Hyperresonance

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Bust-34" Waist-25" Hip-35"

In the recent years, the application of digital textile printing technology has been widely used in various forms of textile and apparel design in customizing product. Many designers today, such as Marry Katrantzou and Alexander McQeeen, have utilized engineered print method to strategically position images to create optical illusion using manipulated dimension and scale. However, such approach is mainly applied on solid fabrics for high color contrast and 3D visual effect. Limited explorations have been done in applying engineered prints on multilayered translucent fabrics. Artist such as Nimmalaikaew, on the other hand, explored portraits on layers of netting and tulle to create 3D and seemingly moving visual outcomes (2014). Such technique involves painting a digital image onto each layer of fabric and manipulating the dimensionality and lighting among images in each layer (Sierzputowski, 2014). As a result, the illusion created reflects image shift and distortion based on the viewer's position.

For this design case study, the aim was to develop 3D visual illusion in a wearable ensemble through applying engineered digital imagery on silk organza using digital textile printing technology. This design research also explored the designer's spatial perception in the 2D computer-aided design (CAD) process as well as relevant problem solving approach in such technique. In addition, the goal was also to explore a unique silhouette for formal wear that is appropriate for such three-dimensional effect. The overall design was inspired by the ethereal effect of tree branches and glass windows during daylight in creating a visual hyperresonance.

This ensemble was symmetrically designed with two main components. The outer layer, a poncho, was constructed with three layers of silk organza, each with different hem length and shape. The poncho closes at the center back, with hook and eye, where each layer of organza extends outwards to form three wing-like layers. Through leading the viewer's eye from back to the side and front of the garment, these layers were also cut in various shapes of wing to strengthen the visual impact. The other ensemble component consists of a strapless dress with color contrasting bodice and uneven hemmed skirt in silk twill. In order to enhance the visual contrast in the overall silhouette, the top layer also incorporated a nyokitto design, folded fabric for protrusions in the garment (Nakamichi, 2011), at each side of the poncho.

In the CAD process, the photographic imagery of tree branches, tree shadows, and glass windows were manipulated in the popular design software, Adobe Photoshop. Image adjustments were made through altering color saturation, balance, and contrast levels. Images were also reflected to create the symmetric design. In order to visualize the outcome of the

different color combinations and layering effects, the images were manipulated in transparency to simulate the silk organza layering. Each layer of image involves a different saturation and intensity of colors. The third layer resulted in a dark blue-purple tone, and the second layer resulted in sepia tone with less color contrast. When engineering the images in each pattern pieces, the images were off set vertically to create the image distortion. To further enhance the 3D effect and image shift, the second layer image was also horizontally expanded through scale change. Compared to the initial glass window and tree branch image, the outcome resulted in a seemingly illuminated ballroom.

In further consideration of the 3D visual illusion in translucent silk organza, the bodice portion of the strapless dress was applied with white color in order to provide a plain background for contrasting visual imageries engineered on the poncho layers. In the skirt part of the dress, the tree branch image was integrated with dark blue-gray ombre effect. This allowed for more focus in the overall design. Moreover, the wing-like layers in the back of the poncho were printed with different intensities of tree shadows imagery to further enhance the shifting, or visual hyperresonance, and ethereal effect of the overall design.

This design research suggests that developing 3D engineered prints on layers of translucent fabrics requires knowledge of lighting effect on the fabric weight, fabric texture, and color utilized. It is also important for designers to provide tacit knowledge and insights relevant to spatial understanding as this particular image inspiration involves architectural elements. In addition, such 3D layer print technique also requires the designer to shift back and forth from 2D CAD interface and 3D prototype in order to achieve the desired outcome. In future, related explorations may expand to include various color combination, cool vs. warm, and different weight of translucent fabrics.

Reference

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