

Geometries

As long as I can remember I have had an interest in pattern. I have always been attracted to colors, shapes, movement, and abstraction. Bathroom tiles, ripples on the surface of a lake, clusters of leaves, and cracks in the sidewalk consumed my daily thoughts. I enjoyed the movement created within these patterns, the patterns that forced my eyes to follow a certain path, one often unnoticed by the average person passing by. After finding these patterns I would often try to recreate them, sketching them in the margins of my notebooks.

As I have grown, my interest in pattern has developed. I now find interest in patterns of all sorts: social, two-dimensional, and behavioral. Being very conscious about my surroundings I enjoy observing these different patterns in my daily life, like the paths students take around campus, or my regular morning routine that consists of waking up, eating breakfast, getting dressed, packing my bag, brushing my teeth, and walking to the bus stop, for example. After observing these patterns I enjoy attempting to transform them into a two-dimensional images or my own visual representation of the patterns.

These different types of patterns have become my main focus and interest. I am curious of how the different types of patterns can come together, how physical actions can be turned into two-dimensional and visually intriguing patterns, and what happens to a shape when repeated multiple times.

My integrative project grows out of this love of pattern and repeat. Growing up in a small town in Northern Michigan I have always felt at ease with nature. Whether riding my bike through the trails, picking blueberries, helping my grandparents in the garden, building snow sculptures, trailing, or just playing in the hayfields, the majority of my time as a child was spent outside exploring nature, so naturally I decided to use nature as a starting point for my pattern designs. However, entering the pattern design world as a young artist, I knew that there had to be something different, new, and unique about my patterns. Patterns inspired from nature have been around for hundreds of years and are usually organic or abstract in nature. Organic patterns often portray the natural forms of

flora and fauna. For example, Figure #1 is a print designed by Alex Docker. The print contains delicately drawn dragonflies perched on fine green leaves against a background of burnished gold. Also, observational drawing plays a major part in the creation of these designs, often with an emphasis on the realistic depiction of plants and animals. This can be seen in another of Alex Docker's designs. Figure #2 contains elegant shapes of ferns and overhanging branches, which were directly inspired by Japanese decorative motifs. The metallic blue foil on the design produces a shimmer to recreate the properties of water while adding a shot of bright color. Emily Burningham also uses drawings of plants to create representational prints. Figure #3 portrays stylized water lilies with delicate pink centers floating serenely in the print. Because representations of plants have been used for thousands of years, I wanted to stay away from creating completely organic designs. Instead, I chose to focus on the kinds of designs I am personally most drawn to, which are geometric in nature, consistent and organized, similar to shapes and patterns used in Islamic, Hindu and Buddhist art.

Throughout the year I have been exploring the different types, characteristics, and origins of pattern designs, and for the most part geometric and organic styles have been isolated from one another. Through my integrated project, I am looking to blur the line between styles and intertwine contrasting styles of pattern designs to create new uncommon patterns. More specifically, I am looking to bring the idea of organic pattern designs together with the organized structure of geometric designs.

In contrast to free flowing organic patterns, many geometric designs are created entirely on a mathematical basis. Almost all geometric patterns contain an underlying invisible geometric grid upon which the pattern is constructed. Other geometric patterns contain a regular structure, as well as elements that purposely disrupt the pattern to achieve an asymmetrical balance. Figure #4 and #5 are great examples created by Dominic Crinson. These designs are geometric patterns created through mathematical principals that produce the grid formation. Crinson states, "My specialty is designing imagery to be output via computer on to various surfaces such as ceramic tiles, wallpaper, carpet and floor tiles." Figure #6 is another design by Dominic Crinson: "A single digitally produced tile with sparkling highlights – pattern is both uplifting and

calming to live with. It reflects the repetition found in nature and creates inspiring spaces.” Rachel Moore is another artist that follows the grid like formation to create her designs. Figure #7 contains grey, yellow and two tones of pink that have been combined to produce a pattern of three-dimensional boxes in this hand screen-printed textile. Figure #8 is a pattern design created by Yerin Jeon. He states, “This pattern is developed from the images of minerals. I have used white for the background to emphasize the beauty of the space, which is the most important characteristic feature of Korean traditional paintings.”

