

A photograph of a brick wall covered in a grid of surveillance cameras. The cameras are arranged in a regular pattern, with some black and some silver. Two women are standing at the bottom of the frame, looking up at the cameras. The text 'The City as Architecture Media AI and Big Data' is overlaid on the upper part of the image, and 'Urban Assemblage' is overlaid on the lower part. The overall theme is urban surveillance and data collection.

The City as Architecture
Media
AI
and Big Data

Urban Assemblage

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Urban Assemblage: The City as Architecture, Media, AI and Big Data

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INTRODUCTION

Urban Assemblage: The City as Architecture, Media, AI and Big Data

The central idea underpinning this volume is that cities are today characterised by assemblages: unstructured collections of elements that include people, machines, and physical and digital manifestations of architecture and design. Such elements are characterised by an evolving relationship, where roles and internal hierarchies change over time. All elements of the public life are interconnected with technology and artificial intelligence (AI).

The built environment has become a site for the production, processing and sharing of information daily through the software interlaced with it. It is also a place designed, envisaged and increasingly built through data-based digital architecture, planning and construction. Advanced parametric modelling envisages data in both building design and city management. Augmented reality mediates our experience of the city with layers of information. Digital infrastructure interconnects our city and building services. The result is a series of complex interactions of people, place and data and the establishment of the 'digital city', 'smart buildings' and 'intelligent' urbanism.

Today, the potential for technology and data to alter how we design, live and experience our cities is obvious and everywhere. However, there are concerns. GIS, Google Maps and Facebook all offer interconnected information on urban life. They are also conduits for the collation of personal data and its misuse. The assumption of digital access for all leads some to worry about issues of social exclusion. Sociologists highlight the dangers of the digital dependency of future generations. 3D printed buildings threaten job losses in the construction industry. The idea of parametric urbanism is an anathema to many for whom city is a place of interpersonal interaction.

This volume collects 30 chapters that explore the notion of urban assemblages in critical ways and through different lenses. Taking an interdisciplinary approach, case studies, theoretical analyses and thought-provoking articles are combined into themes that include socio-political aspects of cities, digital and physical in heritage, art and history, planning and human-centred technological approaches to the city and the public realm.

In taking on these themes, the papers presented here from the Urban Assemblage conference at the University of Hertfordshire offer a fascinating engagement with some of the most significant issues informing how we understand the contemporary 'hybrid' city.

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JAIN MANDIR (LAHORE): THE FRAGMENTED MEMORY

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INTRODUCTION

This research is dedicated to understanding the role of architecture and technological advancements as medium to moderate spaces of conflict within the urban fabric. Evaluating the cultural city of Lahore, Pakistan, as a case study, the research delves into statistics, memories, and potential future narratives formulated through architecture and technology. A city with a historical and cultural significance that dates back to the 1st century AD, present-day Lahore is a depiction of flamboyant new infrastructural additions within the urban fabric that seemingly divide and suppress the original structure of the city¹. In the past three decades, the city has undergone mass urbanization.

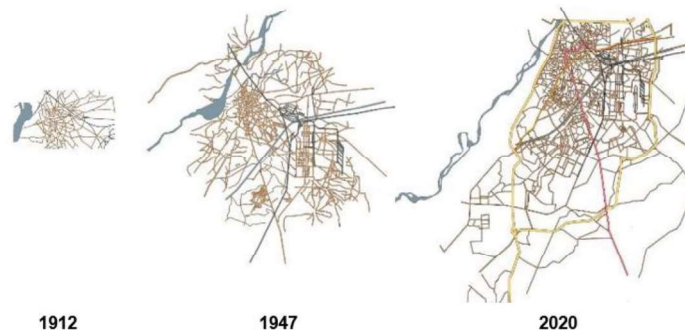


Figure 1. Demonstrates the urbanization and rapid expansion of Lahore in recent years.

