Pattern as Embodied Perception of Time

Mehr Javed

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Abstract

This practice-based research is an inquiry into an *embodied* understanding of contemporary drawing practices. The temporal aspect in the act of drawing and how it relates to viewing time is crucial to this multisensory and experiential understanding. My research explores indexical mark-making and repeat patterns as anti-narrative, non-representational tools to establish an empirical relation between art and viewer. Furthermore, this research inquires into subjective ways of looking, or *haptic seeing* of the drawing document and how the viewer's eye unfolds it in time.

This research draws heavily from Medieval Islamic aesthetics and theories of perception as they offer an alternative standard by which to interpret and experience contemporary visual arts. Moreover, my studio practice extends the parameters of this traditional visual language by contemporizing it with the aid of computer-based algorithms and generative softwares, as well as a personal artistic style.

The studio component engages an abstract ornamental language to create decorative surfaces that allude to a sense of continuous space. Geometric motifs/units are used that repeat to create tactile overall planes or *Patternscapes*. These, I propose, are haptic surfaces that mediate between material time as experienced, and abstract time as evoked through their contemplation. They demonstrate the symbolic and generative capacity of ornamental motif as a metaphor for the Infinitesimal and the Infinite as explored through techniques of repetition, tessellation and seriality. The resulting *Patternscapes* are repositories of time, thus allowing for the works to invite an embodied, subjective and performative viewership. They establish geometric abstraction as an inquiry not in representation but in *performing* the engagement with the artwork.

Formally, my work explores the looser use of the 'unit and whole' inherent in the lattice/pattern and how it interacts with the materiality of the two-dimensional ornamental surface. In doing so, this thesis introduces the perfora-

tion point as a minimal graphic element and a basic index of time that holds generative potential. These notions are critically engaged with in the production of hand-perforated drawings on paper (some backlit), small scale gilded drawings and relief works in mediums such as wood and ceramics.

Originality Statement

I hereby declare that this submission is my own work and to the best of my knowledge it contains no materials previously published or written by another person, or substantial proportions of material which have been accepted for the award of any other degree or diploma at UNSW or any other educational institution, except where due acknowledgment is made in the thesis. Any contribution made to the research by others, with whom I have worked at UNSW or elsewhere, is explicitly acknowledged in the thesis. I also declare that the intellectual content of this thesis is the product of my own work, except to the extent that assistance from others in the project's design and conception or in style, presentation and linguistic expression is acknowledged.

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Introduction

Among the narratives in the Gospels pertaining to the appearance of the risen Christ, the episode with Saint Thomas is particularly interesting: when Christ appears to his disciples in the absence of Thomas, they pass through a phase of astonishment, confusion, and doubt before finally coming to accept his resurrection. When news finally reaches Thomas, he too is taken aback and responds:

> *Unless I see in his hands the print of the nails, and place my finger in the mark of the nails, and place my hand in his side, I will not believe.* (John 20:25)

Figure 1: Caravaggio, *The Incredulity of St. Thomas*, 1601-1602, oil on canvas, (42 in x 57 in)

This is quite an interesting demand: Thomas is unwilling to trust his eyes alone in this situation and needs a physical encounter, a 'proof of touch', to believe in the risen Christ. Reality, is thus, substantiated through physical contact, (a process involving tactile contact along with auditory and olfactory support) which the gaze alone cannot satisfy. In other words, '*Seeing is believing, but feeling is knowing.*'[1]

This dissertation contextualizes and substantiates my practice-based research which examines the notion of *Haptic seeing*, i.e. a way of looking to which all our senses contribute. My thesis argues for a more holistic and body-centric aesthetic experience, which is closely linked to an embodied perception of time. This experience is achieved first, by freeing the drawing document from all representational traps and employing use of an abstracted geometric idiom, which enables a subjective and contemplative (slow) reading of the art work. Second, the use of formal devices (such as perforation marks, gilding, etc.) enhance the textural and tactile qualities that directly engage the *ideated* sense of touch and amplify the associative quality of the works. Furthermore, the use of indexical mark-making and geometric patterns conveys a sense of repetitive continuum, where time is a notion of the infinitesimal and the infinite. The drawing thus serves as a record of time and a meeting point for the material and the abstract.

Chapter One introduces haptic vision and its relevance in contemporary theories of embodied perception. These ideas negate the Cartesian duality of mind and body, and argue for a holistic perceptual process. I briefly critique the ocularcentric vision of present times for limiting the perceptual experience, and then discuss alternative viewpoints such as Byzantine icons and Islamic *falasafa*, both of which predate the Renaissance, and do not depend solely on ocular perception.

Chapter Two further develops this argument by considering how sensory perception contributes to abstract thinking. I examine the role of geometry as an abstract language and trace its origins back to the essential physicality of measurement. This is followed by a consideration of its manifestation in Islamic art and architecture, where geometric abstraction and its use as over-all surfaces engages the viewer in a phenomenological experiencing of the work. I discuss in detail the effects of this on the perception of (embodied) time as compared to post-industrial mechanized time.

[1] Thomas Fuller (c. 1608-1661), British Clergyman, historian, and one of the most prolific English writers of the 17th century

Chapter Three is a visual album of images collected during this research candidacy, consisting of iconic modernist artworks, miniature paintings, historic/contemporary architectural sites, and photographs I have taken in Sydney and Karachi. This serves as a visual prelude to **Chapter 4** which introduces my studio practice and contextualizes it within contemporary art theory and practice. Examining specific examples of my work, I attempt to bring together an abstract geometric language (as used in patterns) and techniques (such as perforation and gilding) that evoke tactile sensations, to engage the viewer in a phenomenological and contemplative experience of the work. In the **Conclusion**, I summarize my contributions and explore possible future directions for my work.

An important subtext of this research is an outline of the influences of Islamic iconography, philosophy, aesthetic sensibilities, and particularly geometry on the development of contemporary art. Over the centuries, geometry, due to its symbolic syntax, has successfully mediated between the metaphysical and the perceptible in scientific and artistic expression. Islamic *falasafa* considers perception as a subjective and embodied process and this is evidenced in the unprecedented complexity and refinement attained in geometric abstraction in the arts of the Islamicate world.

Ideas relating to embodied perception, written as early as the ninth century by Islamic thinkers came to influence early European optics, and later concepts regarding visuality during the Renaissance. This debate resurfaced once more in the late nineteenth century, with its origins obscured, in psychology in treatises by Bergson, Riegel and others. Concepts around hapticity and perception have undergone continued modification, never subsiding completely, and are still relevant, though overlooked, today. A preference for the ocular is indeed a prevalent modern bias that considers the eye as the prime sense organ and dissociates completely the non-ocular. My research attempts to engage a more holistic and slow-viewing experience, one that involves subjective and associative referencing.

Chapter 1

Introducing Haptic Vision

1.1 Haptic Vision

1.1.1 Felt Unity of the Body

Contrary to popular belief, prominent psychologists through extensive research and experimentation have established that we do not have five senses alone.[1] They categorize the total set of our senses into two; *exteroceptive* senses or the outward-oriented senses of sight, smell, taste, touch and hearing and the *interoceptive* senses or the inwardly directed senses of *proprioception* (the body's unique awareness of its position in space), *kinesthesia* (the sense of movement through space) and the *vestibular* sense (concerned with balance).

What we linguistically refer to as 'inside' and 'outside' is intrinsically linked to this perception of outer and inner space, specifically in reference to our own bodies. Even though each of our bodily senses is classified discretely and distinct in function for academic purposes, in reality they act in concert to give us a holistic perception of our surroundings. For example, the interoceptive senses work in cohesion to situate the body in its spatial environment in complex processes that derive information from nerve endings in the muscles, to movement through muscular effort, as well as gravitational orientation and balance through the vestibular mechanism situated in the inner ear. Interrelated and co-dependent, these senses work as a 'synergic totality' in the words of Merleau-Ponty.[2]

Merleau-Ponty goes further to suggest that for most people their senses are

[1] Such as psychologist J.J. Gibson (1904-1979) in *The Perception of the Visual World* London: George Allan & Unwin, 1950

[2] Merleau-Ponty. M, *The Phenomenology of Perception.* Trans. C. Smith, London: Routledge, 1992, p. 316

unproblematically unified in the 'lived body' experience and are not registered as separate senses in the way we perhaps study them[3]. This felt unity of the body has been further substantiated through experiments conducted in the field of psychology and neuroscience that establish a physiological link between the exteroceptive senses of touch and that of seeing. They prove that regions in the occipital brain, especially the Lateral Occipital Tactile-Visual Area, are activated when subjects attempt to recognize a shape. *haptically*, that is, through the touch sense[4] Moreover these studies suggest that both optical and haptic faculties operate and interact in a much more complex fashion; not only does perception occur through a combination of the touch and the optical sense, but in fact optic visuals of an object can evoke *ideated* tactual sensations in the brain.[5]

In contrast to the optic, the haptic sense has a closeness and immediacy which seems to evoke a seamless continuity from the body to body/object. More so it activates other interior senses as well as previous memories to contribute to the process of perception. As Mark Paterson suggests, the notion of 'haptic space' is neither based purely on touch alone, nor on the duality between toucher and touched.[6] It is an orientation to sensuality as Iris Marion Young suggests, implying an inclusion of all the senses, and orientation that supplants the distance of the gaze with affective proximity. She alludes to this affective proximity as when, '...touch immerses the subject in fluid continuity with the object, and for the touching subject the object reciprocates the touching, blurring the border between self and other...'[7]

We may therefore conclude that perceiving an object (and not just visually mastering it) requires more than mere ocular engagement. Rather humans more often engage in *haptic seeing*, to assimilate knowledge and develop a more thorough understanding of their environment. The next section elaborates further on these ideas.

[3]Ibid. 1992, p. 150)

[4]Reiner, Miriam, *Visualization: Theory and Practice in Science Education Models and Modeling in Science Education*, 2008, Volume 3, p. 73

[5]For example, by touching ice we understand the sensation of cold. This sensation is then ideated and remembered, allowing us to recall, reference and revisit it mentally at any point.

[6]Paterson, Mark, *More-than-Visual Approaches to Architecture.* Vision, Touch, Technique, Social & Cultural Geography 12(3), p. 263-281.

[7]Young, I. Marion, *Throwing Like A Girl and Other Essays in Philosophy and Social Theory*, Bloomingdale: Indiana University Press, 1990, p. 182

1.2 Hapticity and the Primacy of Touch

> *In haptic seeing, all our self rushes up to the surface to interact with another surface...*
>
> (L. U. Marks, *Haptic Visuality: Touching with the Eyes*)

As suggested previously, the entirety of our bodily senses work in cohesion in order for us to fully perceive our environment. Contemporary theories of embodiment claim, contrary to Cartesian views, that perception is essentially multisensory in nature and does not rely on vision alone. In fact to perceive or rather *to grasp* is a holistic function of the psycho-somatic system. Assimilated information is then stored as body memories, providing a backdrop for future referencing as well as holding emotive values. To put it rather simply, there is a back and forth relay between the body, its interior ideated sense of the world, and the environment, the vast exterior.

It is through the mediation of the skin and the sense of touch that our experience of ourselves and the world is integrated. The skin organ defines the extremity of the individual being, and is integral to perceiving the self. In this way all other senses, including vision, become extensions of the sense of touch: all somatic senses are in fact specializations of the skin, as all sensory experiences are related to tactility. Ashley Montagu's view, based on medical evidence, confirms the primacy of the tactile realm. She states, '[The skin] is the oldest and the most sensitive of our organs, our first medium of communication, and our most efficient protector [...]. Even the transparent cornea of the eye is overlain by a layer of modified skin [...]. Touch is the parent of our eyes, ears, nose, and mouth. It is the sense which became differentiated into the others, a fact that seems to be recognized in the age-old evaluation of touch as 'the mother of the senses.'[8]

It is not my intention to replace the hegemony of the optic vision with that of touch - in fact what haptic seeing suggests is a cumulative and holistic functioning of the exterior sense receptors as well as the inner senses to assimilate information about the environment, through the body acting as a mediary.

Although cutaneous contact is the most obvious and immediate form of touch, it is important to mention, as Paterson notes, its unfolding into the less-literal 'deep' touch that invokes a more affective and metaphorical form of touching.[9]

[8] Ashley Montagu, *Touching: The Human Significance of the Skin*, New York: Harper & Row, 1986, p. 3

[9] Paterson, Mark, *The Sense of Touch: Haptics, Affects and Technologies*, Oxford: Berg Publishers, 1972. p. 6

In this felt phenomenology, the tactile sensibility replaces the distance inherent in the visual gaze, by enhanced materiality, nearness and intimacy. It engages the whole being at once through the ideated senses of touch or tactile values, as suggested by Berenson. To understand the tactile properties of materials and objects is a two-way process of attempting to understand their capacity to affect or 'touch' us. In his view, the work of authentic art stimulates our ideated sensations of touch, and this stimulation is life-enhancing.[10]

It is perhaps in this haptic encounter and experience of art that the aesthetic body finds a deeper, more interiorized connection and understanding of the two-dimensional picture plane (skin), the three-dimensional volumes of sculptures (flesh), and the opening out into space of installations and architecture (body).

The following sections will discuss briefly a few important terms from the intellectual history of gaze, in order to substantiate a return to haptic aesthetics, as is the aim of this thesis and my studio practice.

1.2.1 Ocularcentrism

Ocularcentrism[11] is the term used to express the emphasis that contemporary culture places on the visual sense. It not only means that there is a higher reliance on ocular vision, but also that there is a clear hierarchical order and a preference for knowledge gained through the eyes over that gained by hearing, smell, touch and the kinaesthetic sense. As an obvious consequence of this abstracted visualism, the sense of sight determines our understanding of what even construes as knowledge. Indeed our linguistic terminology for thoughts, concepts, and ideas use visual metaphors. An ocular bias is plain in expressions like 'I see', the 'insights' we have when we 'speculate'. And this in turn has an impact on what we look for, and the kinds of evidence we accept as yielding knowledge.

Neil Postman discusses this phenomenon at length in his influential work *Amusing Ourselves to Death*, stating that the medium of expression/conversation has the strongest possible influence on what ideas can be conveniently expressed and what content can issue forth from them into public discourse.[12] A shift from an aural culture to one where the written word was considered an authentic and preferred medium of discourse certainly had a literal and psychological influence

[10]Berenson, B. *The Florentine painters of the Renaissance*, 3rd ed., London: G. P Putnam's Sons, p. 4

[11]Jay, Martin. *Downcast Eyes: The Denigration of Vision in Twentieth-Century French Thought*, London: University of California Press, 1994

[12]Postman, Neil, *Amusing Ourselves to Death*, New York: Penguin Books, 1986, p. 6

on the shaping of society at large. Similarly Postman directs our attention to another change in medium: he attributes the reign of the (ready-to-consume) Image in the twentieth century to, '...the decline of the Age of Typography and the ascendancy of the Age of Television. This change-over has dramatically and irreversibly shifted the content and meaning of public discourse, since two media so vastly different cannot accommodate the same ideas...Our media are our metaphors. Our metaphors create the content of our culture.'[13]

It would be accurate to state that the ocular predisposition of modern cultures has in more than one way led to a sensory impoverishment. The hegemony of vision over the other sensory realms has promoted a trend of 'combative discernment more than calm contemplation'[14], and an obvious loss of insight in the contemporary eye. This ocular bias, to a great extent, has rendered the Image superficial and instant (think billboards and displays).

Pertaining specifically to art and architecture, it has lead to a narrowing of vision especially with the advent of Modernism. Rendering traditional knowledge redundant and introducing its own ethos of unadorned autonomy of form where surface is treated as an abstracted boundary of volume, Modernism had a conceptual (conceived through ocular vision) rather than a sensory essence. It cut off all ties with the past, aspiring to the singular perpetual present moment - reductive, discrete and flat.

Juhani Pallasmaa, arguing for a return to hapticity in architecture, comments on modernist aesthetics saying, 'As a consequence of its formal ideals, the architecture of our time is usually creating settings for the eye which seem to originate in a single moment of time and evoke the experience of flattened temporality. Vision places us in the present tense, whereas haptic experience evokes the experience of a temporal continuum. The inevitable processes of ageing, weathering and wear are not usually considered as conscious and positive elements in design; the architectural artifact exists in a timeless space, an artificial condition separated from the reality of time. The architecture of the modern era aspires to evoke an air of ageless youth and of a perpetual present. The ideals of perfection and completeness further detach the architectural object from the reality of time and the traces of use. Consequently, our buildings have become vulnerable to the effect of time, the revenge of time. Instead of offering positive qualities of

[13]Ibid, p. 8

[14]Marks, U. Laura. *Infinity and Accident Strategies of Enfoldment in Islamic Art and Computer Art*, Leonardo, Vol. 39 (1), 2006, p. 41

vintage and authority, time and use attack our buildings destructively.'[15]

Modernist aesthetic, taking its cues from Cartesian optics, leads to a sense of detachment from the world, from the essence or the *thingness* of things, and this can be traced back to linear perspective and camera obscura that made the individual gaze the focal point upon which the world converged.

