

Constellation Guide

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Concept and context: The goal of this design process was creation of a garment with imbedded guidelines, similar to a map, integrated into the surface design. These guidelines are intended to assist users in constructing their own garment shape variations, even when there are different and connected parts, or multiple ways to wear the garment. The theory that guided this project is that designers need to move away from ownership of the entire process in order to bring the nondesigner/user into the creative process (McQuillan). Similar to mass customization, this design democratization may help the wearer to gain more connection and ownership of the design process and thus to the products they wear. McQuillan et.al. (2018) used digital textile printing to create what she defined as a “way-showing system,” but found in initial testing that extensive instructions were needed for inexperienced users. Certainly, including an assembling guideline into a 3D design requires good communication of structure with meaningful information for the user. According to the Don Norman (2013), a signifier as a communication tool assists user to find out where an action should take place. He emphasized this as one of five fundamental psychological concepts required for a product to gain a discoverability feature. Such democratization of design, via a user-modified model, is a sustainable approach, as increased sense of connection and ownership of the creative process, and opportunities for alternative uses for users, will lead to increased product longevity.

Process, techniques, and execution: The concept for *Constellation Guide* began as a flat form, which takes 3D shape through user involvement in the final design assembly process using embroidered designs as guides. In order to assist the discoverability feature of the garment, and keep the user options clear, this garment contains a series of signifier arrows which indicate the start and stop point of assembling locations with appropriate forms of closure placed at these points. This surface design of the garment was inspired by the constellation concept of connecting stars to envision particular shapes. The design process began with experimental ideas on half-scale dress-form. Prior to beginning draping on a dress-form, many origami experiments in the form of parallel curves were tested with flat patternmaking method on the table. For this type of curves, the design was inspired by the “Compression and Rotational Limitations of Curved Corrugations” as explained by Christine E. Edison (2011). The biggest challenge of this part was the difference between the paper origami and fabric origami. In fabric origami, the material, even if we consider a stiff fabric, does not behave as a paper. This became a bigger challenge when the design was transferred from the half-scale to the full-scale dress-form. Therefore, several tests of curves were performed to guarantee the full-scale garment would retain the desired shape.

Side panels of the skirt were assembled first as a conventional side cowl then changed to the reversed form of a side cowl to bring more consistency of form to the whole garment shape. Half of the parallel pleats from the side cowl continued to connect the side cowl to the neckline and shape a series of parallel lines in both front-side of the garment. All of these pleats could be gathered in strategic points of the garment such as waist, upper bust line, and neckline by snaps or hook and eyes located in those points. When draping of the garment was complete, patterns of each part were constructed. It was important to indicate the grainline on all pieces as most of them supposed to cut from the bias direction of the fabric. As the garment has a 2D form and relies on the user to modify to the 3D shaped garment, it was crucial to consider the parts of the garment that could have an opening. Image 1 indicates the shape of the garment in 2D version.

Handmade bias bindings were applied for finished edges. Guideline maps in the form of arrows were first made with removable pencil on the fabric according to the pattern, then constructed by machine embroidery with silver thread. In order to create the arrowheads, triangles in different sizes were created with Adobe Illustrator. Then they were cut from heat press sheets in silver color with laser cut. These laser-cut triangles were placed at the end of embroidered lines and attached by applying heat press. On each side of each double-sided arrow, a small snap has been placed. Arrows are indicating which snap belongs to which one. Closures were applied based on the functional purpose of different parts of the garment and included small snaps to hook & eyes (Image 2).



Image 1

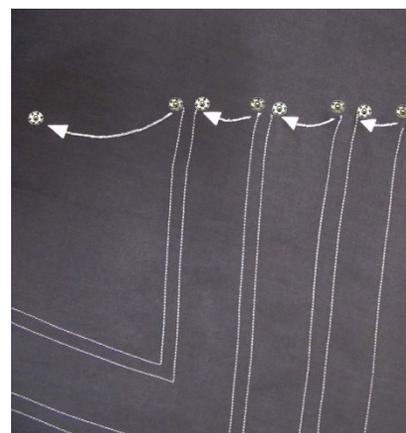


Image 2

Aesthetic properties and visual impact: The goal of the design was to create a 2D to 3D process that places agency in the hands of the user. As a 2D garment it is a displayable artwork. The connection points are designed to look like star constellations connected with lines that are

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visible only when the garment is in the 2D format. The visible parts include the folding lines indicated by silver stitches, which guide the user in the direction they need to fold the pleats of the garment. Another focal feature is on the center back of the garment where one of the constellation symbols has been created with silver shaped on the center back of the garment and connects the right and left sides of the back bodice together. These shapes are circles cut from the heat-press sheets with laser cut. Vector forms first created in Adobe Illustrator then modified in Corel Draw to be ready for the laser cutting process. After laser cutting, they shaped the constellation symbol by locating them on critical points and applying heat press on them. This visual element not only added an aesthetic feature but assists the user in easy discovery of the construction to 3D process.

Materials: 100% silk gazar in navy color. This fabric, made with high-twist double yarns woven as one has a crisp hand and smooth texture, which aided in creating origami folds.

Design contribution and innovation: A garment which could change from 2D to 3D would be easy to keep as they do not need to hang it in the closet and could be easily folded and keep as a flat format in drawers. Similarly, a 2D garment is easier to wash and iron in compare of a 3D garment. These are additional benefits of a 2D to 3D transitional garments other than democratizing the design process.

Reference:

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