



## Origami Transformation

Brianna Plummer, Iowa State University, USA

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Measurements: Bust: 35½ Waist: 25½ Hip: 36½

The art of origami dates back as far as the early 1600s in Japan and has seen waves of popularity across cultures and over time (Lang & Hull, 2005). Origami is a traditional paper folding art that transforms the 2-Dimensional into the 3-Dimensional. When origami merges with fashion design, the result can be functional as well as artistically pleasing. Choi & Choi (2013) describe origami fashion as a “reflection of nomadic lifestyle, maximum of usability, pursuit of playful sensibility, creation of new body aesthetic and pursuit of technology and humanism” (p. 515).

The pursuit of transformable clothing through the ancient practice of origami can be seen in the contemporary works of Japanese designers Miyake and Ohya. Building on the non-western concept of clothing, these innovative designers sculpted folds, shapes, and silhouettes through creative folding and pleating. In 2010, for Issey Miyake’s Collection 132.5, the house team of scientists from his Reality Lab created an algorithm that allowed 3D apparel to be folded into flat 2D form (Fukai, Vinken, Frankel, Kurino, & Nii, R., 2010). Hiroaki Ohya’s 2000 *Wizard of Jeanz* series of 21 books made out of cloth that transformed into clothing (Mitchell, 2005). The images, text, and notions were digitally printed on textiles and the book structure was incorporated into the design of each garment. Both artists wanted their work to be viewed during both stages of the transformation.

Transformative products allow the consumer to have multiple uses for a single item. The interactive experience of transforming an item is frequently seen with children’s toys. There is a fascination with using a product with one purpose in mind and then having the ability to alter the product and change the purpose. With the growing trend of multitasking in our daily lives there is a desire to have clothing that provides the same flexibility. Jule Waibel’s transformative garment project *Enfaltung*, which means to unfold, expand or develop in German, embraces her belief that collapsible structures mirror our changing world (Waibel, 2015).

The intent of *Origami Transformation* was to create transformative fiber art that is inspired by the intersections of origami with art, textiles, fashion, mathematics, tessellations, and creative pattern cutting and is viewed in its various stages. The desired qualities were (a) to create 3-dimensional sculptural geometric shapes using appropriate textiles, stitching, and patterning, (b) to transform these shapes into wearable dress utilizing the folding theories of origami tessellation and conical reverse truss model (Nakayama et al, 2013), and (c) to integrate the sculptural geometric shapes within the garments and accessories to present a well-designed ensemble.

Through an exploration of sculptural prototypes constructed from varied textile layers, innovative pattern shapes, functional hinged seaming, and potential transformation plans, the following design decisions were made. First, two 3-dimensional sculptures, a rectangular box and a flattened ball, were patterned. Second, the flat pattern pieces were machine quilted using eco-felt and a double layer of craft fiber web interfacing. Third, the quilted pattern pieces were machine and hand stitched to form the 3-dimensional hinged sculptures. Separating zippers and felt covered buttons and loops were used for closures and devices to hold the transformations. Fourth, the collapsible garment and accessory segments were constructed using origami theories and Nakamichi's (2010, 2011) pattern magic techniques. The collapsible folding plans for the linen segments were enhanced through Shibori dyeing techniques.

*Origami Transformation's* three collapsible items reflect the usable space available within the two felt sculptures. Each item incorporates sections of the felt sculptures as integral parts of the finished design. The flattened ball splits in half and becomes the sleeves of the jacket and the rectangular box separates to become a wrap skirt and a handbag. The work is intended to be viewed at the beginning and end stages of the transformation as well as the transformative process itself.

*Origami Transformation* not only adds to the existing knowledge of origami fashion but more importantly assists in recognizing the need to present design scholarship using alternative methods, such as video or sequential photography. Waibel also disseminates her work as video (Waibel, 2015) and Miyake and Ohya have shown their work in interactive exhibits (Mitchell, 2005). As the creative scholarship for transformative designs increases so will the need for a less static evaluation of the work.

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