This detachment is of the eye, whereas the hand draws us into the world. Henri Focillon, for example, argues beautifully*In Praise of Hands*:

> Sight slips over the surface of the universe. The hand knows that an object has physical bulk, that it is smooth or rough, that it is not soldered to heaven or earth from which it appears to be inseparable. The hand's action defines the cavity of space and the fullness of the objects which occupy it. Surface, volume, density and weight are not optical phenomena. Man first learned about them between his finger and the hollow of his palm. He does not measure space with his eyes but with his hands and feet. The sense of touch fills nature with mysterious forces. Without it, nature is like the pleasant landscapes of the magic lantern, slight, flat and chimerical.[16]

1.2.2 Medieval Icon Paintings

Western ocularcentricism has its beginnings in the development of linear perspective, the camera obscura and an attitude favoring representational objectivity during the Renaissance.[17] However, much before Filippo Brunelleschi devised linear perspective and perfected the illusion of three-dimensionality on a flat picture-plane, architecture and human figures were previously depicted by artists, although demanding a different type of viewership altogether. These depictions, even though seemingly simplistic and often proportionally erroneous, managed to create a much more interiorized sense of space and a deeper understanding of the relationship between the perceptible (form and color) and the imperceptible.

For example, Giotto's architectural structures are no accurate elevations by contemporary standards. In fact, with their multidimensional disproportionate views, sections within one building sit awkwardly upon the other, almost as if

[15]Pallasmaa, Juhani. *Hapticity and Time: Notes on Fragile Architecture*, The Architectural Review, May 2000: p. 78-84.

[16]Focillon, Henri *The Life of Forms in Art*, Trans. Hogan & Kubler, 1989, p. 162 - 163.

[17]Roughly spanning from the 14th -17th Century, Renaissance artistic activity was based on appropriating the realism of Greek and Roman iconography.

Figure 1.1: Angelos Akotantos, *Saint Anne with Mary*, c. 15th century, Benaki Museum, Athens.

Figure 1.2: Duccio, *Jesus and the Samaritan Woman*. 1308-11, Thyssen-Bornemisza Collection, Madrid

grafted on. However such a representation lends an immediacy and emotive quality to the buildings, which help extend to the viewer the liturgical message in these images. The buildings, often juxtaposed next to proportionately larger figures, convey a different insight into the narrative - the architecture is essentially body orientated. Moreover, proportional hierarchies within figures which often seem rather flat, unexciting and unconvincing compared to Renaissance musculature and foreshortening, communicate with a simple eloquence. It is clear to any viewer that these images do not address merely the visual faculty of the viewer, nor is their *raison d'être* accurate imitation. They depict things not as

Figure 1.3: Giotto, *Explusion of Joachim from the Temple*, 1313, Capella

Figure 1.4: Giotto, *Saint Francis Exorcising Demons*, 1297-99, Arezzo

Figure 1.5: Giotto, *Saint Francis' Dream of the Palace*, 1297, Italy.

they were, but as they *were seen* according to their subjective qualities and angle of sight.

Similarly medieval icons are manifestations of an attitude that is opposed to a necessary superficialization of our encounters with the world and with each other. By refraining from reducing the image to an eye-hand coordination exercise and all that is seen into surfaces - these Icons offer a more multisensory, well-rounded account of an event. They cannot be reduced to a retinal level, as their conception/execution does not solely rely on the ocular. Through the tying of abstract visualism (as opposed to accurate representation) to the idea of reality, the icon transcends the image plane and becomes an experience.

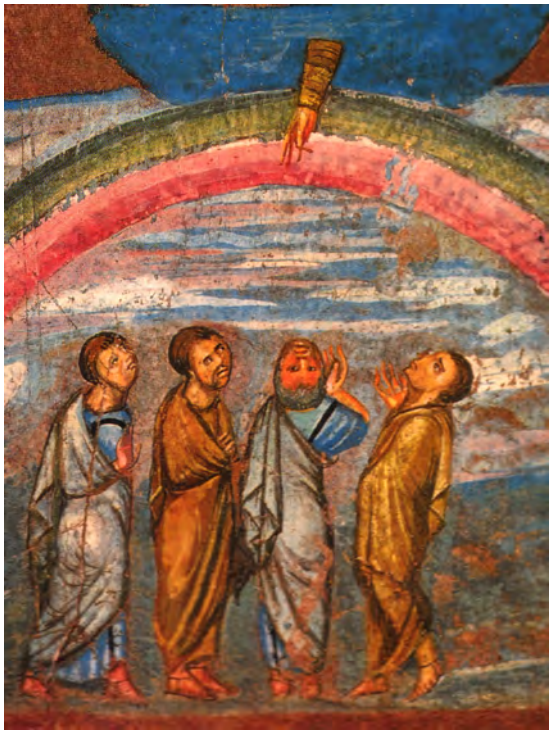

Figure 1.6: *Noah's Covenant with God* (detail), Wiener Genesis, c. sixth century, Vienna

1.2.3 Embodied Perception in Islamic *falasafa*

One step farther removed from the abstract visualism of the Medieval Icons, is the geometric abstraction in Islamic art. Here, too, an embodied perceptual position was cultivated through a language that completely bypasses all material representation, as suggested in numerous writings by Arab classical philosophers, theologians, scientists, and literary critics that often coexist with and make sense of the arts. These writings develop a rich Islamic *falasafa*, a literary trove suggesting a clear preference for a purer *visual* approach, far removed from the

pictorial approach of the Western Renaissance and its linear perspective.[18] Islamic art adopted an aniconic, extra-material approach simply in order to avoid getting caught up in the representable *illusion*. It observed that physical reality seems to recede in proportion as symbolic activity advances, and therefore focused on developing the higher faculty of abstract imagination rather than realistic representation. Geometry became the preferred language for discourse and ornamental abstraction an appropriate tool for artistic expression. As we observe, geometric contemplation of otherworldly realities and the Divine Prototype were highly favorable themes, especially in state sanctioned architectural projects. This aspect will be examined in more detail in the following chapters.

As discussed, the aniconic ethos of Islamic aesthetics transports the viewer into the world of ideas, whereas pattern, color and the play of light on form strengthen the haptic experience of time, causality and reality. Writings by several major Muslim philosophers clearly emphasize the role of the inner faculties of imagination, memory and judgment as mediaries between perception and intellect.[19] There is a clear distinction between *immediate* and *contemplative* perception in the *Kitab al-Manazir* (Book of Optics) by Ibn al-Haitham[20] a well-known authority of the 11th century. Al-Haitham suggests that immediate perception is accomplished by the senses alone, whereas contemplative perception employs the internal faculty of judgment to recognize form through memory and comparison. Form thus becomes a psychological phenomenon, not simply one which is given in nature. In this way Al-Haitham establishes in *Kitab al-Manazir* a subjective, deductive and time-based understanding of perception, since it is essentially an interiorized process.

[18] *Falasafa* is one of the two main branches within the early Islamic philosophical discourse, dating between eight and twelfth century (the other being *Kalam*). The activity of the *falasafa* begins with Arabic translations of the Greek and Hellenistic philosophical texts, commencing roughly from the ninth century onwards. *Falasafa* was thus everything combined to give a Neoplatonic form to the meeting of Plato and Aristotle in Muslim thought.

[19] Luminaries such as **Al-Kindi** (c. 801-873 CE), **Al-Farabi**, or Alpharabius, (c.872 - 950 CE), **Ibn Sina**, or Avicenna (c. 980 - 1037 CE)

[20] Abu Ali al-Hasan ibn **al-Haitham** also known as Alhazen (c. 965 - 1040 CE), was a mathematician and astronomer who made significant contributions to theories on visual perception and principles of optics through the use of scientific experiments (cited in writings by Roger Bacon and Johannes Kepler). He wrote insightful commentaries on works by Aristotle, Ptolemy, and the Greek mathematician Euclid.

1.3 Conclusion

This chapter serves as a brief introduction to the concept of the felt unity of the body and hapticity. I have referenced modern physiological evidence of the complex process of perception, and I have tried to draw the reader's attention to two things: first, the obvious cohesive and collaborative functioning of the bodily senses in perceptual processes. And second, the ocular bias that has existed post-Renaissance, and has over time diminished the importance and relevance of the contribution of the non-ocular to the understanding of our world and creating knowledge around it. This point is demonstrated by referring to aesthetic ideologies and icon paintings dating prior to the sixteenth century Renaissance, both from the Christian and Islamic tradition.

The next chapter is a step from *sense* to *abstraction*: how the sensory understanding of materiality within a spatio-temporal confine contributes to the creation of abstract symbolic knowledge. This will be accompanied by an analysis of the role of geometry as an abstract language and its impact and manifestation in a visual form.

Chapter 2

Sense to Abstraction

2.1 Geometrism

> *The name of 'geometry', where could it come from? Geometry got its name from the measurement of the earth, by means of which the boundaries of everything upon the earth are commonly established.*
>
> (Boethius, *Liber de Geometria*)

Geometry, meaning literally, the measuring (*metros*) of the earth (*geos*), involves formally fixing objects in spatial relations of order and measure. As we understand it today, geometry makes possible an abstracted concept of space that is independent of orientation, distance and size. It is quite simply, as Paterson claims, 'a visualism in spatial terms, that originally involves an embodied performance of measurement, yet in the necessity to make it communicable, forgets this.'[1] In geometry are enfolded the physical processes of measuring space, the use of hands, feet in pacing and walking, the eyes and in fact the whole body in spatial observation. Moreover, the units of measurement employed in geometric calculation all trace their origins to the dimension of the human body in traditional cultures before becoming standardized. Such bodily investigation of space is what Cassirer terms the 'empirical art of mensuration.'[2] In this sense, geometry is the sensory experience abstracted and hence universally comprehensible: from *aesthetic* to *mathesis*.[3].

However, in this transformation from multi-dimensional space to two-dimensional

[1] Paterson, Mark, *The Sense of Touch: Haptics, Affects and Technologies*, Oxford: Berg publishers, 1972. p. 60

[2] Cassirer. E, *The Philosophy of Symbolic Forms*, Vol. 3, The Phenomenology of Knowledge, trans. R. Manheim, London: Routledge, 1923-29, p. 223 - 36

[3] ibid.

symbols and abstract relationships on paper, traces of the body are still evident. Here I imply that the language of geometry is in fact an encoded and embodied abstracted metaphor, one that ideates spatial relations which are palpable in our material reality. Ultimately this language itself becomes a lens through which empirical observations are made and consequently applied to various fields of practical knowledge (architecture, engineering, and physics to name a few). In this way, a once tactile, intimate and essentially haptic process becomes distanced and disembodied, as it relies predominantly on the rational order (analogous with eyes/ocular perception) perpetuating a discourse of abstract visualism.[4]

Bachelard terms this ethos of translating the sensible realm into measurable quanta as 'geometrism'.[5] It undeniably has an immense, expressive capacity, whereby observable facts or truths are converted into universally communicable inter-subjective data. The effects of geometrism are quite adaptable to different domains and are extremely pervasive. We see the application of this abstracted process in our own time from organizational flow charts to graphs and diagrams in physics. Consider for example, the difference between a person's experience driving on the road and its digital counterpart on a GPS device; the cumulative sensory experience which engages not just central and peripheral vision, but also hearing, muscular coordination, facts and memories pertinent to navigating the route, all of it is synthesized into a focused to-the-point graphic map.Commenting on this aspect of geometrism Paterson states that the practice of geometry not simply 'denudes and diminishes the richness of the multisensory experience' but also has a propensity for universal generalization.[6] In this abstraction the vast variety and varied quality of sensory experiences is converted into a predictable, invariant model. Geometrism thus becomes a system in its own right that preserves and safeguards the order of *mathesis* against disorder and irregularity, and in its aspiring towards uniformity displays a 'subtle violence', argues Crassirer, to the heterogeneous and diverse.[7]

Having described thus far how consistency collapses multidimensional, lived knowledge into two-dimensional symbolic inscriptions on paper, and how this tendency is inherent in the language of geometry - what then are the implications of this tendency on the arts that ascribe to a geometric ethos? While the sources

[4]Frege, Carnap, Hilbert, Russell, Cassirer, Husserl and Serres are some prominent authors who have written about the visualistic history of geometry.

[5]Bachelard. G, *The Poetics of Space*, trans. M. Jolas, Beacon. Boston, 1958, p. 115

[6]Paterson, Mark, *The Sense of Touch: Haptics, Affects and Technologies*, Oxford: Berg Publishers, 1972. p. 63

[7]Cassirer. E, *The Philosophy of Symbolic Forms*, Vol. 3, The Phenomenology of Knowledge, trans. R. Manheim, London: Routledge, 1923-29, p. 22

for both geometric shapes and patterns already existed in late antiquity among the Greeks, Romans, and Sassanians in Iran, geometric ornamentation reached a pinnacle in the pattern-based art of the *Islamicate* world.[8] The following section discusses the predilection for the abstract over the representational in the development of a supra-iconic approach in the arts of Islam. It also discusses how in Islamic art the inevitable rigid uniformity of geometrism is escaped, and a return to the sensual is completed.

2.2 Geometric Abstraction and the Aniconic Art of Islam

> *Thou shalt not make unto thee any graven image, any likeness of any thing that is in heaven above, or that is in the earth beneath, or that is in the water beneath the earth.* (The Decalogue)

One wonders why, Yahweh the Hebrew God, would include among what appear to be strong moral injunctions, a commandment pertaining to the making of concrete images. An instruction on how the Israelites were to symbolize, or not symbolize their visual experience of the world seems rather misplaced amidst an ethical code of conduct. Neil Postman attempts to answer this query in *Amusing Ourselves to Death*, that perhaps in doing so, 'the Author assumed a connection between forms of human communication and the quality of a culture.' He postulates that this Mosaic injunction comes at a time when pagan gods and idol worship is the norm. Monotheism is a revolutionary idea, new and strange to most. In such a scenario, we can imagine that a people who are being asked to embrace an abstract, universal deity, one that was to exist through the Word alone, would need to develop an unprecedented and high order of abstract thinking. Iconography thus became blasphemy so that a new kind of God could enter a culture.[9] And with this commences the aniconic ideology which reaches a pinnacle of refinement and intricacy in the art of Islam.

Islamic *falasafa* attributes divine inspiration the source of all creative activity. It deems the inner faculty of imagination or fantasia (*mutakhayyila*), that makes spiders spin their webs and bees produce their honeycombs, responsible not only

[8]The term comes from the historian Marshall Hodgson, who defined Islamicate as something that "...would refer not directly to the religion, Islam, itself, but to the social and cultural complex historically associated with Islam and the Muslims, both among Muslims themselves and even when found among non-Muslims." Venture of Islam, 1977, v. 1, p. 59

[9]Postman, Neil. *Amusing Ourselves to Death*, New York: Penguin Books, 1986, pg 8 -9.

for artistic creation but also dreams and prophetic visions. Divine inspiration considers that the soul's attraction to harmoniously proportioned and brightly colored visuals involves not only an objective conception of ideal beauty but also the subjective, psychological processes of aesthetic perception.[10]

With its strong negation of idolatry and the Christian conception of the Divine in bodily form, figurative representation could not possibly participate in the spirit of Islam. However, less acknowledged is the motivation behind bypassing material representation in contemplating the Divine: since the representational image (illusion) was considered a hindrance in the restoration of vision to the *inherent* eye, the very essence of Islamic imagination adopted an extra-material, aniconic approach. It sought to counter the power of icons, and transcended them by formulating a language using geometry as an 'exact abstract reasoning device.'[11] As we observe, geometric contemplation of otherworldly realities and the Divine prototype were highly favorable themes, especially in state sanctioned architectural projects.

However the use of a geometric language, and its implication in that it confines multisensory experience into discrete data, do not seem to hold true in the case of Islamic Art.[12] Even though Islamic patterns are based strictly on geometric relations, the suppression of multisensory experience in order to impose a monolithic visual order does not occur. In fact, the effect is quite the contrary, and is also validated by the embodied, multisensory approach favored in Islamic *falasafa*.