Expanding far beyond the original periphery of the Walled City, Lahore now has a mass transit and road network that aims to regulate mobility throughout. However, the mass transit systems and ever-growing road networks have built literal foundations on the predominant heritage sites of the city. Historic cities are an amalgamation of layered narratives and associations embedded within the urban fabric. These narratives are reflections of the inhabitants and their interaction with the built urban landscape of their cities. However, in recent years, urbanization has been an imminent threat targeting many cities worldwide². The ever-expanding city plagued by urbanization loses many of its original collective narratives that become suppressed by the newer harsher intervention that pays little heed to the original historical and urban framework. This kind of haphazard transformation of the city's evolution under the banner of development often ignores the historical relevance of specific areas,

requiring a more sensitive approach to keep the city tightly knit with its memories, culture, and values. The objective to convert cultural or historical hubs into some urbanized version of modern requirements impacts the communities and their residents directly without taking into account the intangible elements of the city. Consequently, compromising the collective memory and putting the essence of the urban areas in question.

Dilemma of the Urbanized Lahore

A city known for its cultural heritage has vitiated with lost and missing collective narratives. Urban memories within the city emerge in fragmented abstraction in nooks and corners of the city in the form of mere glimpses. One of the many glaringly absent narrative from the city's memory are more often of the minorities in Pakistan. Once known for its secular and cultural past, Lahore was known for its harmony, peace and prosperity.³ Today, local architects and planners extensively criticize the 'Urbanized Lahore' for its insensitivity and disconnected approach towards the city's heritage. Urban infrastructure has become exceedingly dominant in the city's central core as it struggles to deal with the demands of the increasingly populous inhabitants. This surge towards meeting urgent demands has caused a significant influx of mass-scale transit projects that have been built dangerously close to many heritage sites of Lahore, directly harming the integral memory of the city.

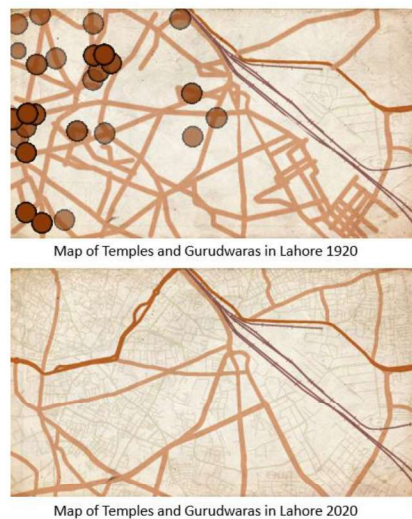


Figure 2. shows a comparative analysis of the presence of temples, gurudwaras and shrines in Lahore's urban fabric in 1920 versus in 2020.

Within this city, the multi-secular and cultural narrative has transformed into one where socio-religious and political factors dominate its urban structure. Raising concern, as depicted in Figure 2. an alarming reduction in the presence of the religious communities classified as minorities since the Indo-Pak partition in 1947 was observed. These transformations are reflected in the urban fabric of this historic city that it has witnessed. This socio-political crisis resulted in the disappearance of temples, gurudwaras and shrines from the context, resulting in a significant loss for a city known for its multi-secular past, rich and diverse culture.

The Fading Narrative: Jain Community of Lahore

In the present Lahore, many minorities community's footprint is missing, which had previously dominated and contributed to the city's context in the 1900s. The partition of the Indo-Pak sub-continent in 1947 leads to severe concern for the Jain community due to religious differences, which resulted in the abandonment of historic temples in the existing local context. However, this specific community has had strong roots in the region since the early historic period⁴. Data analytics suggest that the communal narrative and literature of the Jain community has also vanished due to a lack of presence in the city.⁵ An astonishing discovery can be verified by analyzing the city's-built fabric today because rising tensions amongst religious groups led by the Indo-Pak partition incapacitated them to migrate from their ancestral land (Lahore). The traces of the Jain community are buried under the new city's heavy infrastructure due to the negligence of city development authorities and societies' reluctance to accept them as a member of the community turning these sites into ruins. Therefore, the condition of these heritage sites is marred by tragedy.