I am also looking to use abstraction in my pattern designs. I define abstract patterns as non-representational designs with freely drawn shapes and motifs, with no recognizable figurative or narrative elements to the design. I am drawn to abstract designs because they allow the viewer to create their own experience with the print, allowing for different interpretations from a design. Abstract designs also have the potential to reach and appeal to a wider audience and allow for open interpretations. Abstraction allows for viewers to apply their personal thoughts and experiences to the work, creating unique individual experiences. For example, (FIGURE #9) Emantras-India’s print can be suggestive of popsicles, dancing abstract human forms, or several yoyos springing in action, along with many more visuals as perceived in the mind’s eye of the viewer. Gina Pipet is another great example of how abstract designs can allow for different interpretations. Figure #10 was inspired by zoo life with its inhabitants; the animals and creatures. Pipet states this design, “When creating this pattern an extremely intriguing form appeared of its own volition, suggestive of a somewhat mythical creature derived from zoo animals.” Andrew Hardiman is yet another example of an artist working with abstract designs. Figure #11 is loosely based on the “Illuminati”, a secret organization with interconnecting strands. It is a modern pattern designed to blend into a wall, so a pattern is only visible on nearer inspection. The original thought behind the design was to create something that was connected to each other but on a small pattern that would spread.



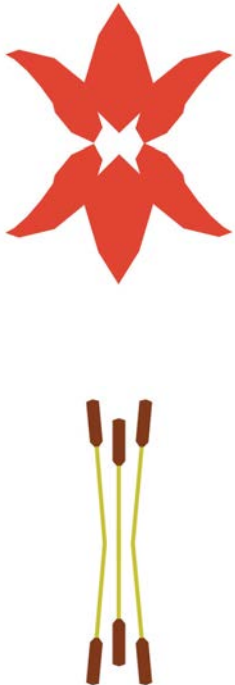
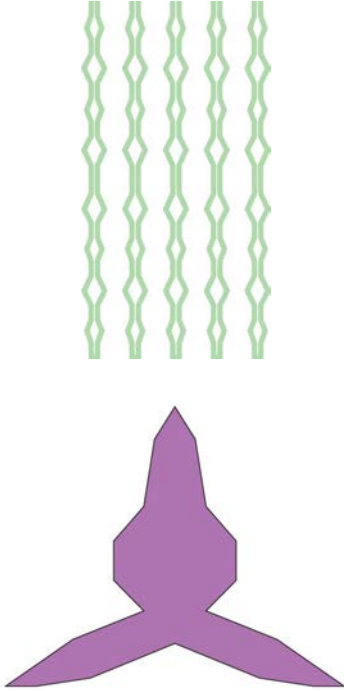
Abstracting the different elements and unique characteristics of each endangered plants allows me to move freely between organic and geometric designs because I have