Grabar supports this view on Islamic geometric abstraction: 'Geometry really works only as an intermediary. As an intermediary, it leaves to the viewer or user freedom of choice no other intermediary seems to offer. It forces one to look and to decide what to think, what to feel, and even how to act. However, it rarely forces us to do anything precise and concrete like sleep or pray. The penalty of freedom in the arts is the loss of meaning. Its reward is accessibility to all.'[13]

This associative openness and subjectivity implicit in the geometric expression, also draws out the viewer with its reiterating motifs, the meandering calligraphic line that covers surfaces completely. The following section discusses techniques and devices used to create these overall ornamental patterns, which

[10] Necipoglu. Gülru, *The Topkapi Scroll – Geometry and Ornament in Islamic Architecture (Sketchbooks & Albums)*, New York: Oxford University Press, 1996, p. 197

[11] Issam El-Said and Ayse Parman, *Geometric Concepts in Islamic Art*, London: World of Islam Festival Publishing Company, 1976. p. 1

[12] See Sec. 2.1: *Geometrism*, p. 15

[13] Oleg Grabar, *The Mediation of Ornament*, A. W. Melon Lectures in the Fine Arts, 1989, National Gallery of Art, Washington D.C.

are very much based on systematic geometric grids, and still, however, maintain an organic, radiating openness.

2.3 Amore Infinity: Transcending Materiality via Repetition, Tessellation and Seriality

The forgetting of touch and the bodily senses as implied by Cassirer's geometrism does not occur in Islamic art given its heavy involvement with a geometric idiom. Desensualized space through an underlying geometric grid is reactivated and reinvigorated through the skin of organic patterns (sometimes vegetal, calligraphic and in rare cases even representational), which seem to break away from the predictable rigidity of their strict geometric foundations. In the Islamic ethos geometry indeed becomes the instrument through which aesthetic experience is channeled. However the emphasis is always the distillation of the lived-body experience. Islamic philosophy generally adopts the Aristotelian conception that the body is integral to human happiness, and not, as in the Platonic and Christian traditions, the cage of the soul.[14] Asceticism is actively discouraged in Islam: ultimately the body and world must be transcended, however sensuous experience, properly regulated, is part of the appreciation of the beauty engendered by God. Hence, the transcendental is reached via material experience, and ultimately to the appreciation of (the ineffable) God.

The transcendental is alluded to through a (physically encoded) geometric idiom, and by creating abstract sensory aesthetic experiences. Much of this embodied art is that of transformation. The aim is to transfigure structures, materials and surfaces as a reflection of the Islamic preoccupation with the transitory nature of being. Substantial structures are made to appear insubstantial through the play of light and color; materials are de-materialized, vast edifices of buildings are transformed into lightness and reverberating pattern - windows into the infinite. The message (and not the material it is laid out on) becomes enduring.

Considering the wide variety of patterns, which possess an almost infinite capacity for variation, it is surprising to learn that these complex lattices are generated from a small group of simple shapes: circles and interlaced circles; squares or four-sided polygons; the ubiquitous star pattern ultimately derived

[14]Behrens-Abouseif. D, *Beauty in Arabic Culture*, Princeton: Markus Weiner Publishers, 1999, p. 69

Figure 2.1: Detail of tile-work at Ben Yusuf Madrassa, Marrakech

from squares and triangles inscribed in a circle; and multisided polygons as the circle and the square.

These shapes often tessellate into complex formations, duplicated, interlaced intricately thus becoming one of the most distinguishing features of Islamic art. Repetition is achieved through the four operations of translation (copying as on wallpaper), rotation, reflection and glide reflection (moving a unit along a single track).[15] Even though they are based purely on geometric shapes and systemic

(a) (b)

Figure 2.2: Section from the Topkapi Scroll, Istanbul, Turkey

[15]Escher acknowledged these four operations in his extensive manuals when studying repeat patterns at the Alhambra, during his travels in 1922. There are numerous working drawings that play with these four operations of geometry, out of which some of his most well known patterns emerged.

grids, the eventual patterns that arise from these foundations embody a refusal to adhere to the strict rules of geometry.

As a matter of fact, geometric ornamentation in Islamic art exhibits a remarkable amount of freedom and an infinite possibility of experimentation and invention. This is perhaps so also because geometric design is not only a practical compositional tool (following Gombrich's formulation) for filling, linking, framing, it appears also to be an independent object of delectation - an end in itself.[16]

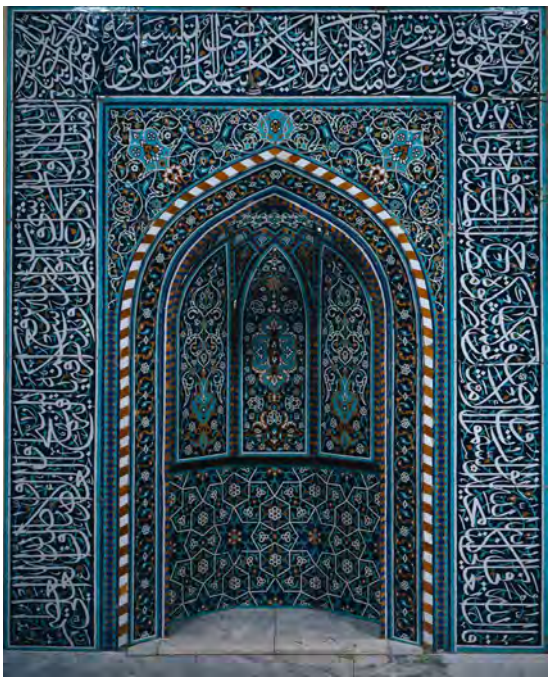

Figure 2.3: Mihrab, 1354, Mosaic of monochrome-glaze tiles on composite body set on plaster, Isfahan

2.4 Pattern as an Embodiment of Extra-material Time

To appreciate the implication of embodied time in pattern-based works, it is necessary to analyze first the qualities of linear time as we perceive it today in the post-industrial age. By comparison, perhaps, some insight can be gained into a cyclic concept of time as alluded to in geometric patterns.

[16]Grabar. Oleg, *The Mediation of Ornament*, New Jersey: Princeton University Press, 1992, p. 120

The measuring and quantifying of time has been a necessary preoccupation for many civilizations. However, it is in the post-Renaissance era that *Chronos* (numeric time) was truly mastered through itemization into progressively smaller units. This is the onset of the eventual mechanization that renders the perception of time objective and disembodied. Lewis Mumford, tracing the history of technology in *Technics and Civilization* (1934), claims that the seeds of modern innovation were sown in the first phase of technically-civilized life (AD 1000 to 1800), which incidentally began with the invention of the clock. 'The clock,' Mumford concludes, 'is a piece of power machinery whose "product" is seconds and minutes.'[17] It is owing to the clock, the most important prototype for all other machines, that time assumes the properties of a commodity whose individual units are capable of progressive division, substitution and transferability. Disassociating time from human and cosmological events (as was previously done) nourishes belief in an independent world of mathematically measurable sequences. This moment-to-moment conception thus symbolizes man conversing with himself through his own invention, where eternity has ceased to serve as the measure and focus of human events.

In effect, time, essentially an inescapable experience in our daily lives becomes automated and consequently associated with economic values ("time is money", etc.). The haptic understanding of temporality that we acquire through environmental (passage of natural events, like day and night, cyclic seasons and cosmological events) and bodily inferences (circadian rhythm, breathing cycle, physical aging), is grafted on to an intellectual understanding of time, that is essentially mechanized, capitalistic and ocular in nature.

The visual manifestation of this post-industrial ideology, and very aptly so, is the ubiquitous Grid - the mythic modernist icon. As de-sanctified space, the grid is secular in nature and invested with mythic powers; whilst dealing with basic notions of materialism (sometimes science, or logic) it can also provides us with a release into belief. Krauss writes about the ways in which the grid functions as an emblem of modern art, 'In the spatial sense, the grid states the autonomy of the realm of art. Flattened, geometricized, ordered, it is antinatural, antimimetic, antireal. It is what art looks like when it turns its back on nature. In the flatness that results from its coordinates, the grid is the means of crowding out the dimensions of the real and replacing them with the lateral spread of a single surface. In the overall regularity of its organization, it is the result not of

[17] L. Mumford, *Technics and Civilization*, Harcourt, New York: Brace & Company, Inc., 1934, p. 21

Figure 2.4: Sol Lewitt, *Cubic Construction* ,1971

imitation, but of aesthetic decree.'[18]

From these aesthetic grounds springs an entire strain of Modern art, with the Grid as its emblem. In contrast, medieval Islamic art displays no use of a regulated, restrained geometry. Geometric idiom is indeed used, and heavily so, but one that is expansive and dynamic, mimicking both a cosmic and organic flow.

Free from referential ties and the intellectual baggage that comes with representation, geometric patterns evoke a sense of transcendent timeless beauty - an end in itself. It is in this sense that they engage the intellect in a meditative, contemplative act. These patterns, based on various repetitive configurations, as discussed above, engage the viewer on an abstract level where material concepts of space and time act only as reference points. The imagining and perhaps experiencing of something *extra-material* is the aim.

[18]Krauss. R, *Grids*, October 9, Summer 1979. [Reprinted in: The Originality of the Avant-Garde and Other Modernist Myths. Cambridge, MA: The MIT Press, 1985, p. 9-22.]

See, for example Islamic pattern compositions: these are usually a-centric arrangements, avoiding obvious focal points - (if seen in context) a preference hinting at the absolute, pervasive presence of a Divine Authority throughout creation (and not centered in bodily manifestation as in Christianity). But not just this, the expansive patterns engage the viewer in the contemplation of extra-material time and space (temporal eternity and spatial infinity), one that cannot be experienced directly through mortal form. The patterns are anti-narrative, with no obvious beginning or end, past or future. Due to their recursive nature they constantly engage the viewer in a simultaneous act of recalling and anticipation, engaging the viewer in a phenomenological experience of the work. Moreover, the inventive use of repetition, tessellation and seriality unifies an infinite space - one that reiterates and can be continued *ad infinutum* in the viewer's mind.

Geometric ornament is not just used as a two-dimensional film covering surfaces, it often very effortlessly takes on three-dimensional form where needed. It's prolific use in architecture, both as a structural device to resolve practical issues of erecting edifices as well as meeting ideological and aesthetic ends, is equally fascinating. Revisiting the discussion regarding the revitalization of the underlying static grid structure in Islamic patterns into dynamic geometric tessellations, the following section analyses the dome construction of the Hall of Two Sisters, Alhambra. Looking at the unique decorative architectural devices used in this dome, connections to the physical and metaphysical properties of Islamic geometry and their allusion to *haptic time* are elaborated upon next.

2.5 Abstract Time and Experiential Architecture: *The Hall of Two Sisters, Alhambra*

The language of pattern is not just limited to textiles, ceramics and paintings, but also extensively used in architecture, both within the structure of the building and on it, as planar embellishment. One of the most original inventions of Islamic architecuture is the Muqarnas dome, which is unprecedented in any other culture. Whether shaped in wood, stone or brick, they are the most prominent characteristic found in Medieval Islamic architecture from Iran to Spain. These vaults are architectural devices based on octagonal symmetry, to create a smooth structural transition from the square foundations (symbolically the material world), to a circular dome ceiling (symbolizing the heavens). Laid out in

a layered tier formation, this vaulting system allows the thrust of the dome to be directed downward into the corners of the building without adding the extra weight of the pendentives. The structural ingenuity of the Muqarnas vault lies in the fact that it allowed for the erection of a dome without the need for heavy columns to support it, a reference to the high heavens that are suspended above without any visible support.

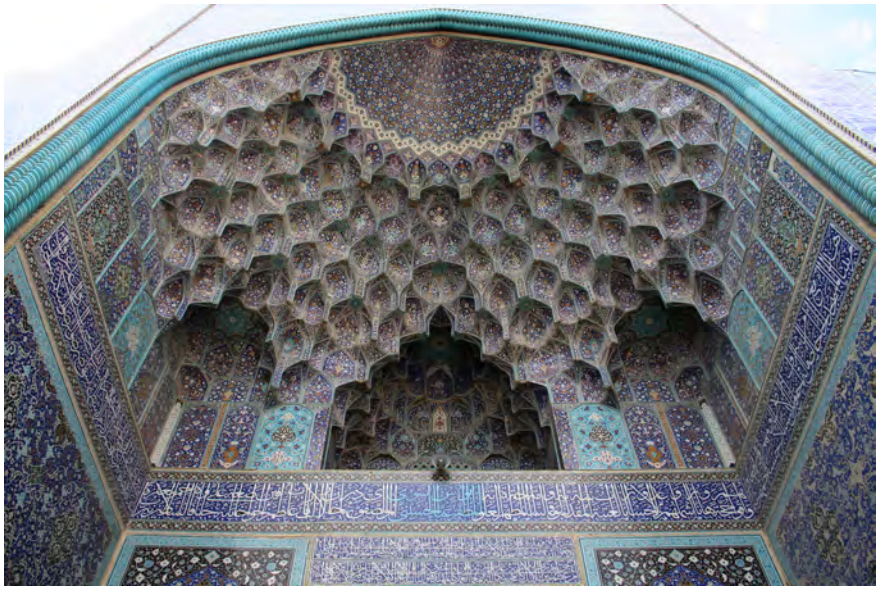

Figure 2.5: Detail of entrance to the Royal mosque, Isfahan

In addition, the Muqarnas prove to be an exceptionally versatile ornamental device. The intricate layering of squinches based on complex geometric formations allows the dome to appear insubstantial. The ever changing, diurnal light plays upon the surface of the dome and appears to dissolve its structural mass.

An exemplary geometric complexity and finesse is displayed in the Hall of Two Sisters at the Alhambra in Granada, a late Ummayyad palace. The ceiling is made up of more than 5000 individual vault pieces that form the visible face of the dome. These infinitesimal pieces are connected to each other in a continuous way, making the muqarnas appear more like a skin than a volume. Their geometric reiteration is overwhelming, and the light flooding through hidden niches creates a dizzying dance of light and shade. All in all, the embellished ceiling spreads out above the viewer as an avalanche of geometry unfolding out of a mysterious center. The dome is a reference to 'that inverted bowl we call the sky'[19] and its geometric ornamentation, a contemplative celebration of the heavenly order (*Khalaq-al-Samawaat*).

[19] *Verse from Rubáiyát of Omar Khayyám*, trans E. FitzGerald.

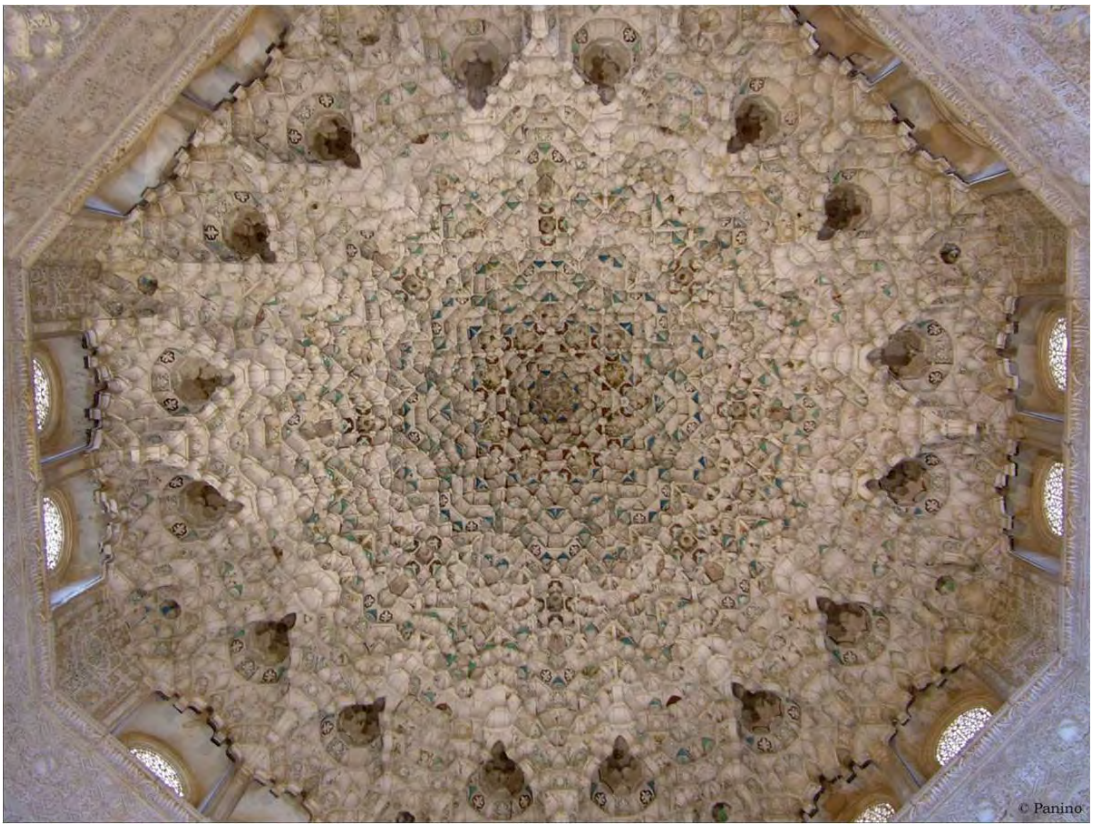

Figure 2.6: Cupola of the Hall of Two Sisters, Alhambra Palace, Granada

It is thus in these organic, yet geometry-based patterns in Medieval Islamic art and falasafa that one may find a more holistic, existential understanding of time[20] - of a unified spatio-temporal dimension that is varied through subtle nuances. The most valuable insight an encounter with these heavily ornamental surfaces provides is that edge-to-edge obsessive cladding and covering surfaces in pattern can render a space *emptier* than mere restraint or a minimalist approach could ever envisage. Not only is there a profound sense of unison of (void) space and infinite time, but also an unavoidable transformation: the brick, cement, stucco and wood no longer remain distinguishable in their materiality, but they too are transformed into abstract matter through their opulent ornamental camouflage. This quality of the excessive engendering emptiness and a sense of temporality through repetition together allude to an illusory state of transformation.