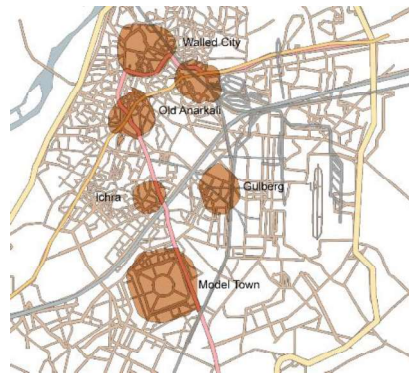


Figure 3. The map shows focal areas of concentration which the Jain Community occupied in Lahore during the 1900s.

Later, in a series of unfortunate events that garnered the attention of the international media, socio-political tensions between Indo-Pak swept a wave of anger and retaliation that materialized in the form of urban destruction within major cities. An attack by extremists on the historical Mughal Babri Masjid in India was retaliated by local radicals in Lahore, who set out to attack all city temples. As a result, in December 1992, one of the most prominent Jain Temple of Lahore fell prey to a raging mob of angry protestors. They attacked the tallest temple of the city and brought it down while hundreds of locals gathered on nearby rooftops and streets to watch.

Due to the lack of solid documentation about the prominent Jain temple before destruction, facts about its timeline were missing. However, local witnesses, inhabitants of the area and local media reports often recall the community's historical existence and significant presence in the context.

Destruction of the Jain temple during riots of 92' devastated the community entirely across the globe, leaving a hole in the context of the city. The socio-political tensions led to a tragic division of land and narratives, secularism, and communities' division.



Figure 4. The Jain Mandir Chowk – with the abandoned ruined spire of the destroyed Jain Temple lying in the centre of the node surrounded by bustling activity.

To this day, the temple site is known as the ‘Jain Mandir Chowk’ (*Jain Temple Node*). One of the busiest nodes of the city, located near the historic urban market – the Anarkali Bazaar; it witnesses the movement of a significant number of citizens daily. Particularly in the current urban chaos, only a few citizens are aware that the ruin of the Jain Temple still lies nestled under an old Banyan Tree enclosed by a triangular brick wall enclosure right in the center of the Jain Mandir Chowk.

Government encyclopedias house is short of historical documentation of the temple. The current dilapidated state of the fragmented ruin creates room for an investigation into its significant presence in the context. Incentivised research for this project led to a tentative formation of the timeline of this temple; while local witnesses claim the temple to be over a hundred years old, snippets of records testify to its presence and active use as a place of worship before the partition in 1947. However, after the partition and the consequent move of the Jain Community, literature states that migrants arriving in Lahore found the temple abandoned. Converting the temple into a sanctuary in a strange land, the migrants readapted the temple to a place of living. The authorities who recovered the temple building converted it into a primary school for local children.

Students from the school recall memories about fifty years old; they remember instances of their time within the temple and frames of spaces that existed in physicality. Consequently, the attack in 1992 led to the demolition of the temple by the local mob. Some of whom still live within the present context of the temple, claiming no guilt over their past action.⁶ Since the past three decades, urban and infrastructural development in the area has radically transformed the blueprint. They have alarmingly impacted the collective urban memory as well. While recent flyover bridges and underground train stations have set out to dominate the context, the ruins of the Jain Temple, albeit hidden from the public eye – still hold a compelling quality, attracting the visitor to delve into its tragic historical tale.



Figure 5. Collage depicted the current narrative of the context in reference to its blurred out past and fragmented collective narratives.

This research incorporated the aspect of urban collective narratives as the primary point of introspection. Through recorded interviews and analysis of the site, a mixed opinion regarding the presence of the temple was documented. While some recalled the temple and the 'primary school' with nostalgic undertones, others rejoiced on its destruction – claiming that did the opportunity to demolish the temple again arise, they would gladly do so. The sentimental tones and the misbegotten sense of patriotism were recorded on entirely opposing ends of the spectrum.