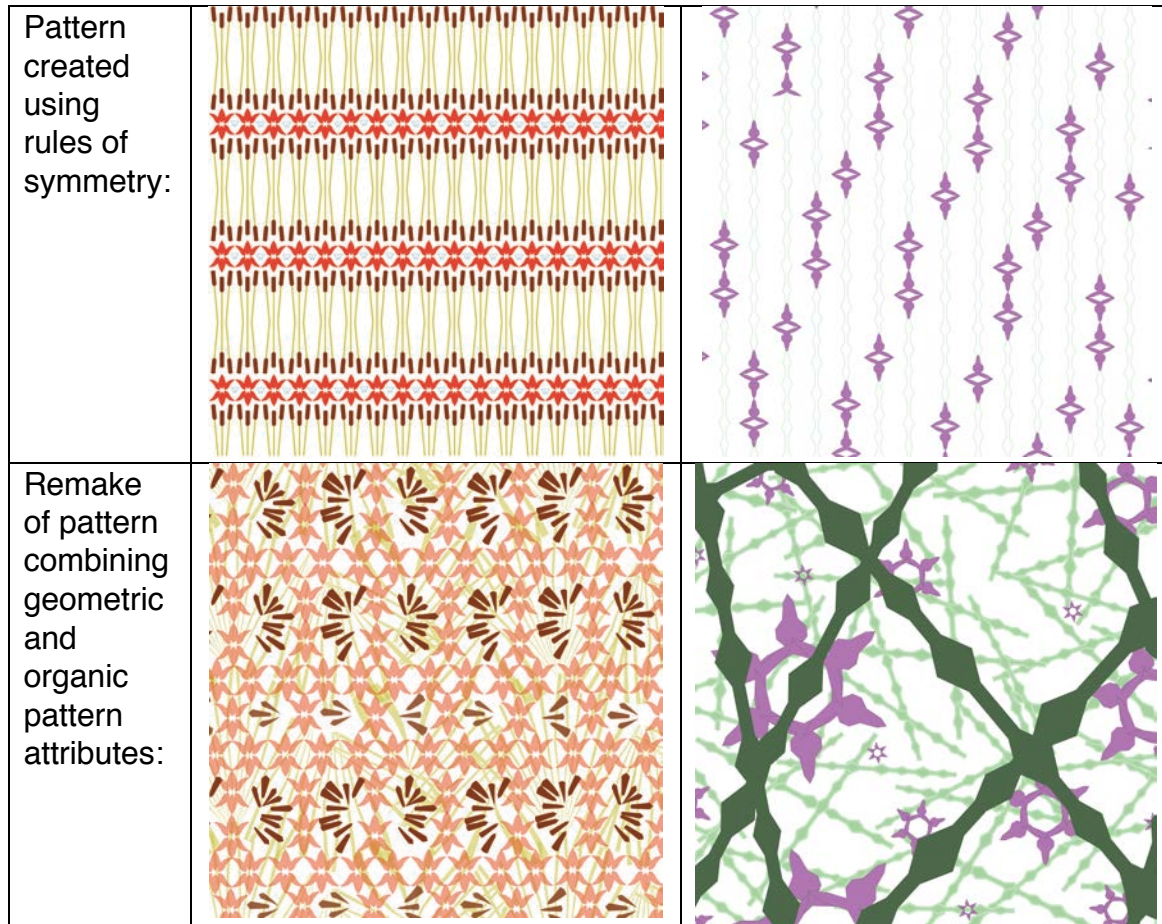
base shapes that can work interchangeably between design types. Much like Crinson's design, I would like to use nature as my inspiration, creating geometric designs as my own interpretation of how I experience nature.

Beginning my pattern designing process, I decided to narrow my inspiration down further to create a limitation for myself, but also a starting point. I chose to use endangered plants to parallel how the art of hand printing is becoming somewhat endangered due to advances in technology and industrial and digital printing. I then limited the endangered plants to the United States, again so I would have a challenge, but it would also be more relatable to the viewers and myself. The plants that inspire this collection of prints include: Catesby Lily (found in the wet pine woods in the southeastern United States); Hawaiian Caper (native to Hawaii); Macbridea Alba, also known as White-birds-in-a-nest (found only in the northwest Florida and southeast Alabama); Pine Barrens Gentian (native to the Atlantic coast from New Jersey southward to Georgia); Rose Pogonia (native from Nova Scotia to Wisconsin and southeast through the Appalachians to the Gulf Coast plain and into Florida); Soapwort Gentians, also known as Harvest Bells (native along the east coast from Florida to Massachusetts, west to the Great Lakes and south to Texas); Erythrina Sandwicensis (otherwise known as WiliWili in Hawaii, which means twisted referring to its seedpods that twist open to reveal bright red seeds); and Winkler's Blanket Flower, (found only in one county in eastern Texas).

I have a very systematic approach to creating my patterns. My process begins with an image of the endangered plant taken from the United States Botanical Gardens Archive. Because I work with abstraction, geometry, and organic pattern designs, abstracting the flowers is my first step. Abstracting the endangered plants allows there to be a separation between the plant and the pattern - I want my designs to be inspired from the plants and not representations of the plants. I first begin the abstraction stage by subtracting basic shapes from the flowers. I also take their two or three main colors as a starting point for my designs. From here, I apply the basic functions of symmetry (glide, reflection, rotation, and glide reflection), arranging the shapes into groups that are contained in a grid formation. I continue to play with the different types of symmetry

until I have a layout of the shapes that satisfies me. I then use additional shapes and line-work to build up the designs. I research where the plants grow, how they are pollinated, how large or small they are, the conditions necessary for them to live, etc. I then use this information to create new shapes, colors, and movement to incorporate into the design.

| | | |
|--------------------|---|--|
| Starting Image: |  |  |
| Abstracted Shapes: |  |  |



After creating countless strong geometric based designs, I gradually began to add organic elements into the existing designs to create new patterns that incorporated both geometric and organic elements. By doing this I could easily compare and contrast the differences between the geometric and organic structured designs, giving me a better understanding of what it means to create organic and geometric patterns. It was also satisfying to see the two very distinct and separate design types come together into one harmonious design.