[20] This is evidenced in the extensive vocabulary Arabic lexicographers use for the description of different aspects of time, for example: *Dahr*, fatalistic time; *Zaman*, a long time having a beginning and an end; *Asr*, a span of time; *Hm*, a period of time, little or much; *Dawam*, duration; *Mudda*, a space of duration, *Waqt*, a moment in time; an, present time; *Awam*, time or season; *Yawm*, a time whether night or day; *saa*, a while or an hour. *Abad*, duration without end and *Azal*, duration without a beginning, often used in conjunction to describe *Sarmad*, incessant continuation.

These ideas are alluded to in the next chapter which takes a break from the written discussion and presents a selection of images. John Berger's influential writing, *Ways of Seeing*, based on the BBC television series with the same name, is used as a precedent for this visual chapter. Reading this book for the first time, I found the insertion of visuals, sometimes in scrapbook format, and sometimes more structured, immensely appealing. Just as Berger built his narrative through words to express his ideas, this premeditated juxtaposition of images sets the stage for argument in his following chapter. He displays his ideas through selected images, and then talks about them making literary references as and when needed. I have tried to follow a similar approach in this exegesis. The collection of visuals in Chapter Three deal with the articulation of space within artistic/architectural practices varied over time. Ideas pertaining to geometric abstraction, decorative patterns, surface manipulation as well as notions of interiority and exteriority and how the element of time is implicated and alluded to visually in these expressions. The selection of images can be seen as examples and variations within this broad theme. The linear placing of images and the book format itself automatically leads to a comparison of the two images seen simultaneously - and I have been mindful of this limitation in the arrangement of the visuals. Thus, the reader is encouraged to flip through the chapter to compare and contrast images not directly placed together, since the entire visual selection has a common underlying theme.

Chapter Four specifically discusses the relevance of my studio practice and how it critically engages with the aforementioned ideas in conjunction with a material understanding of Modern aesthetics. I explain the reasons for choosing the perforation-point in favor of the abstract line as the protagonist in my artwork. The sensual and symbolic connotations of the perforation-point will be discussed in reference to its generative capacity; it is the basic 'atom' that enfolds all possibility, and therefore can be unfolded and expanded ad infinitum. I will substantiate with examples, an existential and performative reading of my work, as opposed to iconic analysis. Links will be drawn between example of experiential works already mentioned and contemporary practices of cross-disciplinary artists.

Chapter 3

Visuals

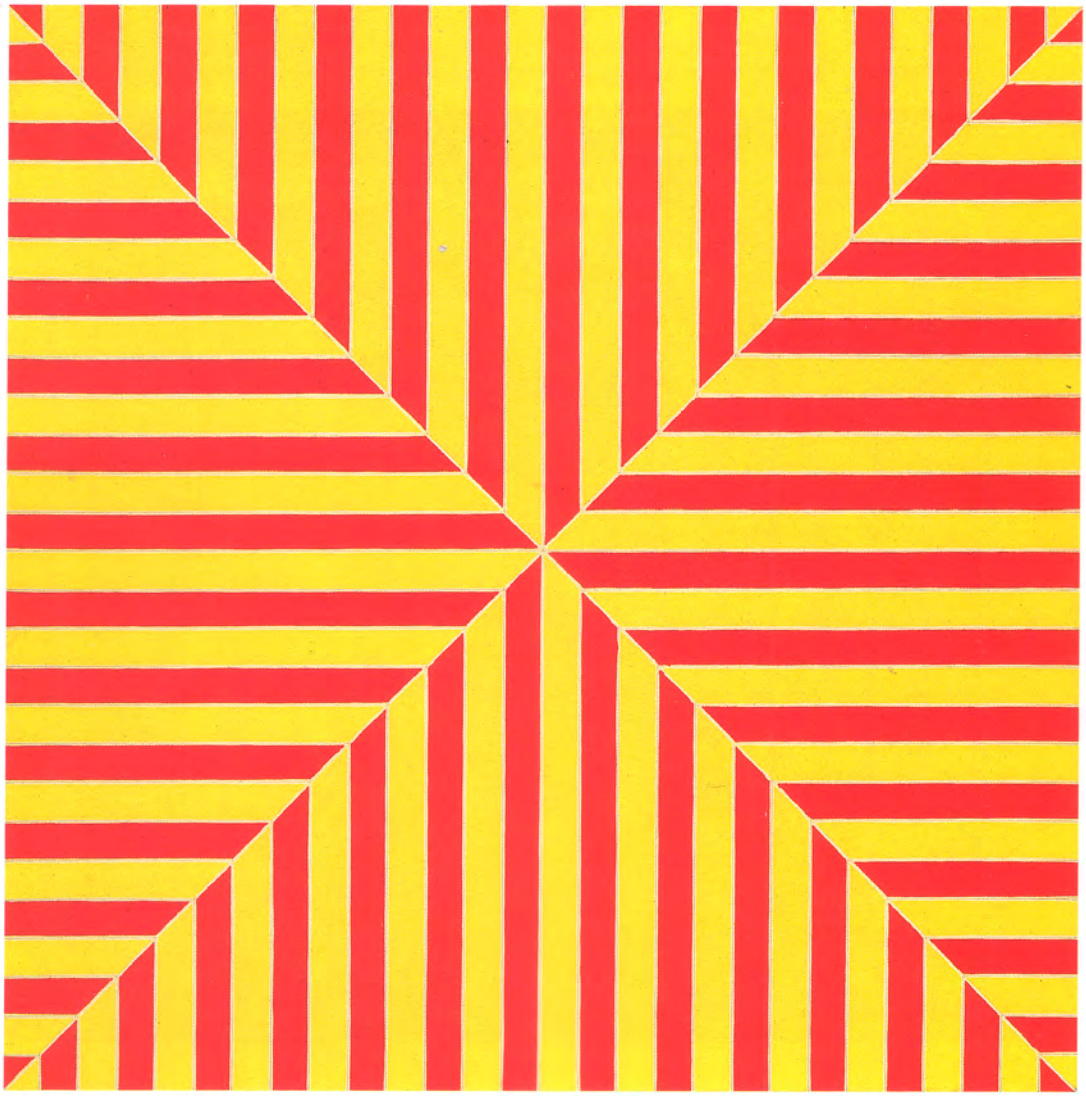

Figure 3.1: Frank Stella, *Marrakech*, 1964. New York, Metropolitan Museum of Art, cat. no. 422.

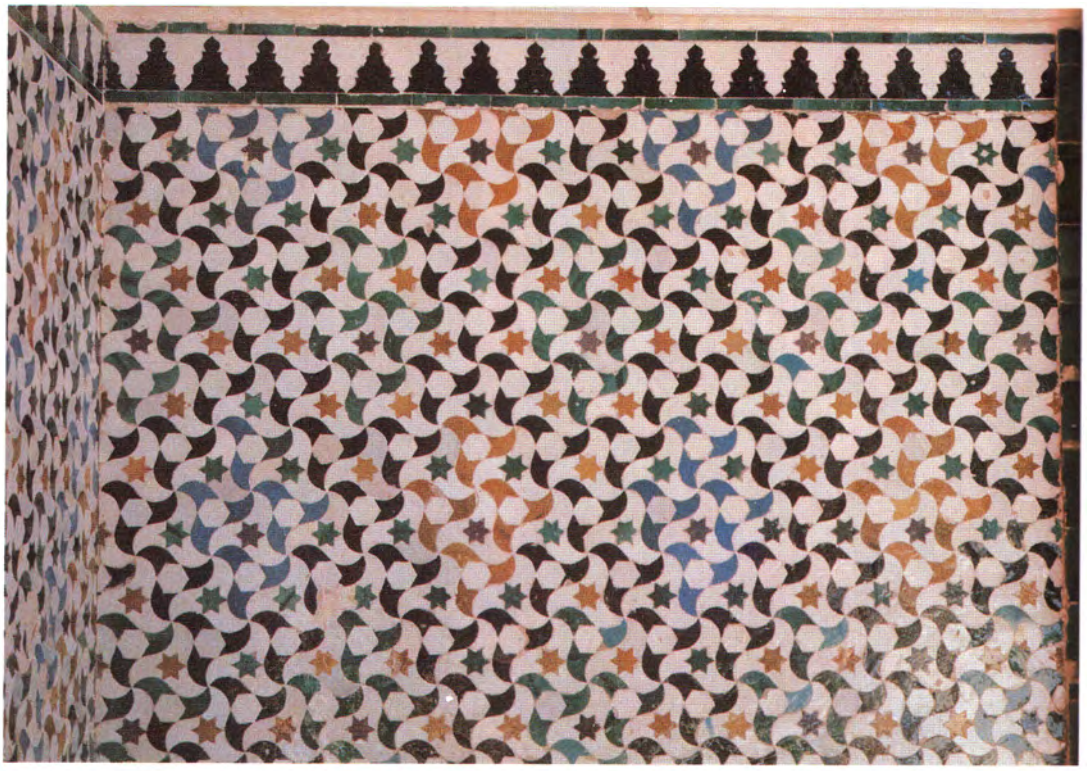

Figure 3.2: Geometric pattern from the Hall of Ambassadors, 14th century, The Alhambra, Granada

Figure 3.3: Detail of commercial building facade (Korangi Road), 2010, Karachi (image courtesy of the artist)

Figure 3.4: *Untitled*, 2010, Sydney (image courtesy of the artist)

Figure 3.5: *Untitled (Reflection on Glass Facade)*, 2011 Sydney, (image courtesy of the artist)

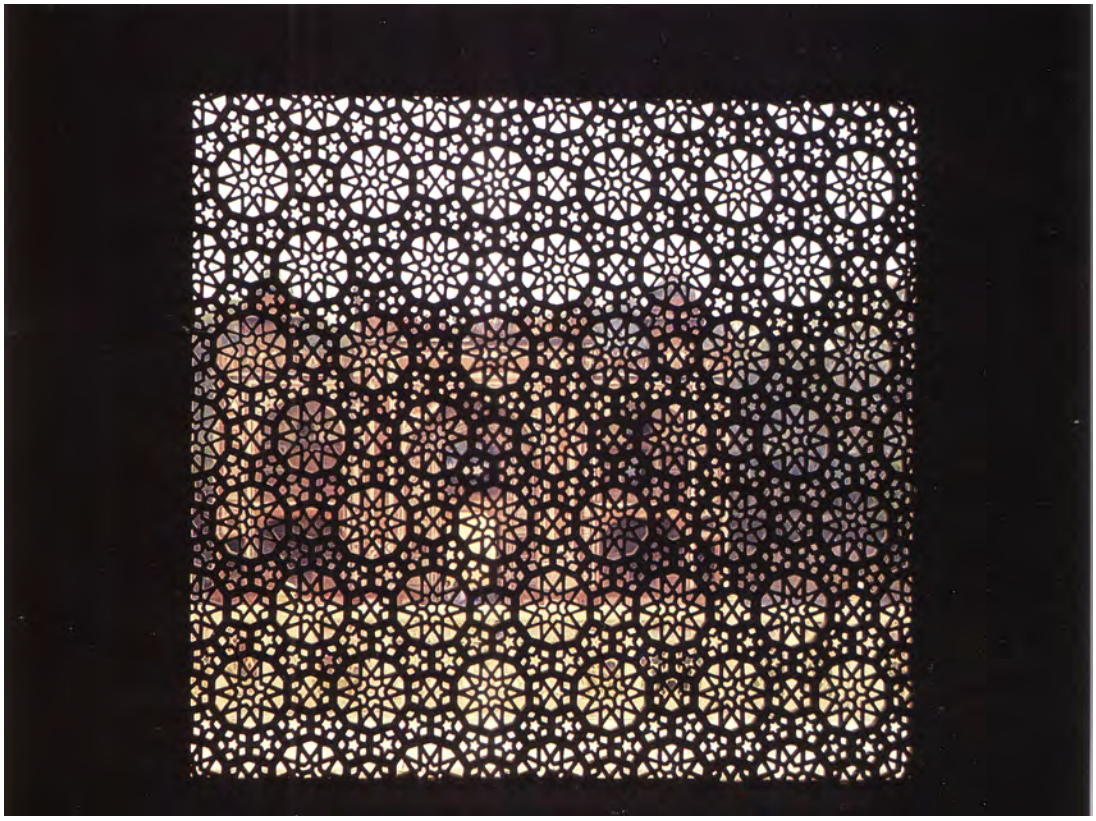

Figure 3.6: Open work marble screen on tomb of Muhammad Ghaus in Gwalior, 16th century

