# GEOMETRIC DESIGNS IN ARCHITECTURE AND TEXTILES REVISITED AND RECONSTRUCTED THROUGH LAYERED PLANAR GEOMETRY

Benigna Chilla
Department of Visual Arts
Berkshire Community College
1350 West Street
Pittsfield, MA 01201, USA
bchilla@berkshirecc.edu

## Abstract

My purpose is to show how I use two-dimensional geometry to reconstruct existing designs that I have found in architecture, pavements and textiles. I layer surfaces, isolate movements and recreate a new design, which will now appear like an optical illusion or three-dimensional design in space. The inspiration through existing patterns gives me a clear understanding that only with the tools of math and geometry can we remember and reconstruct freely. Through the order of repetition of these forms a new design is created and the original departure might not be evident. The biggest challenge for me is to revisit and then reconstruct these sometimes complex, simple, and ancient designs.

## 1. Textile

**1.1 Cinturón.** My challenge is to see simple forms and recreate them into complicated designs or to isolate and deconstruct complicated patterns to create a simple three-dimensional design.

The constant question for the artist has always been how to generate new ideas. Where do we look and how do we get inspired? Throughout my journeys I have found myself becoming more intrigued with taking information from textiles, architecture, fences, pavements, and simple forms that occur in nature, than with looking at paintings, sculptures or prints. The understanding of these existing designs has inspired me to reconstruct forms and patterns freely through the knowledge of geometry, while I also change their sizes and order of appearance.

In 1998 I visited the Palacio de Carlos V in Granada, which hosted the exhibition "Textiles and Rugs from the Museum Alhambra." A fragment of a 19th century belt caught my eyes. It was a piece that was difficult to read, understand and remember – an optical illusion in its size, color combination and repetition. Triangles that became arrows interlocked into a positive/negative appearance were interrupted through equal distant stripes, which could also be read on a diagonal.

**Figure 1:** *19th century belt fragment, collection of the Museum of Alhambra*

I was so fascinated by the positive/negative interaction of this woven design that I took the task to translate the textile into a layered three-dimensional piece. When I returned to my studio, I created the piece "Cinturón", a horizontal two layered painting (24" x 78" x 3"). The perception of the surface and color combination in my piece changes dramatically while moving from right to left and left to right. Only with a structured geometric plan, could I analyze and reconstruct this design in order to give it a new life.
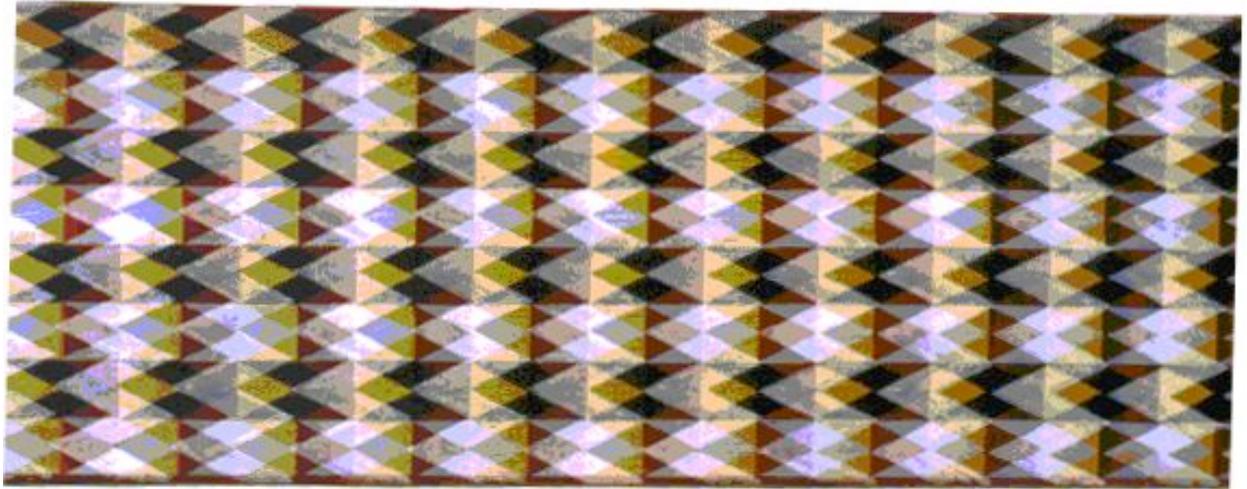


**Figure 2:** *Cinturón, 1998*

**1.2 Diagonal Encircled.** The combination of woven material incorporated with appliqué and embroidery is commonly found in East Asian textiles. One texture or layer is directly placed on top of the other surface. I have used this technique in my own work, though I separate and lift the layers into space, therefore no longer dealing with an exact parallax overlap but instead changing the viewer's perception of

the images by engaging the viewer as a participant in the piece. Hidden images are now revealed by looking at these pieces from different angles and changing the distance of viewing.