I also wanted to use my IP project to learn how hand-printing methods could be enhanced by advancements in technology. Screen-printing by hand has become somewhat of a lost art form in today's society where digital printing and industrial scale printing is easily accessible. However, the little mistakes and nuances that I find most interesting and beautiful in hand printing are lost when the printing is moved to large-scale industrial/digital printing. Throughout the semester I experimented with multiple

different ways I could create patterns using both hand and digital methods. I first began creating all my patterns by hand. I would sketch and draw out each individual pattern, cut the stencils, and print the design to the fabric by hand. Second, I moved to using computer-based programs like Adobe Illustrator to create the patterns. At this stage, once the designs were created in Adobe Illustrator, I would have them printed at large scale and then cut the stencils by hand and print the designs by hand. Third, I used my designs created in Adobe Illustrator and had the stencils cut using the laser cutter, but then still hand printed the designs. Lastly, I had my Adobe Illustrator-based designs sent to a digital printing facility to have them printed.

By engaging and working with all these different methods and ways of working, I was able to make a few conclusions about printing. First, I found that digital techniques lend specifically well to geometric designs. Hand drawn designs can be very difficult to keep consistent; the shapes will be slightly different and even if you draw a graph to keep the lines/movement straight, there will always be small shifts. However, at the same time these imperfections are one of the reasons why love hand printing. Even once the pattern is drawn and stencils cut, printing by hand creates its own set up imperfections that arise when measuring the length of the repeat, moving the screens, etc. Second, if I wanted to continue to keep everything precise when creating geometric designs, the laser cutter was a better option for cutting stencils rather than by hand. Even if the original design was created in Adobe Illustrator and printed, hand cutting the stencils provided a lot of room for uneven shapes, line work, spacing, etc. The use of Adobe Illustrator and the laser cutter made it easier and quicker to construct regular patterns, produce consistent grids, and assure that the design is straight throughout. However, even with the help of Adobe Illustrator and the laser cutter, the act of hand printing continued to present unique imperfections despite the extra steps I took to prevent them. In conclusion, I found that the use of newer technologies can work together with hand-printing to enhance and shorten the process, but happy accidents are characteristic of hand-printing that can never be prevented. On the other hand, I found that traditional techniques and producing all parts of the process by hand was cohesive organic and abstract pattern designs. The little mistakes are often lost in the

freely flowing motifs, overlaps, and movements created within these designs. Also, because the repeats in these types of designs appear more random than those of geometric designs, the subtle nuances do not disrupt the pattern as a whole.

Through this project I also digitally printed some designs to compare and contrast with hand printing. I found that digitally printing designs allowed for background color behind the designs. If done through hand printing, all other colors already printed would be affected by the background color.

For example:



(This design would not have the same appearance if printed by hand. The purple in this design is a background color. When printing this by hand, the yellow motifs would have to be printed on top of the yellow. The yellow motifs are too thin to allow room for the purple to have overlaps, which is necessary with hand printing to assure there is no white space. Because of this, the vibrant yellow color would not be achieved through hand printing.) On the other hand, when the designs were digitally printed the overlapping colors did not blend or interact as they do with hand printing. My design inspired by the Catesby Lily is a great example:

Digital Printed



Hand Printed



The colors of the digitally printed fabric lay on top of one another, but do not combine to make a new color, whereas in the hand printed fabric on the left, the yellow and the reddish pink of the flowers combine to create a vibrant golden orange color. Even with the use of opacity and transparency that can be controlled in Adobe Illustrator, when digitally printed, the overlapping colors become one flat color, losing the depth that is created when they are hand printed.