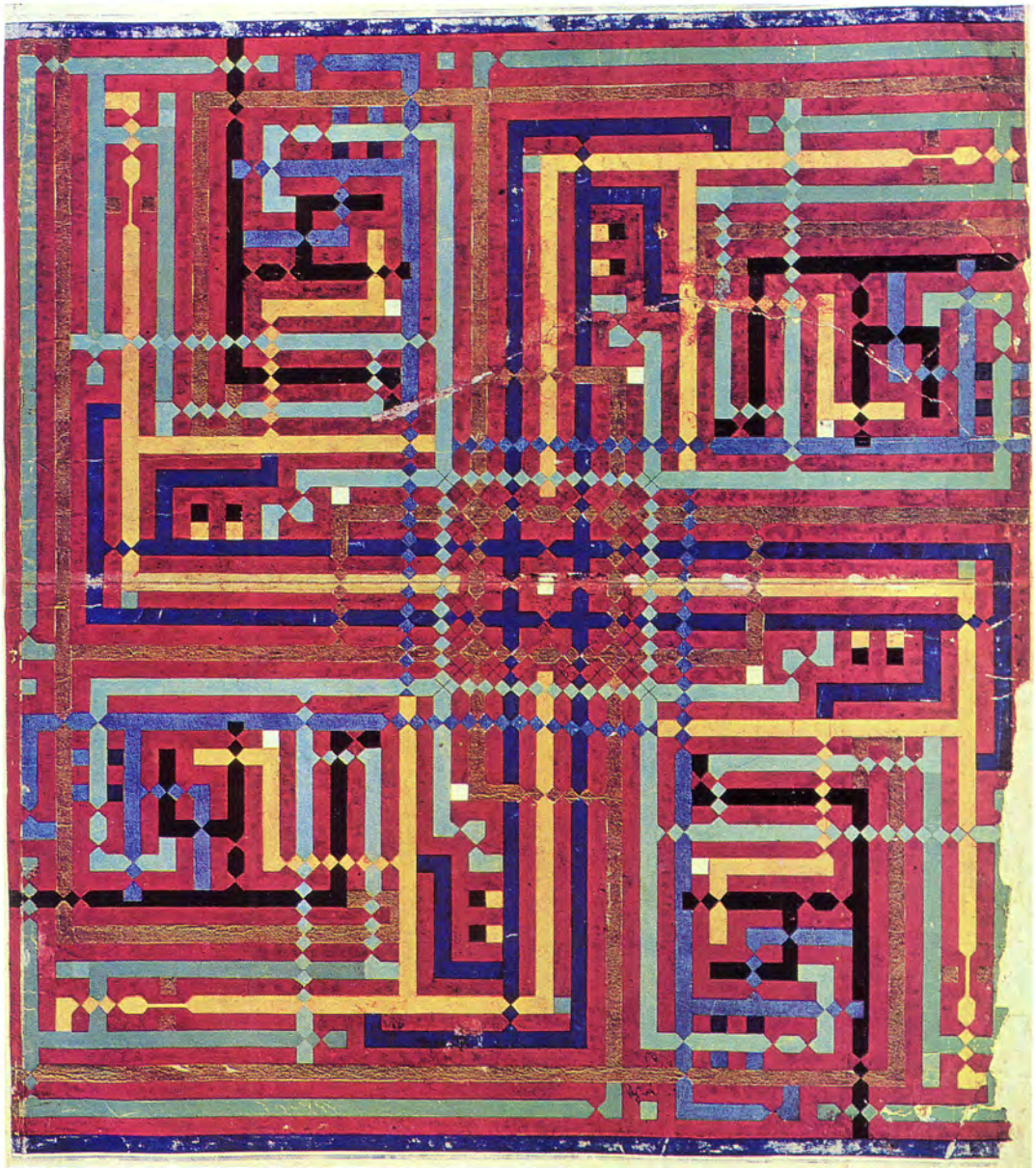

Figure 3.7: Painting, 15th century, Top Kapi Seray Museum, Istanbul

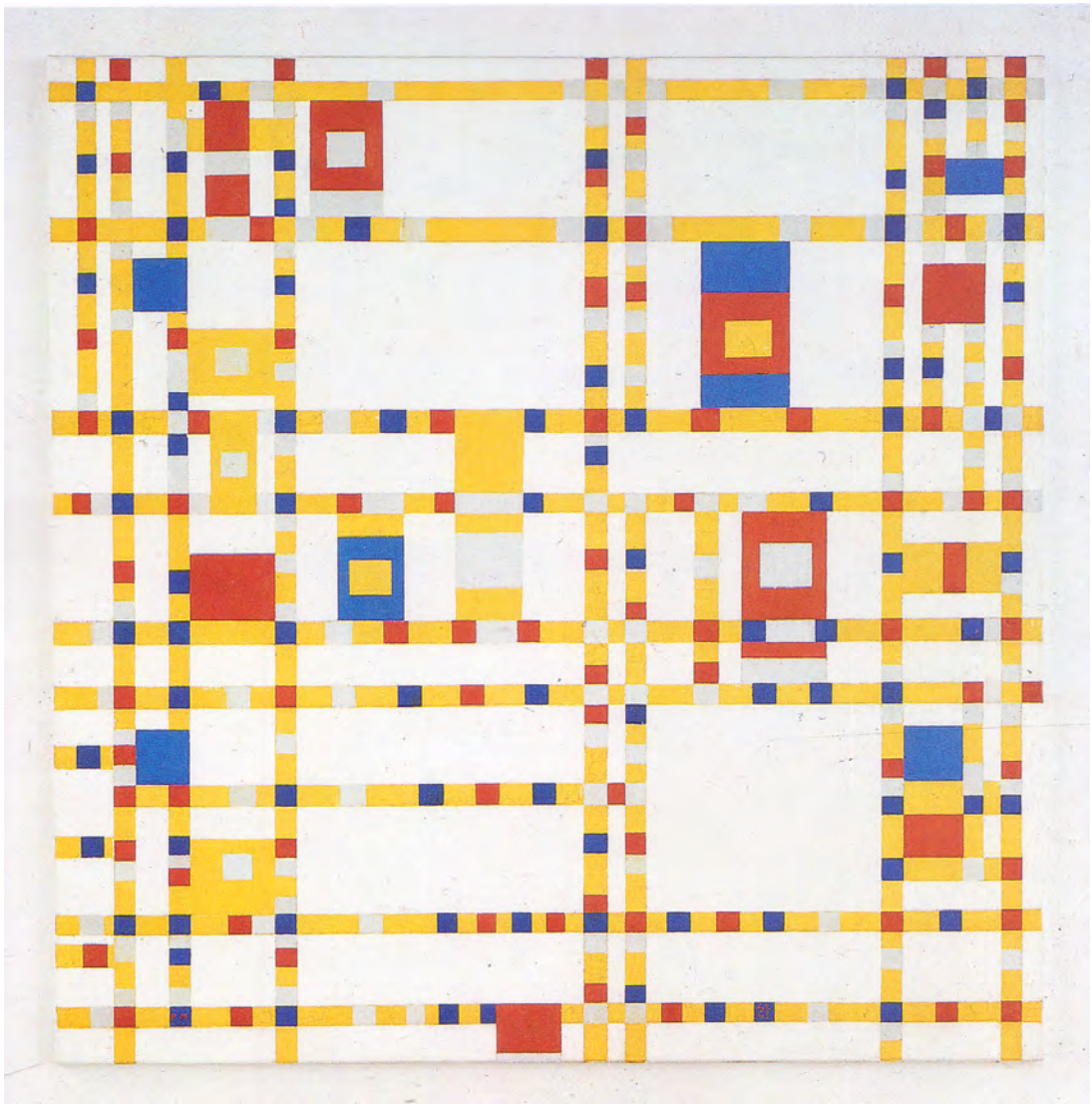

Figure 3.8: Piet Mondrian, *Broadway Boogie-Woogie*, 1942-1943, Museum of Modern Art, New York

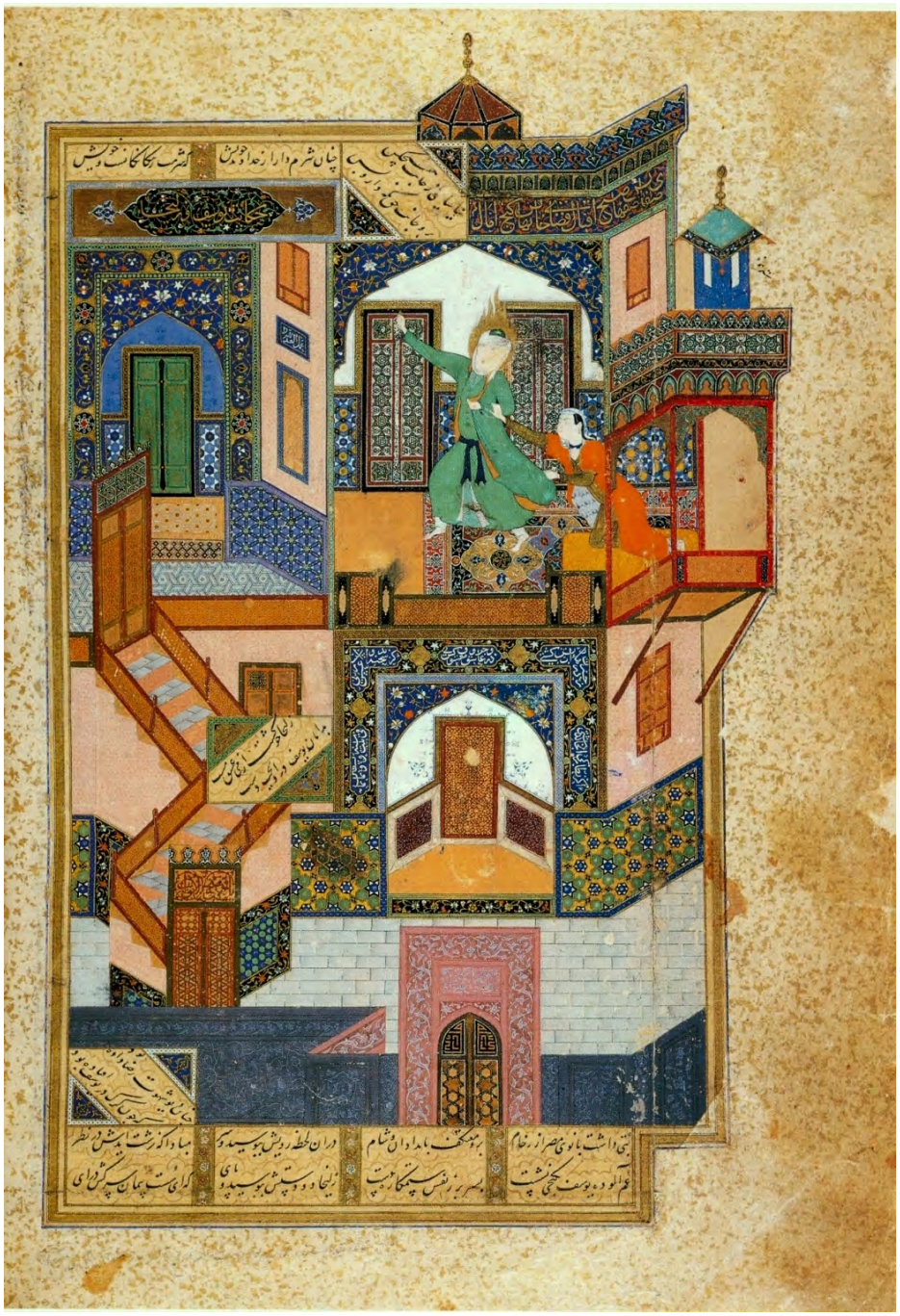

Figure 3.9: Bihzad, *Yusuf and Zulekha (Joseph chased by Potiphar's wife)*, 1488, Cairo Museum

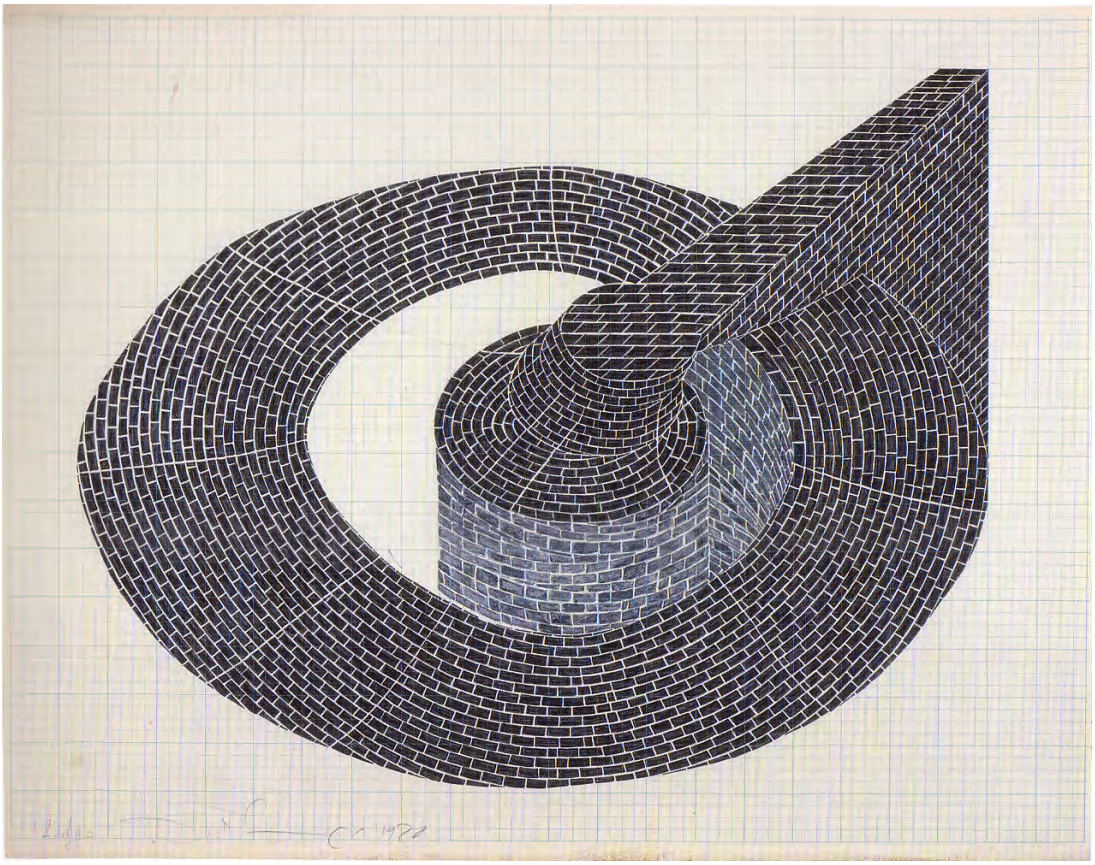

Figure 3.10: Siah Armajani, *Lodge*, 1970, Irving Stenn Jr. Drawings Collection

Figure 3.11: *Wilton Diptych*, 1395-99, National Gallery, London

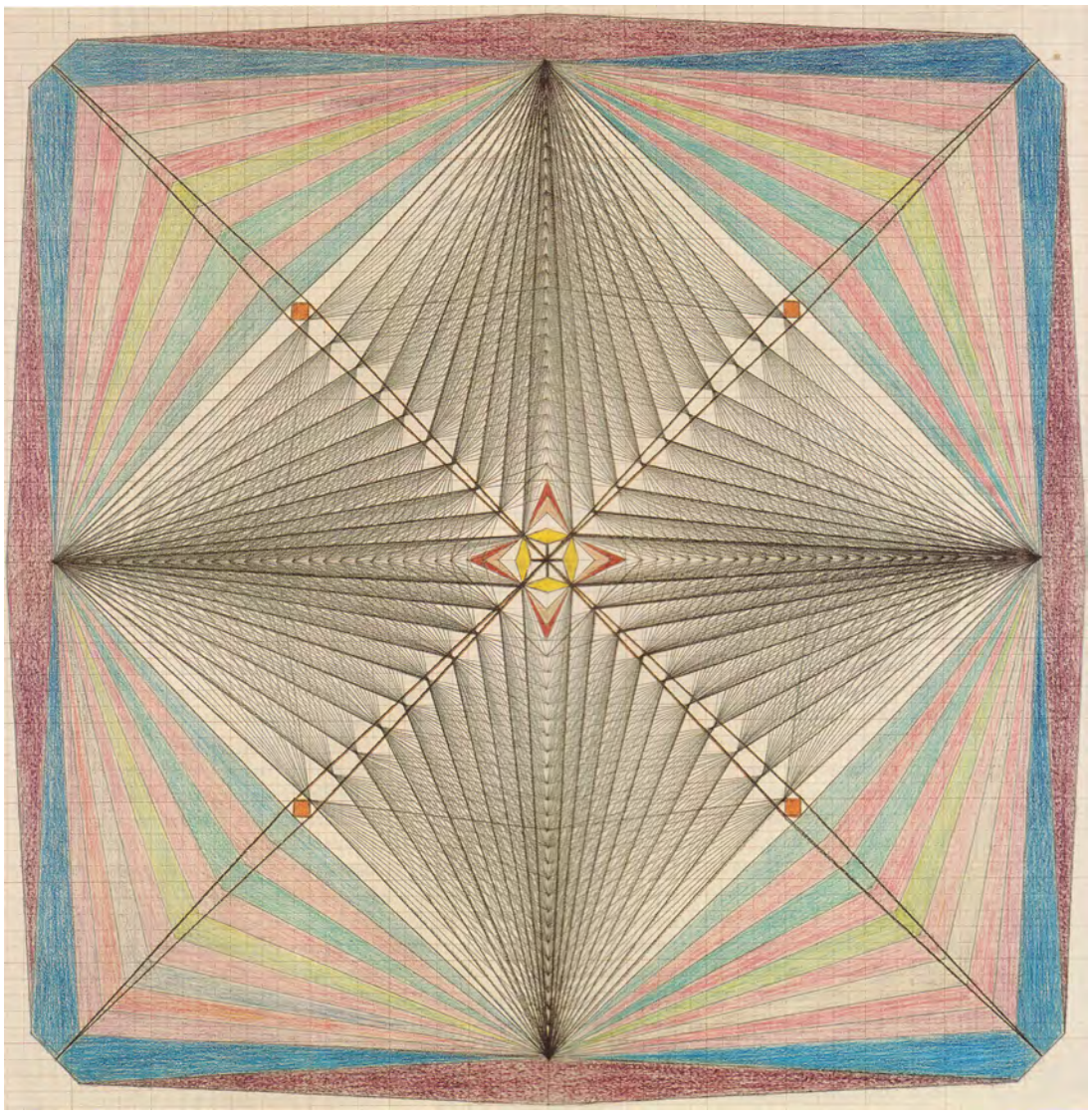

Figure 3.12: Emma Kunz, *Work No. 014*, not dated

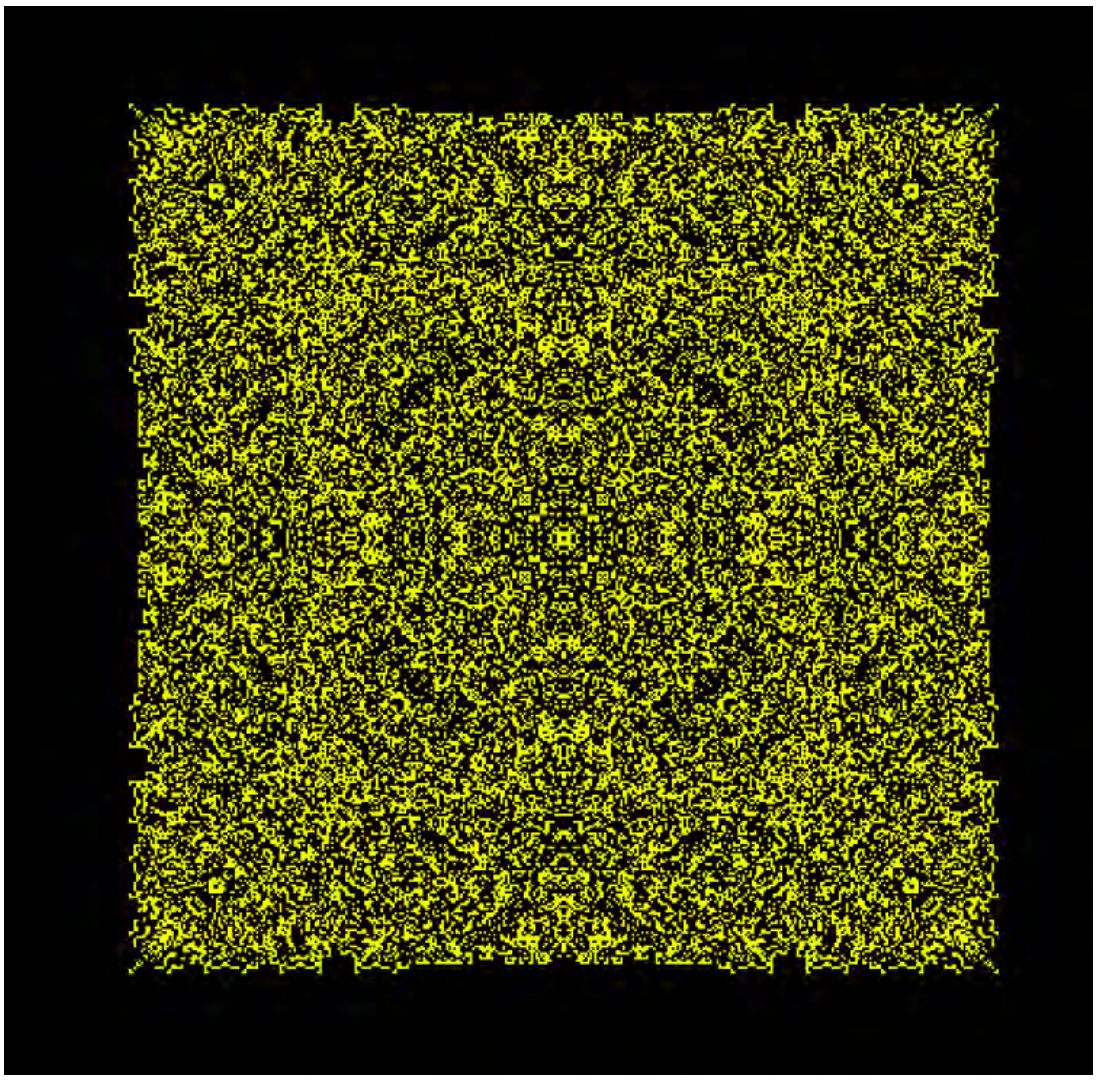

Figure 3.13: 2D cellular automata freeze frame, (generated in Visions of Chaos)