**Figure 3:** *19th century kimono, detail*

The embroidered border of a 19th century Japanese kimono was the departure for a three layered painting entitled "Diagonal Encircled" (44"x 54"x 3"). Figures 4, 5 and 6 show the different layers that are then combined into one piece. The interlocking circular shapes were reconstructed with three circles within one shape, then redrawn on the second layer and finished with a diagonal curvilinear movement following the pattern on the third layer. The color combination no longer has any relationship to the original colors of the kimono border. Only the idea of the decorated embellishment remains the same.
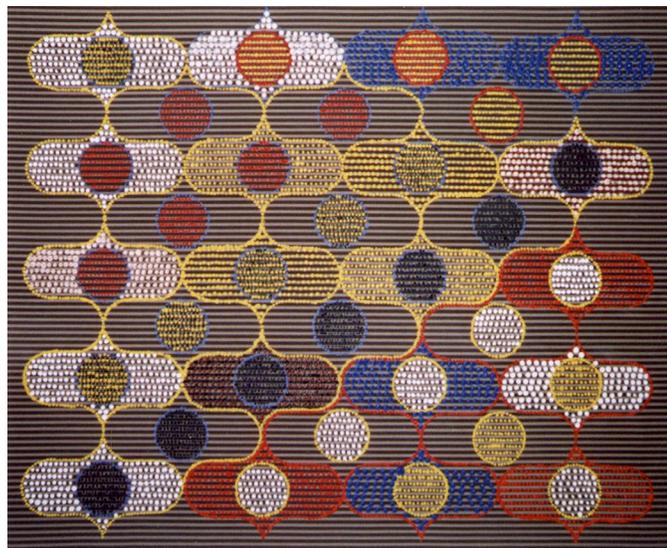


**Figure 4:** *Diagonal Encircled, 2000 (first layer)*

**Figure 5:** *Diagonal Encircled, 2000 (first and second layer)*
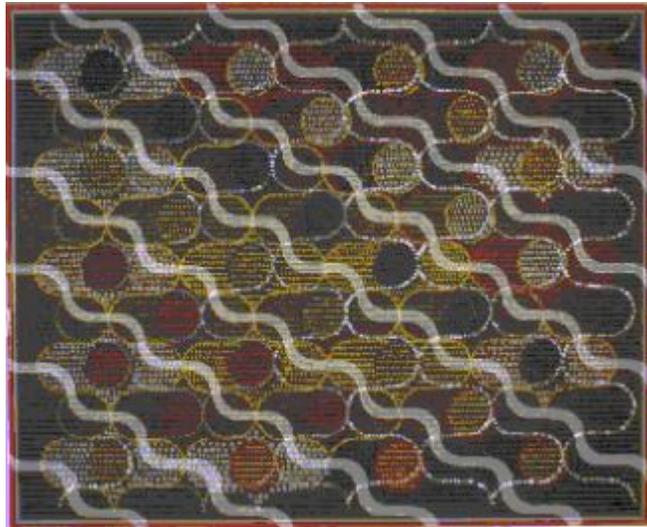


**Figure 6:** *Diagonal Encircled, 2000 (fully assembled)*

## 2. Architecture

**2.1 Wall rosettes, 2003.** The geometry found in pavements has interested me and added to my visual vocabulary for several decades. However, it takes time for me to digest and process these visual experiences in order to translate and apply them into my work. If possible, I try to revisit sites, look at the changes that happen over time and only then resurrect and preserve ideas in a new piece.