My integrated project has allowed me to deepen my interest and learn new techniques in fiber art and textile printing. I have always enjoyed textile screen-printing because the fabrics created can be used for such a wide range of things, such as clothing, bags, tapestries, etc. Because the fabrics can be used to create countless items, the creative process continues after the design has been printed to the fabric. For this project I decided to use the fabrics in a home setting. My show was made into a room, with chairs and a footstool upholstered in my fabric, along with curtains and a valance, multiple pillows, and wall hangings; however, I could have chosen to create a series of purses with these fabrics. After the designs are made, the creative process continues: determining what fabric to be used, what to make, how to make it, what it will be paired with, etc. The creative process is a repetitive cycle.

Reference Images:

Figure #1: Alex Docker



Figure #2: Alex Docker



Figure #3: Emily Burningham



Figure #4: Dominic Crinson



Figure #5: Dominic Crinson

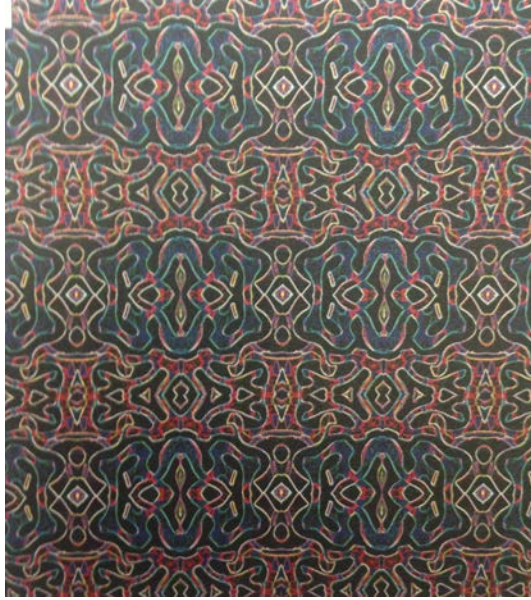


Figure #6: Dominic Crinson

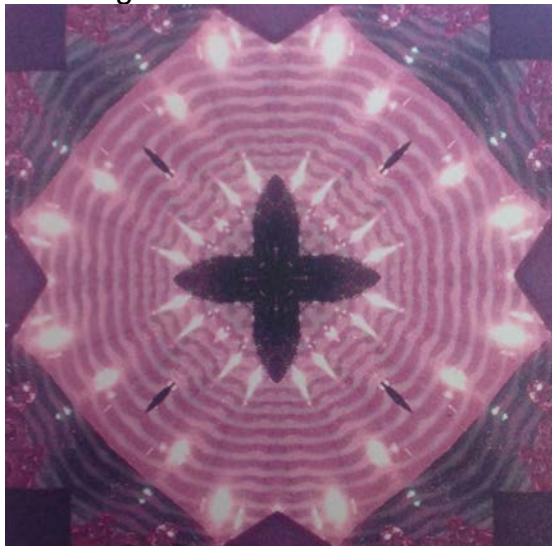


Figure #8: Rachel Moore



Figure #9: Yerin Jeon

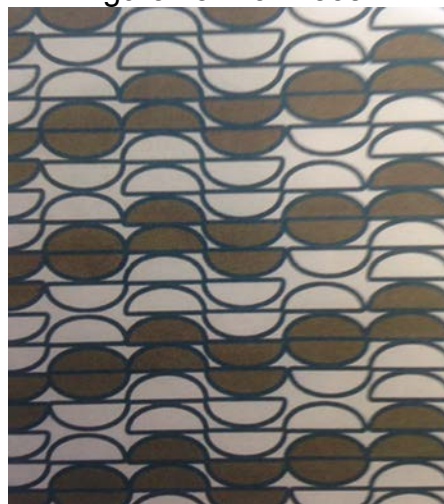


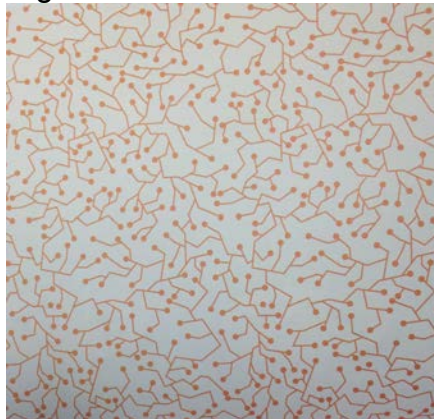
Figure #10: Emantras-India



Figure #11: Gina Pipet



Figure #12: Andrew Hardiman



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