A visual was generated in order to piece together the fragments associated with the context. Understanding the underlying narratives, 'The Panoramic Memory' was designed to depict the transformation of the Jain Mandir Chowk in Lahore. The visual represents the experiences that had existed within the context and their consequent evolution regarding the timeline of events associated with the Jain Temple. From experiences of harmony, sense of belonging to chaos and eventual threat to identity consequently turned into detachment. The city has tangibly transformed from an open, welcoming one with high walls and barriers, losing its past values & culture.



Figure 6. The Panoramic Memory: Compiling the evolving experiences of the site in an attempt to formulate the fragmented narratives of the urban setting.

The Panoramic Memory is a tribute to the Jain Temple and its past. It studies and shares the very intricate relationship between the inhabitants of the built environment and their surroundings while simultaneously marvelling over the element of time and its character in an urban environment. From lived experiences of harmony, sense of belonging to contrasting experiences of chaos and eventual threat to identity converted into detachment not only for the temple but also for the citizens—the drawing remarks on the direct bond between the citizen and his city. In Lahore's case, the Panoramic Memory tries to manifest the layers of activities that co-existed while struggling to survive the multi-dimensional pressure of society's political, religious and socio-economic dynamics.

The Digital Reconstruction of the Fragmented Ruin

Multiple authorities and international organizations were approached to share data and information for the digital reconstruction of the fractured Jain temple. Unfortunately, it was established that conspicuously less information was available to conform with the digital reconstruction of the temple. The local authorities, including the Evacuee Trust Board Punjab and the Punjab Archaeology Department, stated that most data about the Jain Mandir had been destroyed years ago. No other attempt was made regarding the documentation since the Jain Community no longer existed within the province.

The lack of data available made it imperative that documentation of the ruins was to be made a crucial part of the research.⁷ Utilizing the mediums of photography and on-site measurements, the ruins were carefully recorded and translated into digital two-dimensional detailed elevations. These detailed elevations then aided the process of the digital 3D reconstructions of the fragmented ruin.

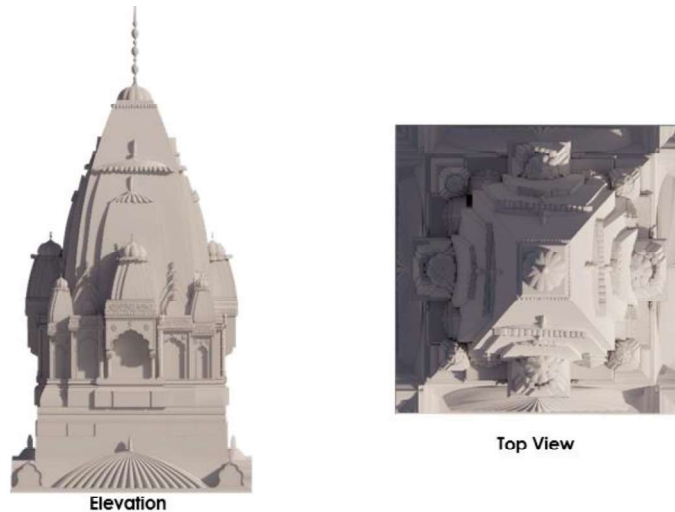


Figure 7. Visuals from the 3D reconstructed model which was developed on the basis of onsite measurements and data collection of the fragmented ruined spire of the Jain Temple.

The reconstructed digital model served as a window to the past. The reconstruction was developed on approximation and was vital for archival purposes as there was no data or information available linked to this specific temple. The documentation and its use required an interdisciplinary approach to mediate the acceptance of this temple's existence. Therefore, the potential of virtual reality technology was devised to maximize the utilization of this documentation process. This method was a safe room for the turbulent memory, where it could exist in a safe, secure and unbiased environment without affecting any community. The virtual existence aimed to help suppressed perceptions associated with the temple's past. While simultaneously stitching the void of memory manifested next to the existing context of the city.