Figure 3.14: Hallway at Madrassa Ben Yousuf, c. 14th century, Marrakech

Figure 3.15: Richard Serra, *Sequence*, 2006, installation at Museum of Modern Art

Figure 3.16: Detail of stuccowork on house, 2010, Karachi, (image courtesy of the artist)

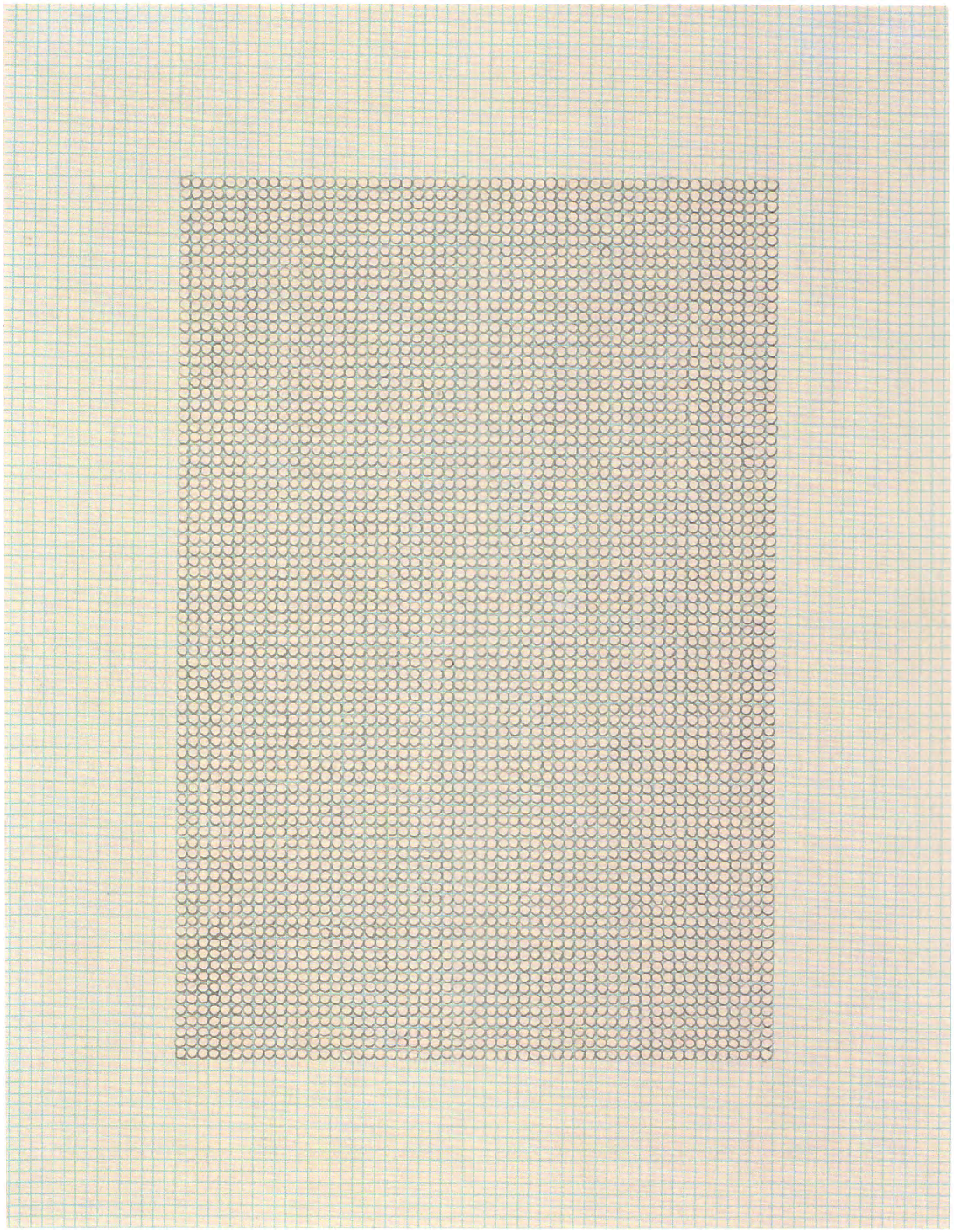

Figure 3.17: Eva Hesse, *Untitled*, 1967, Irving Stenn Jr. Drawings Collection

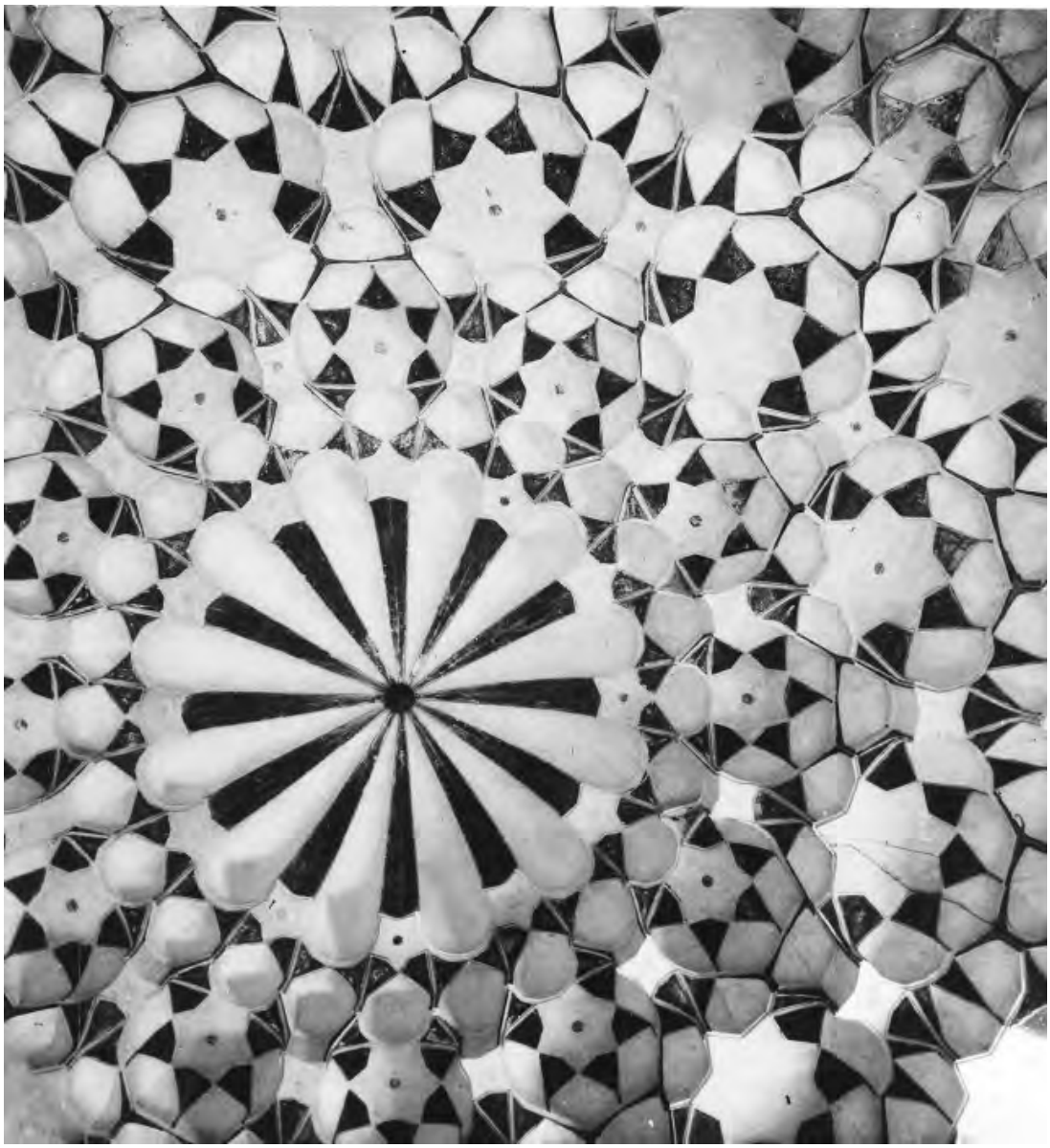

Figure 3.18: Vaulted ceiling at shrine of Mullah Hassan-i-Kashan, c. 17th century, Iran

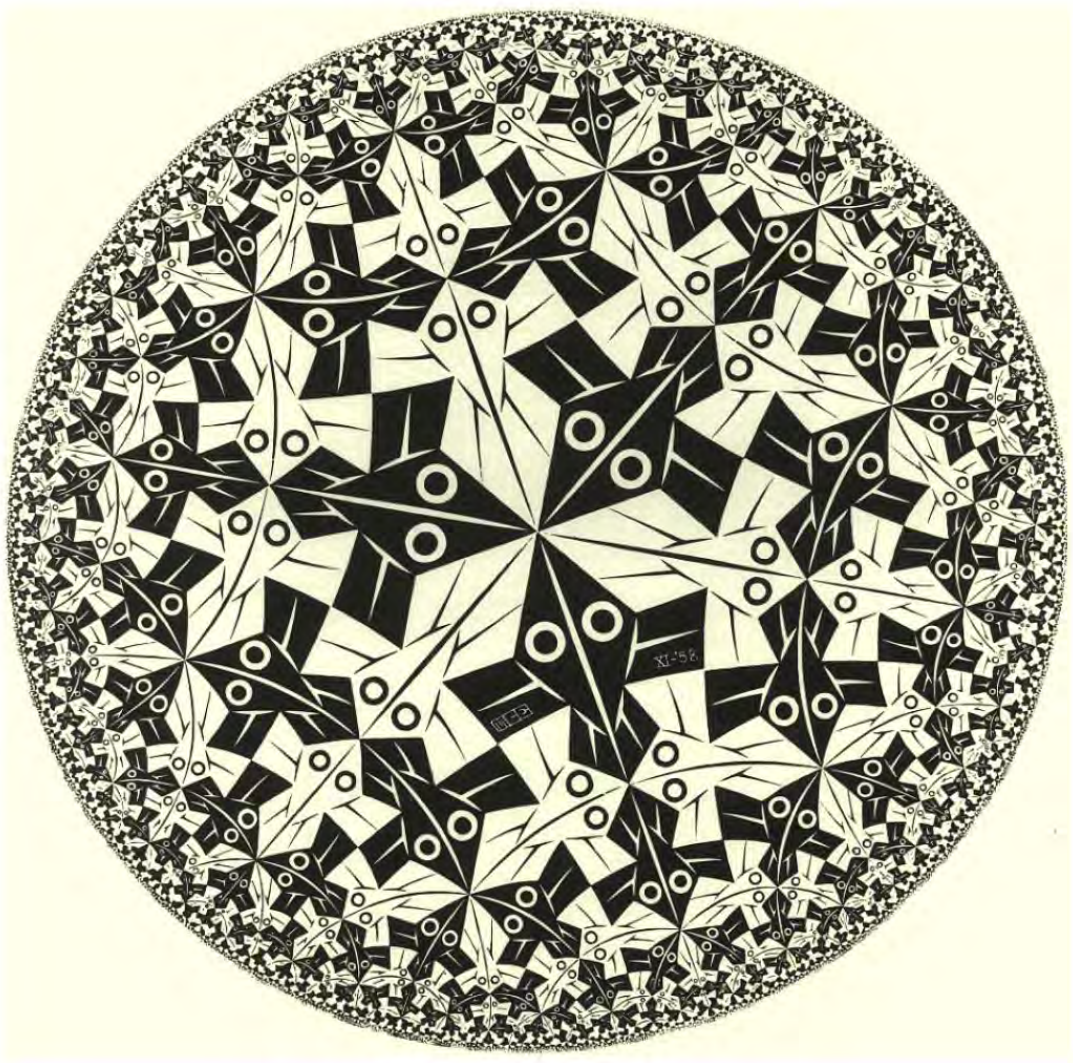

Figure 3.19: M. C. Escher, *Circle Limit 1*, 1958

Chapter 4

Contextualizing Studio Research

4.1 Current Practices

It is a significant shift from discussing medieval Christian and Islamic art in the previous chapters to contemporary art practices in this one, as each is a world apart in its formal language and ideology. However, looking at old and new art collectively has been instrumental in putting together a working definition of what *pattern* is and what are its characteristics and phenomenological effects on the perception of time and space.

The preceding visual chapter attempted to make this old-to-current transition a little smooth; a collection of images from medieval and modern art, architectural sites and photographs - the visual narrative aimed at reinforcing the theoretical discussion at hand. In Chapter Four, I discuss the intuitive and visual connections I have made by looking at various art forms distanced in time and cultural specificities, and how these come together to inform the body of work produced during my MFA candidacy. I have found the distinctiveness and variety in form and approach intellectually enriching and the process has helped me arrive to a fuller understanding of my own practice.

My studio work is roughly categorized into three sections: large format perforation drawings, miniature gilded drawings, and relief works in wood and ceramics. These works, very different in their construction, share essential underlying language and concerns. I have used an abstract ornamental language to create what I call *Patternscapes* of various configurations. Single motifs/units have been repeated to create expansive, tactile, ornamental surfaces which are symmetrical, or give the illusion thereof. The implicit continuum of the visual elements in the drawings is restated through the process by which the work is made (indexical

mark making). In all cases, I try to maintain a balance between the primacy and openness of drawing as a medium, and the plasticity of process as an organizing principle.

