

Virtual Prototyping for Planning from Product Design to Retail Store Visualizations and Simulations

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Keywords: prototype, simulation, software, visualization

Virtual prototyping encompasses using computer-aided design and simulation software to validate a concept and design prior to creating of a physical prototype (Bordegoni & Rizzi, 2011). Three-dimensional digital software assists users in generating sophisticated visualization in the development of concepts across a wide range of creative disciplines (Zhang & Huang, 2012). Creating virtual prototyping enables designers, patternmakers, visual merchandisers, and retailers to quickly explore the results of numerous concept and design alternatives without devoting the time, money, and manual workload activities required to make garment prototypes as well as product display and retail store prototypes. It also improves visual merchandising guidelines for the retail stores. Thus, the objective of this class project was to (1) develop virtual prototyping from product design to overall retail store design by combining diverse 2D and 3D visualization software, such as Adobe Photoshop, Optitex, and Visual Retailing's MockShop, and to (2) create innovative product development and visual merchandising plans. Sixteen students enrolled in my class focusing on applications of 2D and 3D visualization software were given their final project assignments in the spring of 2014.

Step 1. Product design and retail store concept planning. Each student created plans regarding his/her own brand name, brand concept map, logos, target market, garment design, fabrics and overall color schemes, merchandising plan, pricing, window display design, store floor plan, store layout, walls, floors, ceiling, fixtures, carpets, posters, prime selling location, and product positioning.

Step 2. 3D Virtual garment design. By using the Optitex 3D garment draping and visualization software system, students created or edited 2D or 3D patterns for dresses, blouses, jackets, pants, and skirts and inserted diverse fabric images with textures, based on their own brand and product design concepts and color scheme plans. They immediately visualized the 3D virtual garment draping and simulation results with or without 3D dress forms or mannequins (see Figure 1). To insert their 3D virtual garment images into the 3D store, they prepared and created two versions of JPEG files. One version featured 3D virtual garments on 3D dress forms or mannequins for creating mannequin images in the 3D store. The other featured 3D virtual garments without the 3D dress forms or mannequins for creating hanging images and folded images over the fixtures in the 3D store. To refine the images, Adobe Photoshop was used.

Step 3. Window display design. Based on their own brand concepts and visual merchandising plans, students created closed-window display constructions by using diverse merchandise presentation techniques. Images of window display walls, floors, accessories, posters, and display props for window display construction as well as images of the 3D virtual garments on 3D dress forms or mannequins were added via Adobe Photoshop and PowerPoint programs (see Figure 2).

Step 4. 3D Retail store design. By combining Visual Retailing, Optitex, and Adobe Photoshop, students developed 3D virtual retail stores containing the 3D virtual garments they created. They

created their own diverse fixtures, carpets, posters, and materials for walls, floors, and ceiling by using Adobe Photoshop and Visual Retailing. The JPEG files of the 3D virtual garment images they created via Optitex were added to Visual Range data of Visual Retailing. Then they dragged and dropped the 3D virtual garment images from Visual Range into the 3D stores. They also created lights, planograms, and plan views by using Visual Retailing based on their visual merchandising plans (see Figure 3).

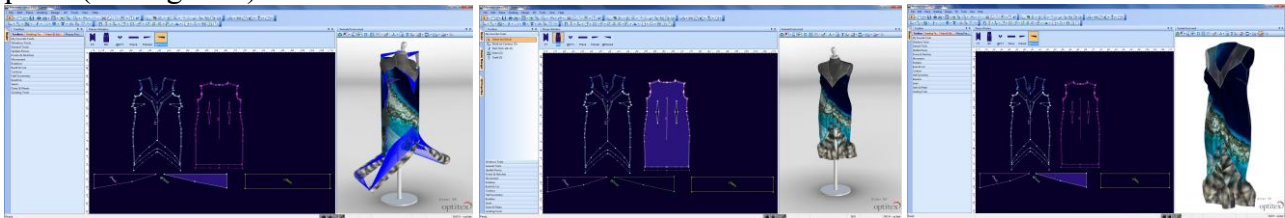


Figure 1. An example of the 3D virtual garment with/without a dress form using Optitex, created by a student, Danelle Agpaoa



Figure 2. Examples of the window display design using Optitex, Adobe Photoshop, and PowerPoint, created by students, Tori Speere, Danelle Agpaoa, Camille Lanier, and Ayaka Hosomi

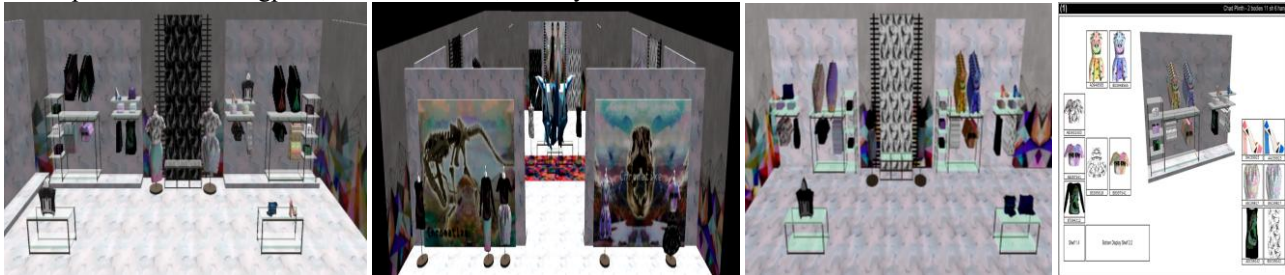


Figure 3. Examples of the 3D virtual retail store design and planogram using Optitex, Adobe Photoshop, and Visual Retailing's MockShop, created by a student, Chad Tokunaga

Students successfully completed their own product planning, product design, and retail store design in the form of virtual prototypes as the process of product development and creating visual merchandising plans. Students had practical opportunities to learn and perform combining diverse 2D and 3D visualization software, a skill which is in high demand in the fashion industry for positions in the design and merchandising fields. As students reflected on the virtual prototyping projects, they indicated that learning how to plan and create from product design to retail store design through diverse software was a rewarding experience. Being able to design clothes and create a store in a virtual world based around their own concepts and plans gave them innovative accomplishments.

References

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