



## Title: Phalaenopsis Amabilis 2

Designers: Ja Young Hwang<sup>1</sup>, Vince Quevedo, and Linda Ohrn  
Kent State University

Keywords: 3-D knitting machine, customization, technology, mass-market

### Design Statement

Numerous leading fashion designers and fashion brands have been increasingly adopting and using technology to explore new possibilities for expressing their creative ideas. 3-D knitting machine is a notable example of companies adopting technology. The machine has been used by small boutiques to big brands like Uniqlo and Adidas, to try on the “idea of instantly printing customized clothing” (Reilly, 2017). In 2016, Adidas launched a pop-up store, “knit for you”, in Berlin, allowing customers to get 3-D scan of their bodies, created sweater in four hours (Reilly, 2017). Adidas “Knit for you” project is a good illustration of how advancement in technology is taking us closer to achieving fully customizable clothing. Advantages of such practices include 1) processes can be accomplished at a distance, 2) little extra time is needed for fitting; 3) design potential is relatively unlimited and could be completely personalized (Campbell & Parsons, 2005).

The purpose of this project was to customize a design and create a contemporary evening dress for a client, a school donor, who was attending two University events: a university founder’s ball event, and a botanical garden’s orchid show entitled “Fashion meets Botanical Garden”. The first aim of this project was to experiment with and showcase directions in which technology can take us closer to full customization with respect to patterns, prints, colors, sizes, and shapes best suited for customers. Second, the dress was purposely designed to showcase the increasing impact of technology in the world of fashion. Third, the designers designed and produced evening wear that would feature how new technologies such as 3D knitting machine can open up a continuously expanding array of creative possibilities and spawn a complex set of solutions for designers. Fourth, the intention was to create a sensible, ready-to-wear, contemporary garment that could potentially be marketed by any large retailer. Finally, the dress was to demonstrate the designers’ own interests in how integration of technology, particularly 3D knitting machine, allows designers to visualize and explore new creative possibilities during the design process.

The research question driving the design process was therefore “How can we create a dress that will show the designers’ own interest in integration of technology, especially 3D knitting machine?” Because the dress was to be worn at two different events, the University Founders’ Ball and the Botanical Garden orchid exhibition, the inspiration for this dress came from an orchid, *Phalaenopsis Amabilis*. This flower was chosen as the source of inspiration for motifs because its meaning represents the beauty, luxury, love, and strength that emblemizes our client who plays roles in society of mother, wife, and philanthropist.

Design process: Since the client was based in California, the conversation began and was continued via email. The client first sent pictures of herself dressed in evening wear to represent her taste in clothing. From these pictures, the designer was able to identify her preference for contemporary dresses. The design process began by analyzing the client's body shape to identify a silhouette that looked best. The client's age was in the late 50's, she had a fit body, and she loves and enjoys wearing contemporary silhouettes. One of the designer began the design process with three preliminary sketches that were then made into muslin prototypes, following which a meeting with the client was arranged. After a design was chosen, a flat pattern was developed using 2D patternmaking software OptiTex. The development of the dress was done starting from a few orchid motifs initially created in illustrator and a digital pattern that was fitted in a Muslin garment. The tubular jacquard knit was programmed on Stoll M1 plus software. To start the process, multiple samples were knitted to see the color choice and the hand of the knit as well as calculate gauge. The dress is knitted using two ends of a fine silk yarn. Once the gauge was calculated the design was programmed in the software placing the large orchids at the bottom of the dress and then the smaller orchids at the top. The design was created using an engineered approach to the placement of the motifs to give a more fluid transition from top to bottom in the design. Once the pieces were knit they were assembled. The design was knitted on a Stoll ADF 7.2 machine.

Utmost customers, including our client, are not very familiar with how integration of technology, especially 3D knitting machine, supports the fashion industry in exploring new creative approaches. As was pointed out in the instruction to this paper, the purpose of this project was to show and educate customers with respect to how unique customized design can be performed with the help of technology, and to showcase how such new technologies can open up a continuously-expanding array of creative possibilities and spawn a complex new set of solutions for designers.

## References

- Campbell, J., & Parsons, J. (2005). Taking advantages of the design potential of digital printing technology for apparel. *Journal of Textile and Apparel, Technology and Management*, 4(3), 1-10.
- Raily, M. (2017). 3-D Knitting brings tech to your sweaters- for a price, Business Impact, Retrieved from <https://www.technologyreview.com/s/604102/3-d-knitting-brings-tech-to-your-sweaters-for-a-price/>



