant from reality, holds the potential to suggest other alternative situations to transform attitudes and practices at both a personal and a collective level in relation to the shared perceived environment.

4. Conclusions

More than five hundred years after Lombardo's facade, and amidst a contested collective realm where the boundaries between physical and virtual are less defined than ever, the potential indeterminacy of new forms of manipulation between real and fiction in our public space wants to be addressed. Lombardo's playful arrangements engaged viewers to participate equally in the illusory scenes, in an intentionally distorted canvas which blurred the apparently clear limit of a doorframe. Ahead of his time, Lombardo relied not only on the physical space, but on the virtual. Instead of competing against the massive Basilica next door, he envisioned the opportunity of the extension of an arcade along the lower zone of the church to be continued to the Scuola, by simulating the effect of three-dimensional depth in the restrictions of a two-dimensional plane. It was a new extended boundary of architecture and the public imagination which offered a glimpse into the future directions of spatial design where virtual and physical spaces can potentially merge, by reconsidering new realms at the intersection between real and fictional worlds.

Through a collaborative effort involving architects and media specialists, this paper constructs a vision of Lombardo's work which stimulated an ideal virtual public engagement, demanding the collective to be something more than a passive resource. It

offers a model of a possible (and ideal) representation of a wealthy institution used as a statement of 1500's societal political turbulence and how potentially it could have changed architecture and simulated new realities for people, convincing them that, indeed, change was possible. It is an approach of thinking in architecture which potentially aligns to contemporary terms found in Aaron Betsky's (2024) "anarchitecture" as a seed for alternative practices which are reframed in his book *The Monster Leviathan* (Betsky, 2024). It is a vision for an alternative architecture - not so distant from Lombardo's ideal- which holds the promise to promote the engagement of the public imagination in such a way as to spark real change. This change is not exempt from a critical revision of creative methods for public engagement using immersive virtual environments, but such changes cannot be made if the power dynamics in often privatized, individually mediated contemporary XR technologies and management are not redrawn. Recognizing public virtual accessibility as a common asset to be managed collectively and not under market control could promote a paradigm shift in bringing virtual manipulation into matters of public concern. The ethical implications of immersive technology in contemporary public space, however, are yet to be adequately explored in a field where there remains a structural inequality in access to this technology.

In the current global boost of multi-sensorial immersive experience, there remain challenges in the emerging visual conventions for communicating objects and processes between physical and virtual spaces. By unveiling Scuola Grande di San Marco's facade, this paper highlights Lombardo's ingenious tweaks in the manipulation of the perception of the physical space, as well as a building which consciously promotes public immersion through the interconnectedness of political and social systems. This research promotes a new imagination of a virtual realm that can move beyond the scarcity of traditional narratives and look toward equity and interdependence. Lastly, the visual analysis of the Scuola facade lies not merely in its ties to a masterful piece of architecture, but in its fundamental position - that perception itself holds a transformative power. By redefining how we talk about the subjectivity of reception, we initiate a vital shift in consciousness, capable of producing radical changes in the democracy of information.

Above all, this extremely early version of an expanded reality of the public sphere, as stated by the philosopher Jaques Ranciere (2009, p.109-132), elicited consequential interventions with power and its representation (Ranciere, 2009). The tactics and strategies employed in the Scuola Grande di San Marco aspire to engage both the disciplinary and public debate on the expanded virtual reality of the public sphere. Architect Pietro Lombardo contested the politics of containment by reconfiguring Quattrocento's aesthetic assumptions upon which boundaries rested, and reclaiming presence (virtual or real) into objects of design. A design choice reinforced the idea that aesthetic reforms represent some agency for political thought. It is a contested scenario in which illusion-making becomes an increasingly omnipresent instrumental tool in the aesthetics of consensus that our naked eye believes it is seeing.

References

Benjamin, W. (2008). *The Work of Art in the Age of Mechanical Reproduction* (J. A. Underwood, Trans.). London: Penguin Books.

Berger, J., Blomberg, S., Fox, C., Dibb, M. and Morris, R. (eds) (1972). *Ways of seeing.* London: Penguin Classics.

Betsky, A. (2024) *The Monster Leviathan.* Cambridge: MIT Press.

Buratti, G., Mele, G. & Rossi, M. (2022). The Masterly Perspective and Design of Bramante's "Mirabile Artificio" in Milan. *Nexus Netw J* 24, 545–565.

Chambers, D. S. (1970). *The Imperial Age of Venice: 1380-1580.* (London: Thames and Hudson): 115–118.

Grugl, M., Wong, L. (2025). Crossing the Pell: Experiencing Design in the Age of Extended Realities, in *Making Design Public*; (Cambridge Scholars Publishing: Newcastle upon Tyne, UK).

Hui, V., Scavnicky, R., and Estrina, T. (eds.) (2025). *Architecture and Videogames: Intersecting Worlds.* London: Routledge.

Perry, M. (1993). Wealth, Art and Display: the Grimani Cameos in Renaissance Venice, *Journal of the Warburg and Courtauld Institutes,* 56: 271-272.

Ranciere, J. (2009) "The Ethical Turn of Aesthetics and Politics," *Aesthetics and Discontents* Cambridge: Polity.

Scavnicky, R. (2025). "Theorizing Virtual Architecture", in Hui, V., Scavnicky, R., and Estrina, T. (eds.) *Architecture and Videogames: Intersecting Worlds.* London: Routledge.

Schofield, R. (2006) "La facciata della scuola grande di S. Marco: osservazioni preliminari," in *La bottega dei Lombardo; architettura e scultura a Venezia tra Quattrocento e Cinquecento.* Published by (Guerra, M. Morresi, Venice): 161-194.

Sohm, P. L. (1978). *The Scuola Grande di San Marco, 1437 - 1550: The Architecture of a Venetian Lay Confraternity* (Order No. 7906497). Available from ProQuest Dissertations & Theses Global; ProQuest Dissertations & Theses Global Closed Collection.

Smith, Lorenza. (2018). "Devotional confraternities (*scuole*) in Renaissance Venice," in *Smarthistory*. Accessed April 17, 2024, https://smarthistory.org/scuole-venice/.