Archimedean Flare

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Measurement: bust 34", waist 25", and hip 36"

Design Statement

Digital printing on textiles has changed designers' design process by allowing them to customize fabric and engineered garment patterns to create one-of-kind garments. The development of digital software and computer technology has greatly influenced the fashion industry and enabled designers to translate our innovative ideas and inspirations into a reality. Designers can now create their own colors in multiple ways and develop their own textile surface patterns from those colors. However, it is also important to balance the use of digital technology with manual methods, as "A growing number of contemporary artists are producing work with their hands, using methods and materials traditionally associated with craft" (Hung & Magliaro, 2007, p 7). The purpose of this design was to create a contemporary garment inspired by the colors of nature that blends hand crafted weaving techniques with digital pattern making technology.

Several contemporary designers such as Miriam Ponsa, David Koma, Tony Ward, Iris van Herpen, and Anja Mlakar have incorporated weaving designs in their collections in recent years (Arte Povera, 2015; David Koma, n.d.). Although contemporary designers have incorporated woven strips into some part of their collection, few of them have combined their weavings with digitally manipulated gradients of color printed on textiles. After reviewing other designers using woven strips, this design project proves to be unique and original. Using both hand weaving and digital textile print technology, an optical illusion is formed from the expressed juxtaposition of gradient colors and the resulting patterns arising from the woven spiraling concentric curved strips.

Several other designs have been created by the designers combining traditional hand weaving craft and contemporary digital printing technology. When the designer started working with digital textile printing technology, the designer was able to create the textiles surface design through woven design by utilizing the developing optical illusion of depth and volume that is created from having parallel gradations of two or three contrasting colors overlapping in an interleaving pattern. Through this process, the designer was able to create interesting optical patterns as well as three-dimensional patch-like illusions in her previous design projects. However, this is the first time that curved spiraling strips with widths of gradually decreasing size toward the center were incorporated into a digitally printed textile pattern. By digitizing the garment patterns, the designers were able to pre-visualize how the finished woven pattern would appear with different curved widths and varying spiral patterns prior to the hand weaving process. This process helped designers to modify colors and readjust the curved strip patterns to achieve the best

outcome. In addition, specific optical illusions of volume and depth were achieved with the juxtaposed color gradients that differ from previous designs because each color gradient and pattern shape location was pre-determined digitally. Previously, the designer was not able to visualize the final color gradient patterns of the woven surface until the whole weaving process had been completed.

The first process of this design project was to create the garment patterns. Skirt and jacket patterns were developed using flat pattern and draping methods. Then, those patterns were digitized and modified using a 2D pattern making program called Optitex. Those files were then exported into Adobe illustrator to develop an engineered textile pattern comprised from the leading edge of 64 equally spaced and overlapping concentric circles. Filling each circle with a 6 color radial gradients gave the designers two sets of textile patterns that were developed for the skirt pattern. These two sets of textile patterns for the skirt were created and then printed on 100% cotton chambray. After all the fabrics were printed, the designer cut each strip following already marked lines and each strip was laid on basting fabric one by one to be inter-woven together in a 'may-pole' like action. After the weaving was completed for both pieces, the edges of each of the pieces and seams were machine stitched. Linings for skirt were constructed separately and sewn to the woven pieces. This skirt can be worn in two ways; as a strapless top or a low-waistline skirt. One of the un-cut textile patterns that was developed for the skirt was also used for the jacket and developed as a quilted jacket. One additional design piece was developed for this design project, so that a wearer can have a two or three different looks. The woven skirt can be worn as a top or skirt and the jacket can be worn with the straight skirt by itself or worn with the woven skirt.

This design is unique and original using both engineered digital textile printing and hand weaving techniques. Furthermore, the designers were challenged to weave curved semi-circular strips of decreasing widths to create a distinctive spiral radial woven pattern. The quilted jacket showcasing the original textile pattern also adds a one of a kind look. This collaborative design project was able to integrate technology and hand craft techniques that was inspired by the radial geometric growth patterns and colors found in nature creating a contemporary garment that can be worn in a versatile ways.

References:

Arte Povera - MIRIAM PONSA. (2015, July 2). Retrieved December 10, 2015, from
        http://www.miriamponsa.com/collection/arte-povera/

David Koma. (n.d.). Retrieved December 10, 2015, from http://www.davidkoma.co.uk/

Hung, S. & Magliaro, J. (2007, p 7). *By Hand: The Use of Contemporary Art*, Princeton Architectural
        Press, New York, NY.