I commenced my research looking at the means by which space can be described by repeating simple units/motifs that one often encounters in basic grid forms such as book layouts, graph papers or tables. I was interested in exploring a visually saturated space, which in actuality hinted at emptiness or a state of vacuum/void. I chose geometric patterns to avoid associations and the specificity that comes with a representational approach. This train of thought was triggered by an interesting phrase by E. H Gombrich when commenting on Islamic geometric abstraction, specifically heavily patterned surfaces (whether in architecture or depictions of architecture in miniature paintings, ceramics and even textiles): he terms this obsession to cover all surfaces with dense ornamental pattern as nothing but *horror vaccuii*, an intense fear of empty space which he claims is the basic force behind Islamic aesthetic.[1] He suggests this to be a particular medieval aesthetic approach, an 'urge which drives the decorator to go on filling any resultant void.'[2] In style this would be the antithesis of minimalism. Upon analysis, however, of numerous images and geometric designs, this evaluation of ornament as a mere framing and filling process appears a rather superficial verdict. This led me to consider ways of creating harmonious empty/minimal/weightless spaces

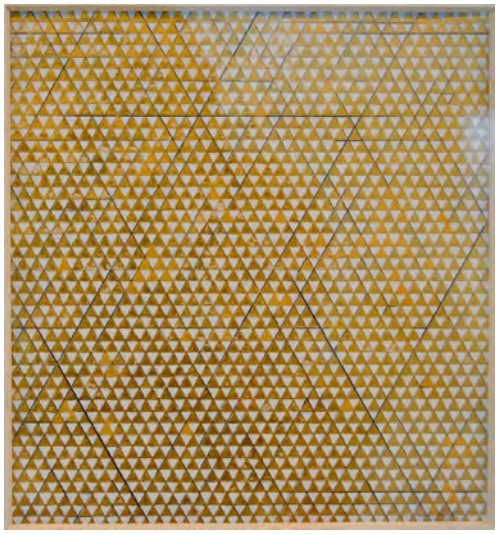

Figure 4.1: Mehr Javed, *Untitled*, 2010, shell gold, graphite on paper, 12 x 12 cm

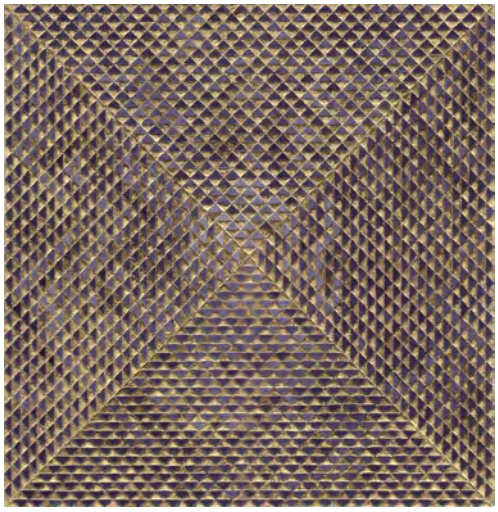

Figure 4.2: Mehr Javed, *Untitled*, 2011, gold leaf and guache on paper, 14 x 14 cm

[1] E.H. Gombrich, *The Sense of Order: A Study in the Psychology of Decorative Art*, New York: Cornell University Press, 1979, p. 80

[2] Ibid

out of the cacophony of heavily patterned surfaces.

For a series of small drawings 'gold' seemed symbolically analogous to the opulence of ornament (carrying something felt or understood as beautiful, providing pleasure). Gilding was an obvious choice to achieve this desired effect as well as create shallow reflective planes that add to spatial perception and visual noise in the drawings.

In most of the gilded drawings (like Fig. 4.1 and 4.2) I have tried to create a dense opulent skin over the paper surface. This was achieved through the integration of a triangular geometric grid as well as reflective/optical effects to balance the positive and negative areas. Gold leaf worked perfectly in this case, creating a rich surface that sat on top of the paper (as opposed to paint that seeps into the paper and becomes very much a part of it). The aim was not to tint the paper, but create an overlay of rich patterned skin. The gilded planes stand very much in contrast to the tinted areas and in effect, create a mirage-like shallow space. This contrast was heightened by drawing lines in the pattern which create spatial illusion through perspective. These drawings, some more than others, represent a sort of momentary splicing of contrasting spaces that appear (and disappear) in the act of viewing.

I encountered gilded icons from the early Byzantine Empire at museums while conducting research in London in 2009, and was very inspired by the use of gold and its symbolic/alchemical quality. I apprenticed with a master gilder for a few months and learned techniques for gilding on paper. The small gold drawings in

Figure 4.3: Detail from an early 15th century Books of Hours, British Library

Figure 4.4: 14th century Gothic Book of Hours, Victoria & Albert Museum, London

my show are the result: their patterns are very reminiscent of the flat screen-like backgrounds in Christian icons, in front of which an important religious scene unfolds.

I was interested in isolating these backdrops and exploring their geometry to capture the resonance and vibration which I found reminiscent of selective drawings of Eva Hesse and Agnes Martin (discussed in the following section). In many of the works I have been going back and forth to, specifically the examples presented here, drawing is a way of recording the passage of time. However instead of using the clock in the name of rationalized labor and capitalist profit, timekeeping is stripped of its 'means to an end' rationality. Once liberated, time becomes increasingly relative and referential to the process of making and the act of viewing. The textural quality of the pattern, enhanced through the use of gold, and its inherent reflective qualities keep the gaze in a situation of perpetual flux. It is in this condition of perpetual instability that the eye comes closest to assuming the role of skin, as it constantly grazes the drawing surface.

4.2 Process and Accumulation of Time

In considering how artists have articulated their preoccupation with the concept of time, Process art of the nineteen-sixties resonates with my current interests. In the practices of artists such as Richard Serra, Trisha Brown, Eva Hesse, Steve Reich and John Cage, one comes close to experiencing time as duration, and not literal clock-time. For instance, the use of language, repetitive rhythms, harmonic overlaps and sequential layering in Reich's scores fuses together anticipation and the complicit experience of the work. It is based on the idea of multiplicity or layered temporalities. This in turn affects the time of experience, which may be fast or slow. Reich's music is often talked about in terms of subjective, psychological time - and memory often fails to capture it. One can never remember the structure of the score the way one remembers or predicts melodies in everyday music. In this specific process (rethinking of the form of music) what is emphasized is the feeling the score elicits in the listener, and not the delectation of the score itself. In this way Reich reinvents the process of making music and in doing so reorients its affect to the haptic.

Similarly, Trisha Brown's *Accumulation* is literally a collection of physical gestures strewn together sequentially as a choreographed piece. The angled movement of the forearm, the rotation of the wrists, lifting and bending of the legs and the twisting of the torso can all be seen as individual (gestural) motifs that create

together a rhythmic flow. Each isolated movement (unit) is seen in relation to the whole, and is repeated over and over like a loop. The entire performance thus becomes very much like a pattern where (the concept of) time is opened up and becomes body-centric.

Figure 4.5: Trisha Brown, *Accumulation*, filmed in 1971, duration 5:54 mins

Likewise, the drawings of Eva Hesse and Agnes Martin display an acute tension between randomness and order, between homogenous and divisible time. Eva Hesse's intricate repetitive drawings of circles on graph paper express her desire for control (over medium, time, the expressiveness of the artist's hand), yet the compulsive quality of the work suggests that such control seems to have continually eluded her (see Fig. 3.19 and Fig. 4.6). Martin's varied grids on paper and canvas, which she termed "moments of awareness", are a distillation of a heightened presence of mind, and attentiveness of hand. The perfectly drawn parallel lines add weight to the image - the weight of time. The eye retraces the surface where the hand has left its mark, in a sort of delayed contemplative gaze.

It is pertinent to note the inventive use of seriality and variation to create this repetitive momentum. In Andy Warhol's identical soup cans and screen prints of iconic personalities, the structure of the modern grid is metaphorically alluded to. In works of the above mentioned female artists however, the rigidity of serial progression or *gridness* is broken through subtle variation in the basic unit (see Fig. 4.6 and Fig. 4.12). An analogy of this effect in music is Ravel's *Bolero*, an orchestral masterwork where a single theme is used as a musical motif that is repeated without any development throughout. Subtle variance is introduced by passing the melody among different instruments as well as slowly building up to a crescendo. These formal approaches, in a sense, are strategies by which artists accumulate time. Subtle variation in the basic motif is what keeps the viewer's attention engaged and alleviates the predictability and monotony inherent in any

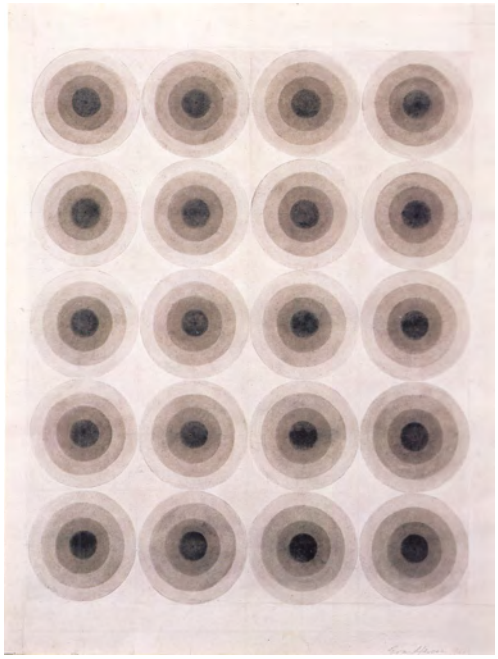

Figure 4.6: Eva Hesse, *Untitlted*, 1966

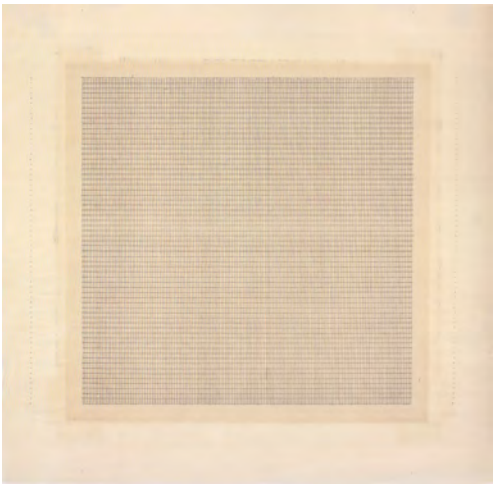

Figure 4.7: Agnes Martin, *Untitled*, 1961

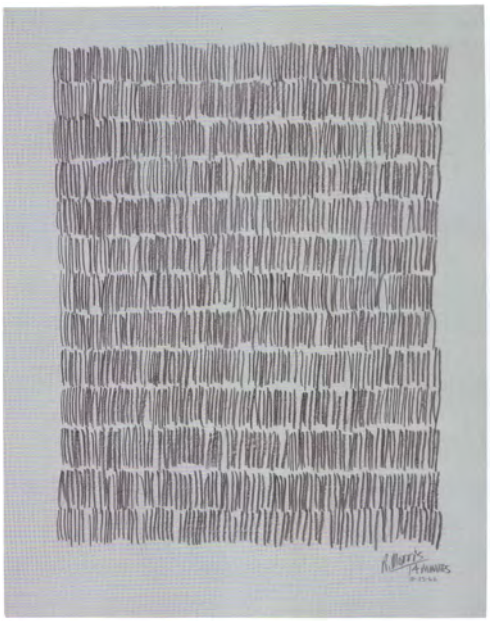

Figure 4.8: Robert Morris, *Untitled (14 Minutes)*, 1962

Figure 4.9: Bridget Riley, *Turquoise & Red Greys*, 1967

repetitive structure. I have tried to experiment with these ideas in drawings like *Lacuna* (Fig. 4.16) and *Stasis II* (Fig. 4.14) where there is an accretion of units by way of a ritualized indexical process.

Hadi Tabatabai, an American-Iranian artist based in San Francisco, draws immense inspiration from Agnes Martin's work. Like Martin, his imagery of choice is the ubiquitous grid, straight-edged, repetitious, and symmetrical. Lengths of thread are stretched taut on a painted box-frame. His process requires extreme precision as his thread paintings are in fact three-dimensional. The threads are painted in the same tone as the background, creating a transitional space where one plane shifts to the other. The works invite a close viewing, a sort of looking into indeterminate space. As Tabatabai commented to *Works & Conversations* editor, Richard Whittaker in a 2008 interview: "When you look at something small-and I don't necessarily mean, by the size of it - it makes you reflect on yourself. It brings you closer to yourself. Whereas most things just bring you out into the world. I think it's much more important to come back to ourselves, to understand."[3]

Figure 4.10: Hadi Tabatabai, *Thread Painting #28*, 2010

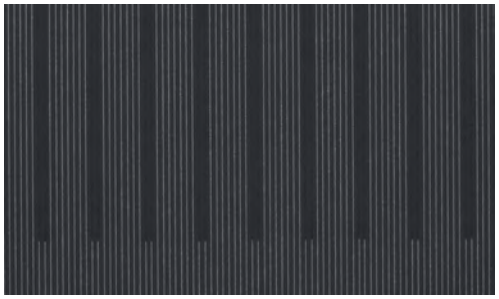

Figure 4.11: Detail

To similarly invite an intimate up-close viewing, I employ a pointillist technique on large format paper in my perforation drawings. There is no use of line as a tool for mark making. Instead masses of perforated points create textural planes and gradations on the paper. It is a deliberate decision on my part to devise a technique that is indexical, impersonal (opposed to line which is usually

[3]Richard Whittaker in conversation with Hadi Tabatabai, Jul 6, 2008, Works & Conversations

personal and individual), and one that emphasizes the act of making as opposed to what is made. Perforation alters the characteristics of the paper surface in a similar way carving alters the stone surface. Once the motifs are perforated onto the paper they become a part of the material and are not a superimposed intervention: the pattern becomes *of* the surface, as opposed to sitting on it. The paper becomes porous and fragile, assuming skin-like qualities.The labor-intensive act of perforation also gives the resulting drawings a more performative quality due to an intense involvement of the hand. Just as the process reverts Reich's music back to the body, similarly the physicality of my process elicits a somatic viewing.

(a) Eva Hesse, *Repetition Nineteen III*, 1968

(b) Richard Serra at work on oil-stick drawing at Alameda St., 1981

Figure 4.12: Repetition and Ritual as Process

Here it would also be important to consider Hesse's oeuvre which employs repetition and reiteration of organic forms in order to break away from the rigidity of the grid-like seriality, common in most minimalist practices of that time. Her work is loaded with a sense of continuous progression of form and thought, emphasized through a ritualistic process of making repetitive forms. This ritualistic aspect of making is again very prominent in Richard Serra's paint-stick drawings. Made on an extremely large format these drawings require a more deliberate physical engagement (similar to the physicality of perforating paper): the artist applies layer upon layer of medium to the surface increasing its density and visual presence. The labor of making adds a tangible temporal weight in the resulting works, and makes the trace of the hand felt in haptic pictorial space.

By analyzing contemporary art practices, and techniques used by artists to articulate abstract/temporal concerns, I have been able to build my own visual vocabulary and practice. The tessellating (ornamental) motifs in my drawings act as embodied mediary between material time as experienced, and abstract time as evoked through their contemplation. Each perforation-point is an indexical

mark, a unit of time recorded through the hand. The resulting *Patternscapes* thus serve as repositories of time. As tangible haptic images they offer a multisensory experience, inviting an intimate close-up viewing of the work.

4.3 Implicit Time and Infinite Space

Decoration is a major unifying factor in Islamic architecture and art. Space is defined by surface and since surface is articulated by decoration, decoration contributes to the creation of a sense of continuous space that is a hallmark of the Islamic aesthetic.

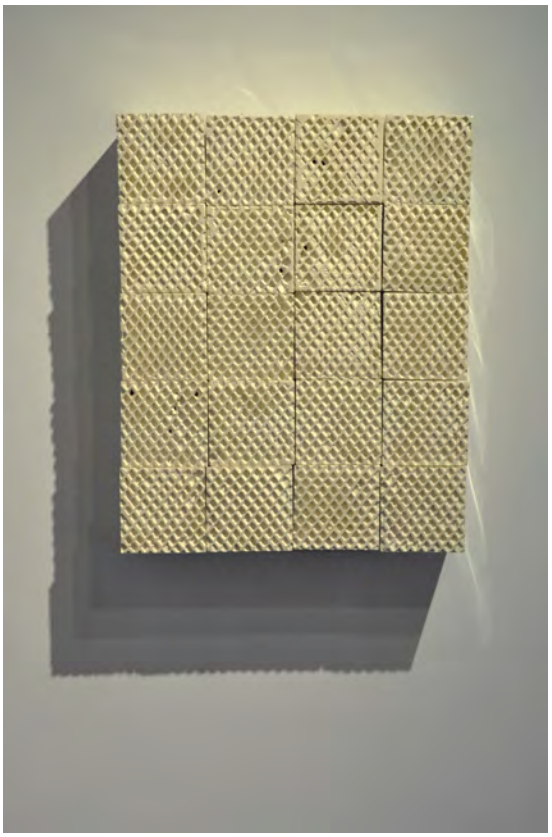

Figure 4.13: Mehr Javed, *Stasis I*, 2010, Earthenware, 32 x 52cm

I have attempted to explore this connection further in *Stasis I* (Fig. 4.13). The piece comprises twenty ceramic cubes arranged in a grid with an overall surface pattern carved on them. Although three-dimensional, the cubes offer a frontal view (due to their display and frontal pattern). The raised lines with remnants of shiny glaze on them are distinguishable from the sandblasted areas which collectively create an eroded low relief. The raised lines undulate,

creating harmonic rhythms that pull the individual cubes together as a single piece. The eroded sections create a play of light and dark gradations. For me, an effect of white noise is created that in its saturation is simultaneously full and empty. It is an image of repose and contemplation where tensions are resolved. Moreover, the transformation of material is apparent where the transition between the exposed clay and the geometricized linear pattern becomes apparent to the eye. This alludes to the work's diametrically opposed state of being - disintegration/regeneration.