Affiliated with the digital reconstruction of the temple was also an attempt to frame the materiality of urban memory and narrative. Scholars have proven through research that urban memory as an entity is often situational or spatialized. If the places or events associated with this urban memory disappeared, the urban narrative would follow closely. Statistics have indeed corroborated this finding, ever since the attack on the temple in December 1992 and its subsequent erasure from the physical fabric - the tales associated with it gradually trickled away.⁸ This method of recollection and data also served as a means for future generations to look into their heritage, reconnect with the environment, and encounter their city with a new perspective. This presence of the temple in the digital world provided means for the community to understand the potential of this medium and its prospects that Lahore's current crisis of urbanization and expansion can be studied to indulge more neutral standard zones for the marginalized communities.

Evolving Technologies as a Mediator in the Contemporary City

The initial documentation of the destroyed structure of the temple was for archival purposes. After the detailed study of the principles and values of the Jain religion, another proposal was developed to manifest them in the form of a virtual architectural spatial environment. The aim was to generate dialogue within such a charged historical urban environment where hostility amongst radicals dominates the city's perception and memory, and it becomes essential to breach the subject with the utmost sensitivity. The immersive experience of architecture through VR can touch upon some intangible notions of architecture that cannot be experienced or translated in any other mode of

communication, lending access to humans beyond common perception, creating a room for possible imaginative narratives. Hence, VR technology was utilized to connect the past with the present, filling gaps of lost memories with the help of the Jain community's religious beliefs manifestation in an environment to step into the future. This technique of interpreting the temple journey is like entering the void where VR is just a mediator. Prevailing the context without inciting/triggering the local community presumably steadfast and concrete opinions about the past, the immersive experience for the Jain Temple invites communities globally to understand and analyze perceptions of the past without the segregation of reality. A journey through a virtual world, mediating barriers and limitations of the physical and historical context.



Figure 8. Visual from the VR experience – materialising the fragmented memory and its journey in an intangible environment.

This proposed VR experience is derived from the universal principles of the Jain Community. They were preaching values such as purity, peace, contentment, silence and the confrontation with reality, the virtual experience incorporated architectural elements that induced an experiential journey for the viewers. Each architectural space formulated becomes part of the virtual tower of memory. It inspires the user to learn and re-evaluate perceptions through an immersive space where architectural scale, gravity, light, element of water and nature come together. The journey is based on the transformation of principles aligned with the context's transformation over the years. Spaces are designed to confront the inhabitant; the virtual tower of memory symbolizes the Jain temple appears as a beacon of hope. It provides a reprieve for the user from the delusions of the world, inviting them to uncover a unique journey that ends in a space where one confronts self.



Figure 9. VR Prototype for the proposed theoretical experience.

The application is based upon primary research generated & documented involving photogrammetry, advanced computer software and specific equipment to experience the space. The involvement of these unique mediums resulted in a far open-ended design process which is apparent within the virtual

environment. The virtual journey was also presented to audiences to educate and analyze their responses towards this theoretical experience. This immersive environment experience corroborates by simulating as many senses as possible, such as vision, touch, hearing, even smell; the computer transforms into a gatekeeper to this artificial world. These unique experiences and perceptions are often reconsidered at the end of the virtual journey.