One inspiration came to me from looking at pavements during an excursion to Venice and its surroundings. While visiting Torcello and its byzantine Basilica of Santa Maria Assunta, I studied and documented the pavement inside the basilica. Figures 7 and 8 developed into a series of new circular designs within a square. The existing pavement was made from different kinds of marble whose shapes were cut and placed in a circular zigzag pattern.
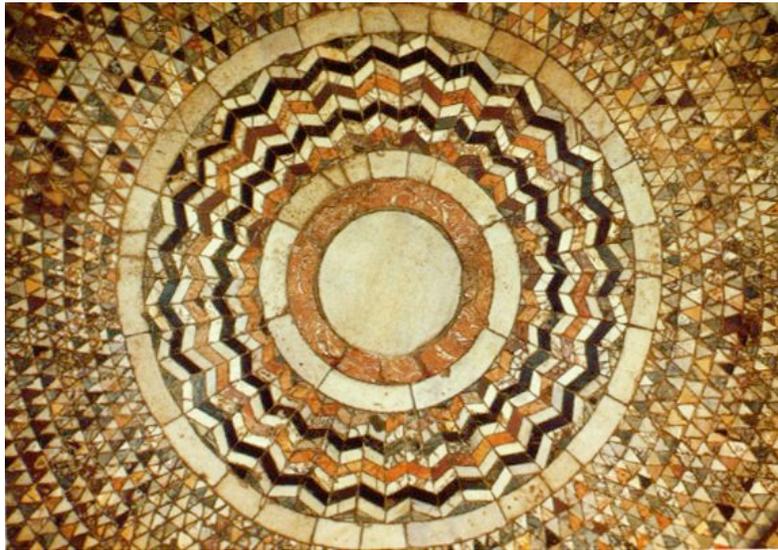


**Figure 7:** *Pavement detail, Basilica of Santa Maria Assunta, Torcello*
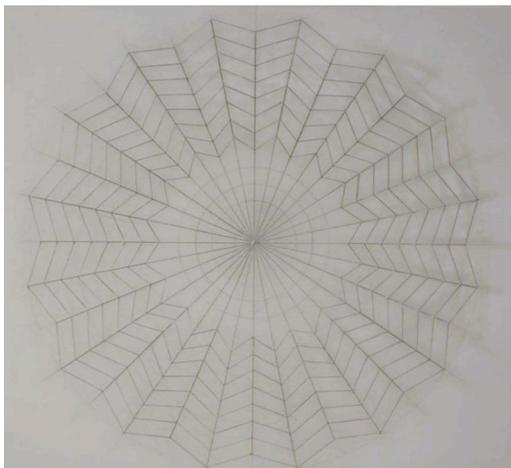


**Figure 8:** *Work Drawings – Wall Rosettes, 2000*

I reconstructed the pattern on a zinc plate to be able to multiply, rotate, reverse and offset the image into a three dimensional format. Through this planar method of printmaking, I created a variation of four new pieces (14"x 14" x 2") and elevated the patterns from the original floor pavement to wall pieces, which now appear like kaleidoscopic rosettes.



**Figure 9:** *2 Layers; second layer offset*



**Figure 10:** *3 Layers, third layer offset*



**Figure 11:** *3 Layers offset*
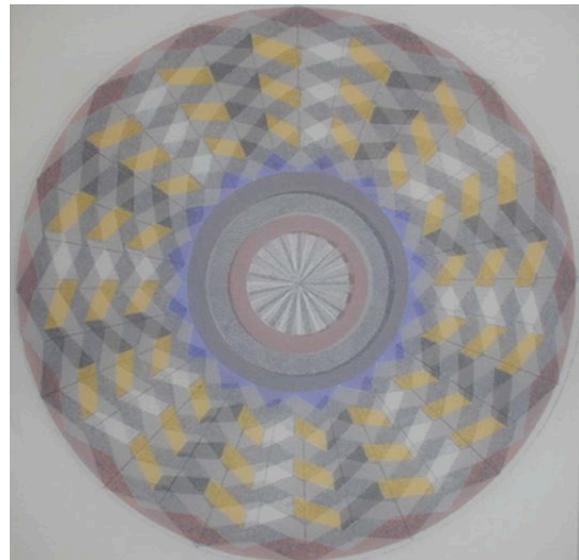


**Figure 12:** *3 Layers, first layer offset*
*2 Layers parallax to first layer*

My archeological interest is in documenting, reconstructing, and understanding ancient designs.  I keep a visual diary using planar geometry.

# References

*Tejidos y Alfombras del Museo de la Alhambra*, Archivos y Publicaciones Scriptorium, S.L., pp. 114-115, 1997.