Delicacy Nature

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The goal of this design was to integrate the textile print design and the garment silhouette creation. The questions we asked were: how we could use the draping techniques and the texture of the textiles to represent the aesthetics of the nature scenery? The wearable art design, *Delicacy Nature*, is a part of a serial design collection, *Yellowstone Impression*. The concept of this design was inspired by the vibrant colors of the Grant Prismatic Spring located in the middle of Geyser Basin of Yellowstone National Park.

The Grand Prismatic Spring is the largest hot spring in Yellowstone National Park and the third largest in the world (Bryan, Machen, Heinsz & McCracken, 2015). Its astonishing and vibrant rainbow colors are a masterpiece of nature's creativity. The name of this design, "Delicacy Nature," came from the understanding of the science behind the hot spring. First discovered by Walter H. Weed in 1889 (Brock, 1994), and later elaborated by Angles and Jones in 2021, thermophiles help the development of the array of colors dependent upon the unique geographical structure and the temperature gradient of the Grand Prismatic Spring. The water at the center of the spring is extremely hot, which limits the number of living organisms, so the water is clear, refracting the blue skylight (Brock, 1994; Geiling, 2016). Surrounding the central area of the hot spring, each color ring relies on photosynthetic chlorophyll, which is green. However, depending on the water temperature, chlorophyll is masked by carotenoids to protect the cells from the bright sunlight, which forms yellow, orange, and red colors (Brock, 1994). The red-brown color at the outer edge of the hot spring is formed through the blend of many different bacteria, as the outer edge is the coolest area in the spring.

Figure 1. Prototype of the jacket.

One purpose for creating this design was to explore the possibilities of layering sheer fabrics to exhibit the beauty of the transitions of brilliant rainbow colors in the Grand Prismatic Spring. The long jacket was draped on a size 8 missy dress form (see Figure 1). All paper patterns were digitized and modified in the Lectra Modaris in preparation for engineering the prints on the garment patterns (see Figure 2). The key design element of the long jacket was the creation of a symmetrical silhouette with multiple layers of ruffle collar, aiming to break

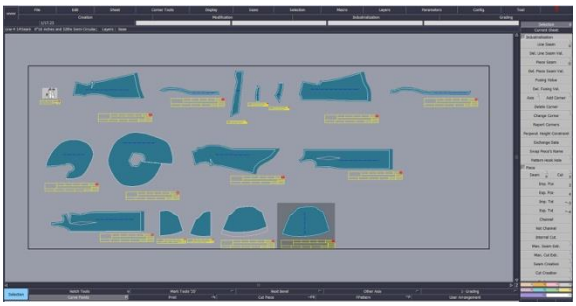

Figure 2. Pattern modification in Lectra Modaris.

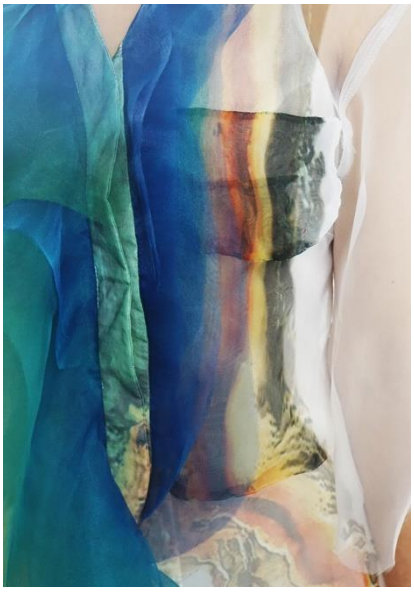

Figure 1. Engineered patch packet.

the balance of the whole ensemble to emphasize the colors and prints at the center of the jacket. The photo of the Grand Prismatic Spring that the designer took was first adjusted by contrast and brightness using Adobe Photoshop to attune to the quality requirement of digital textile printing. The background of the hot spring photo was cleaned in Adobe Photoshop and then engineered on each layer of the collar and the bodice. There were eight layers of the ruffle collar. Each layer of the collar was printed on different colors mimicking the color transitions from the center to the outer edge of the hot spring. The challenges of engineering the layered collars and the bodice were to: 1) properly arrange the size of each layer, 2) smoothly evolve the colors from the top layers to the bottom layers, and 3) match the print on the bottom layer of the collar to the print on the bodice to demonstrate the beautiful texture of the outer edge of the hot spring. All jacket pieces were digital printed on 100% polyester organza (1.2 oz) by Mimaki digital textile printer. In order to ensure strong support for the clear snap buttons, lightweight interlining was attached on the facing of the center front panels. The patch pocket on the wearer's left chest was engineered carefully to match the outer edge of the hot spring (see Figure 3).

The bodice of the one-piece dress (wearing under the jacket) was draped on a size 8 missy dress form. The patterns of the dress top were then digitized into the Lectra Modaris for modifying and adding seam allowances. The skirt of the dress was a full skirt, flat patterned in the Lectra Modaris. Due to the limited width of silk chiffon for digital printing, the full skirt was divided into eight equal panels. The Grand Prismatic Spring photo was placed on the full skirt pattern to match the outer edge of the skirt hem. In order to place the print spanning from the middle of the skirt to the hem, the designer used the Gradient tool in Adobe Photoshop to fade out the center of the hot spring photo. Then the prints were engineered on each panel of the full skirt. The dress was fully lined by 100% silk chiffon to reduce the sheerness of the silk chiffon. The more vibrant and darker colors were printed on the silk chiffon, which brought contrasts to the sheer organza. Moreover, the dark red and brown colors on the dress hem balanced the proportion of the colors on the entire ensemble. The complexities of the colors and the layers of fabrics on the shoulder were in alignment with the bold colors on the long tail of the dress. The ruffle collar on the shoulder and the front of the jacket blend the borders between the jacket and the dress. The designer constructed the rough edges on the jacket and the hem of the dress in order to present the organic feeling of the natural scenery. In addition, the delicate and transient edges improved the integrity and aesthetic of the print.

This design was a successful illustration of nature's uncanny creativity through wearable art. It utilized traditional draping techniques and digital pattern-making in combination with digital printing to maximize the precision of colors and prints. The adjustment of structure and silhouette thoroughly exhibits the dynamics and colorfulness of the Grand Prismatic Spring. This wearable art piece embodies a renovated form of natural sensation.

References:

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Image A: Front View

Image B: Back View

Image C: Side View

Image D: Detail View