The transformation of surface materiality was further explored in a drawing (Fig. 4.14) directly inspired by *Stasis I*. The grid pattern was traced out from the cubes and transferred onto paper. I perforated the paper surface to physically imitate the surface characteristics of the ceramic cubes. Pricking the paper has a strong somatic association; during the process paper loses its crisp flatness and develops skin-like characteristics. Pricking, in itself, is an evocative action and in this case, an intensely intimate and time-consuming one. The physicality of the process results in a simulacrum of the ceramic surface as well as captures the idea of an eroded disintegrating surface somehow held together. It creates a situation, a 'landscape of the mind'[4], and a subtle environment unlike a naturalistic one. This aspect directly ties in with the conceptual basis of Islamic decoration and certain minimalist and process-works from the mid-twentieth century.

Figure 4.14: Mehr Javed, *Stasis II*, 2010, hand perforated paper, 60 x 48 cm

[4]Dalu Jones, *Surface, Pattern and Light*, Architecture of the Islamic World, edited by George Michell

This malleable and fluid quality the paper assumes led me to explore perforated drawings further. The paper loses its sanitary whiteness, it either dents, wrinkles or forms waves; the porous visuality seems to be in a state of flux - weightless and airy yet grounded in its sensuous materiality. The eye automatically responds to the tactual, vision becomes touch and touch becomes vision. In *Haptic Visuality: Touching with the Eyes*, Laura Marks comments, 'In haptic seeing, all our self rushes up to the surface to interact with another surface... '.[5] The tangible, tactile image offers a multisensory experience as opposed to quick cursory viewing, and the drawing becomes an active plane that bears the mark of the (absent) body, transforming the image into a performative, subjective experience.

Figure 4.15: Mehr Javed, *Fracture (detail)*, 2010, hand perforated paper, 65 x 50 cm

In most of my earlier drawings I worked with grid-like rigid forms to create rhythm and harmony through surface manipulation. In the following series of drawings however, I sought to create organic, furling progressions of points. These perhaps are the most narrative drawings of the lot as they suggest a progressive meandering; however, there is no clear indication of a beginning or an end point. It was almost instinctual to want to peer through the perforation marks and hold them against light. This seemed to heighten the individual nature of the dots, which no longer appeared as a collective mass. Once backlit, these points assume an airy and ethereal quality; distinct particles that curiously hover closely together, almost insubstantial and mirage-like.

[5]Laura U. Marks, *Haptic Visuality: Touching with the Eyes*, Framework, the Finnish Art Review, No. 2, 2004, p. 80]

(a) (b)

Figure 4.16: Mehr Javed, *Untitled*, 2010, hand perforated paper on lightbox, 56 x 78 cm

While making geometric patterns, I also investigated approaches employed by craftsmen and artists with similar concerns. An important influence was Steve Reich's experimental compositions produced early on in his career when he used commonplace, everyday sounds, like clapping, audio-visual clips from movies, lyrical snippets from songs, and constructed an entire score using the variation of a single audio-motif. The central rhythm remains cohesive through all its dynamic generations in the duration of the score, the central audio-motif seems to tessellate forth radically as overlaps build up in intensity and complexity. A simple visual analogy would be that of the rays radiating outward from a single center point in gilded halos often seen in Byzantine Icons.

At this point I also began experimenting with generative patterns, based on fractals and algorithms. Medieval Islamic art, especially Muqarna vaults in classical architecture, provides a rich, visual geometric language, and I was very keen on exploring the generative principles underlying these three dimensional, patterned structures (see discussion in Sec. 2.5, p. 24). There are many computer-based tools today that can generate complex and intricate patterns in mere minutes. I used these to generate patterns, which were then either refer-

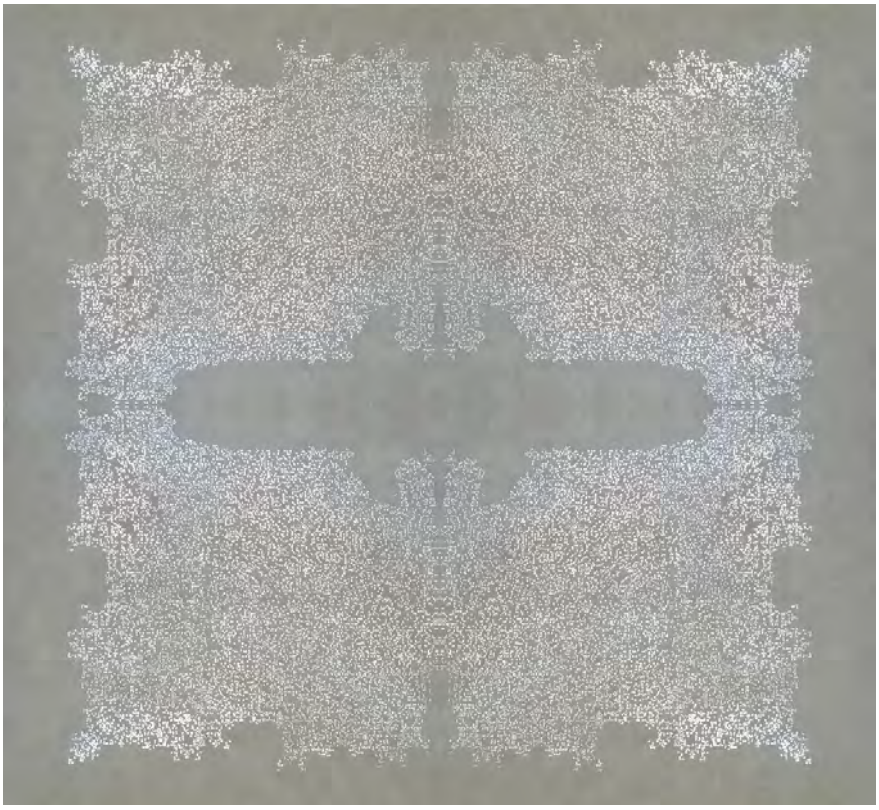

Figure 4.17: Mehr Javed, *Lacuna*, 2011, Hand perforated paper on lightbox, 60 x 60 cm

enced in part, or used entirely in large perforation drawings (see Fig. 4.17).[6]

Lacuna brings forth a sublime, vapour-like quality. There is a vague sense of Rorschach-like symmetry[7] that seems to radiate from the center, proliferating towards the periphery. It has an auratic presence. In *Lacuana*, the dynamic pattern and its proportional relationships which govern its internal symmetries, can be regarded as intersections of the timeless and the temporal. *Untitled 2011* (Fig. 4.18), in contrast is deeply rooted in ritual and repetition (as noted earlier in the discussion on Hesse and Martin in Section 4.2). As a visual structure, its geometric lattices are anti-narrative, they reject a sequential reading, and their progressive replications are devoid of both thematicism and hierarchical order. The recursive nature of the overall pattern constantly engages the viewer in a simultaneous act of recalling and anticipation, thus rendering ineffective any

[6]I experimented with image generation in *Mathematica* (S. Wolfram), *Matlab*, and *Visions Of Chaos* a software application which explores cellular automata, chaos and fractals (see Fig. 3.15, p. 43)

[7]Rorschach Inkblot is a psychological test in which records the perceptions of inkblot images, which are then analyzed using psychological interpretation, complex algorithms, or both. These inkblot images are based on vertical symmetry and display a limited color palette.

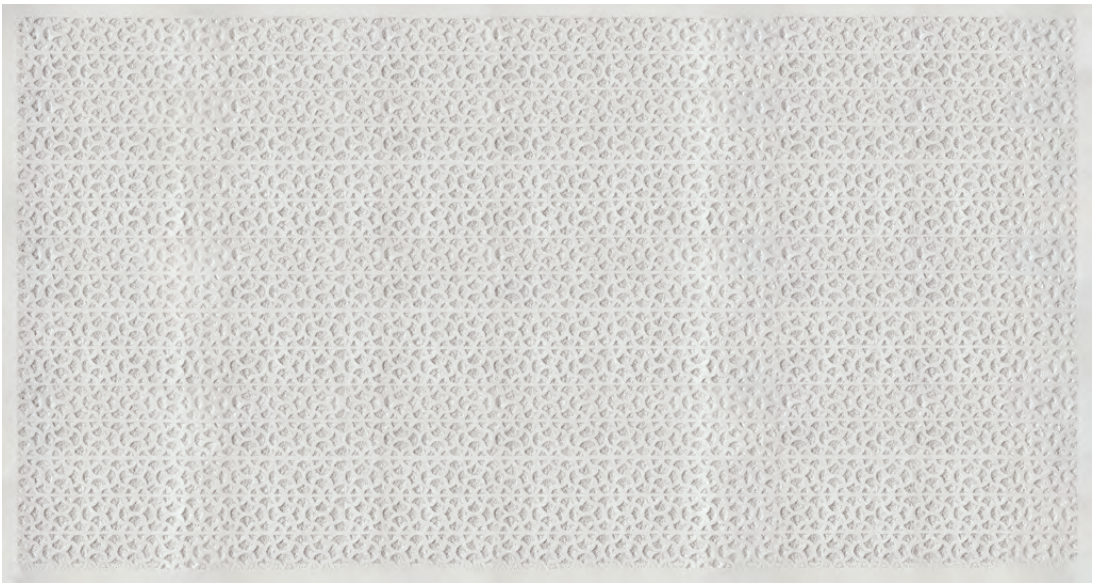

Figure 4.18: Mehr Javed, *Untitled*, 2011, hand perforated paper, 110 x 190 cm

lateral reading (of time).

As the viewer's eyes move across a richly textured surface from a close-up position, occasionally pausing but not really focusing, they are in essence functioning like organs of touch, like skin. In this act of intimate viewing, the evidence of time invested in the production of the drawing is almost palpable, and this intuitive sense derived from the density of the surface invites the viewer to mimic this *longue durée* in a prolonged, meditative act of looking.

In this chapter I have detailed the thought processes behind my practice and the evolution of my studio during my MFA tenure. I have attempted to contextualize my conceptual concerns and the resulting works by citing examples from traditional aesthetic theories and contemporary art practices. I have drawn on varied influences such as Islamic *falasafa*, Byzantine icons, computer-generated algorithms, and several examples from Modern art to substantiate the formal choices I have made in my body of work. This work comprises large and small format pattern-based drawings and relief works. The resulting *Patternscapes* explore the role of drawing as performance that bears the mark of the (absent) body in time.

Conclusion

The immediacy of cutaneous contact holds unique and indispensable insight into our environment. To see through the eyes is only a fraction of what it is to grasp holistically, and for this the importance of touch is undeniable. It is through physical contact that we come to an understanding of space and time as an emotional idea, and are able to apply these ideated tactual references in metaphorical and abstract concepts.

My research has centered on the primacy of touch and notions of hapticity pertaining to subjective and associative ways of looking at and understanding contemporary drawing practices. The role of time has been crucial to this embodied understanding, which pertains to both the act of drawing and that of viewing it. I have used the generative potential of geometric abstraction to explore the haptic and the temporal aspects in drawing. My studio research references Islamic geometric abstraction and explores indexical motifs/units and their iterations, to create embodied *Patternscapes*.

I began by introducing the concept of the felt unity of the body, and cited research from neuroscience and psychology to establish how the eye in fact, acts as a specialization of the skin organ. This view directly challenges the hegemony of the vision-centric as a dominant trend in contemporary culture. The limiting effects of this ocularcentrism are discussed in comparison with pre-Renaissance aesthetic approaches in Byzantine icons and Islamic *falasafa*. I then analyzed the sensory understanding of materiality within a spatial-temporal confine and how it contributes to abstract symbolic concepts. I explore in detail the central role of geometry because it serves as a mediary between the sensible realm and the abstract. I facilitate this by referencing the aniconic arts of Islam as they bypass the trappings of material representation and allow for assimilation through free association. This is achieved through repetition, tessellation and seriality, reactivating desensualized space through the skin of organic pattern. Pattern is then discussed as an embodiment of extra-material time freed from its linear flow as perceived in the post-industrial age. A brief critique of the ubiquitous grid as

an emblem of the Modern ethos is presented along with its representation in the arts. I compare this with a more dynamic, cyclical and abstract flow of time as represented in Islamic thought and its manifestation in the Muqarnas vaulting system as an architectural device.

This discussion is followed by a compilation of images to lend intuitive insight into the theoretical concerns discussed thus far. I then introduce the body of work produced during this research candidacy, and contextualize it within its historical context as well as relate it to contemporary art practices. I discuss in detail my methodology (indexical mark making) and formal devices (such as perforation, algorithmic pattern generation) used to create *Patternscapes* in various media. The studio practice and the theoretical component together explore the generative potential of pattern as an expression of embodied time.

An expansion of the conceptual and formal themes of this research may be the exploration of the generative potential of the digital *pixel-point*. There are stark similarities between the medieval geometric point and its modern counterpart, the digital pixel. Both are the most basic units on which highly complex and abstract knowledge has been created. The pixel-point with all its symbolic connotations is a potent generative unit that can be unfolded and expanded through infinite iterations via generative softwares and algorithms. I experimented with cellular automata and generative softwares towards the latter half of my MFA and can foresee much research potential in exclusively studying the haptic potential of computer-generated patterns and the temporal aspects pertaining to viewership. It would also be interesting to explore the merging of the hand-made mark in computerized iterations, a theme which I have only begun to explore as a result of my MFA research.

The substitutive correlation between the geometric-point and pixel-point can have interesting implications on the genealogy of Computer-based/Digital Art, by linking it to Islamic aesthetics. Laura. U Marks has written extensively about the major formal elements of Western modernism (haptic image and abstract line) as directly influenced by Islamic art. To pursue this field of research and include these influences within the (exclusive) Western Art History would open considerable avenues into ways of looking and understanding aesthetics as an outcome of this investigation.

Glossary

To assist the reader, I have added a glossary of important terms used in this thesis. The definitions presented here have been complied from several sources; authored works such as books, and journal papers, and several specialist lexicons, and in some cases a working definition that I have put together myself, most relevant to the context in which I use the word in this thesis.

- **Aniconic** - Symbolic or suggestive rather than literally representational: not made or designed as a likeness.
- **Cutaneous** - Pertaining to the skin itself or the skin as a sense organ. Includes sensations of pressure, temperature and pain.
- **Decoration**[1] - Anything applied to a structure or an object that is not necessary to the stability, use, or understanding of that structure or object.
- **Haptic** - Relating to the sense of touch in all its forms, including those below.
- **Kinesthesia** - The sensation of movement of the body and limbs. Relating to sensations originating in muscles, tendons and joints.
- **Muqarnas** - A stalactite or honeycomb ornament consisting of numerous niches and niche fragments which adorns cupolas or corbels of a building.

[1] For the reader's ease, it is important to elaborate upon the difference between decoration and ornament, as both these terms are used extensively in the exegesis. Both terms seem to be synonymous in common vernacular, however I would like to bring to attention the (working) definitions presented by scholars and art historians that have been of some consideration during the structuring and writing of this exegesis (a detailed analysis is however much beyond the scope of this thesis). Following Oleg Grabbar's distinction of the two as presented in The Formation of Islamic Art (New Haven, 1974; 2d ed., 1987, p 179), decoration can be anything applied in part or as an entirety (like a complete mosaic, or sculpted object) to an independent object or a building. In contrast, ornament is a type or sub-class of decoration, which is devoid of any intellectual content and appears to have no other purpose other than to aesthetically enhance its carrier. In this sense ornament has existed everywhere, in every artistic tradition in every age. The area of focus for this exegesis will be medieval Islamic Art and its use of an aniconic geometric idiom in ornamental patterns.

Muqarnas are used primarily as an internal cladding for curved architectural elements for example, in the transitional zones between domes and their supports; also in mihrab niches, tops of window openings, on capitals instead of tambours, and ledges.

- **Ocular** - Pertaining to the eye, optical
- **Pattern** - A recurring theme of elements, objects, actions or events; a progression of repeating elements that have an underlying (predictable) structure or periodicity.
- **Pendentive** - A spherical triangle (in architecture) which acts as a transitional device between a circular dome and a square base on which the dome is set. It is a triangular segment of a spherical surface, filling in the upper corners of a room, in order to form, at the top, a circular support for a dome.
- **Proprioception** -Perception of position. State and movement of the body and limbs in space. Includes cutaneous, kinesthetic and vestibular sensations.
- **Squinches** - The lowest voussoir on each side of an arch. It is where the vertical support for the arch terminates and the curve of the arch begins. Squinches may be formed by masonry built out from the angle in corbelled courses, by filling the corner with a vice placed diagonally, or by building an arch or a number of corbelled arches diagonally across the corner.
- **Tactile** - Pertaining to cutaneous sense, but more specifically the sensation of pressure (from mechanoreceptors) rather than temperature (thermoceptors) or pain (nociceptors).
- **Tessellation** - The process of creating a two-dimensional (infinite) plane using the repetition of a geometric shape without any gaps or overlaps.
- **Vestibular** - Pertaining to the perception of balance, head position, acceleration and deceleration. Information obtained from semi-circular canals in the inner ear.

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