An example of virtual realities potential or digital documentation of architecture is the Paris Notre Dame Cathedral fire as France rebuilds Notre-Dame Cathedral, the French studio behind 'Assassin's Creed' offered up over 5,000 hours of research on the 800-year-old monument. The historian Durand oversees historical representations in the blockbuster "Assassin's Creed" franchise. He spent four years overseeing the creation of "Assassin's Creed Unity" — a game set during the French Revolution that contains a stunningly accurate depiction of Notre-Dame Cathedral as its centrepiece⁹. The example of Notre Dame is a precedent that can be considered for the Jain temple's catastrophic cases. This archaeological approach can add more depth to the existing paradigm synthesizing context, narratives and memories related to the physical space. Incorporating such a medium tends to widen the horizon of improvement and discovery in tumultuous scenarios where the need for arbitration becomes imperative in a narrow field. As proposed by this research, VR tends to take on the role of a subtle mediator; through the architectural experience, it works to erase boundaries and walls erected in the past and diffuse the fiery divide. It tended to return an essential narrative to Lahore's highly fragmented fabric in the past and had ceased to exist for many.

CONCLUSION

The immersive experience within itself serves as a liminal threshold for this kind of project. It encourages individuals to re-orient themselves with their past and the contemporary urban environment of their city. The idea of religious sites and their extension into virtual reality for believers to experience is inconclusive in some cases. However, in situations like the Jain temple, incorporating architecture with VR can open up a gateway for tolerance and vice versa allows for a much-diversified response amongst individuals. It also depicts the possible potential of Virtual Reality as a medium concerning architecture, of limitless possibilities that can be utilized to address and negotiate urgent socio-political, religious and cultural issues that currently divide and fragment the world. A neutral platform equipped with cloud technology can facilitate millions around the globe by virtually teleporting them to sacred sites that have never been possible for them to experience. Encouraging the designers to seek beyond physicality to address global issues allows future generations to reconnect with history, re-evaluate the urban memory, and finally allow citizens and community to reinstate their past within an unbiased, safe, and secure virtual setting.

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NOTES

¹ Abdul Rehman, *Mapping Lahore: Tracing Historical Geography of a City through Maps*. (Al-Mezan Publishers and Book Sellers, 2013).

² Turok, Ivan, and Gordon McGranahan. *Urbanization and Economic Growth: The Arguments and Evidence for Africa and Asia*. *Environment and Urbanization* 25, no. 2 (October 2013): 465–82. <https://doi.org/10.1177/0956247813490908>.

³ Various pieces of literature on the history of Lahore give insight to the diverse culture the city was popular for in the early 1900s. Pieces by local authors and even renowned tourists have penned down accounts of the experiences within the city.

⁴ The Lahore Museum has a dedicated section to artifacts and relics belonging entirely to the Jain Community as proof of their strong associations with the land prior to the Partition of 1947.

⁵ Peter Flugel and Muzaffar Ahmad, *An Exploratory Survey of the Jaina Heritage in Pakistan*. CoJS Newsletter no.13: 27 – 32, (2018) https://www.eprints.soas.ac.uk/25638/1/Flugel_Pakistan_Off%20print.pdf.

⁶ Interviews of the inhabitants of the context was one very essential part of this research. Recorded on-site interviews were documented of the local community members of various age groups and backgrounds in order to understand and analytically evaluate their approach to the series of events associated with the Jain Temple in the past and their opinions about the contemporary urban condition of their own city.

⁷ An extremely challenging part of the project was the research on such a sensitive social issue. Local authorities claimed the lack of data record about the Jain Mandir since its demolition in 1992. While local narratives became an important turning point within this project – only snippets of data available within literature gave insight to what existed in the past. An important and compelling reference for this project was found in David Pinault's "Notes from a Fortune-telling Parrot: Islam and the struggle for religious pluralism in Pakistan." Pinault regaled his experience as a tourist in the late 90s on a visit to Pakistan, his recollection of the Jain Mandir and his consequent interviews of the by-standers who had witnessed the attack of 1992.

⁸ Human memory is quite often categorized as spatialized and situational with associations to either a built physical space or an event. In the case of the Jain Temple – the urban recollections were dominated by the events of December 1992. Locals recalled the event with great clarity, while most were expressing doubt at any prior recollection of the Temple.

⁹ Gilbert, 2019

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