The Evolving and Expanding Role of 3D Imaging

The use of 3-D imaging is not new. Taking measurements with body scanners actually began in the 1990s. In 2001, the first body scanning custom apparel application was launched at retail by Brooks Brothers, New York. About the same time, several universities began researching this technology to study ways to advance the use of innovative 3-D imaging for apparel manufacturing and production. In 2000, Cal Poly Pomona, which is one of only 13 universities in the U.S. to have its apparel production option endowed by the American Apparel and Footwear Association, purchased an NX-16 body scanner and began its body scanning research program.

“The use of 3D imaging for multiple end-use applications is an example of the type of research conducted by academicians,” notes Dr. Cindy Reagan, professor of apparel merchandising & management (AMM) at Cal Poly Pomona and the associate editor of Design/ Aesthetics for the Clothing and Textile Research Journal. “Our research topics include evaluating pattern-fit accuracy from body measurement, questioning existing pattern grading practices versus optimizing pattern size variation via body scan measurements, and evaluating the acceptability of body scanning for selected target markets.”

Cal Poly's purchase of the NX-16 body scanner from VCI (Textile Clothing Technology Incorporated) and the use of the technology was the vision of Dr. Peter Kilduff, AMM department chair and Dr. Madhu Senanayake, assistant professor AMM. The investment was made to keep Cal Poly’s AMM program on the cutting edge of technology, and has enabled Dr. Senanayake and other faculty to pursue body-scanning research. Besides academic research, Cal Poly uses its body scanner for class lessons in a variety of courses. Dr. Senanayake explains, “The AMM faculty is in the process of being trained in Optitex 3D. The purpose for this CAD program is to have students better understand garment fit and pattern shaping. We plan to have students create a pattern block using CAD, and to scan the pattern and a standard avatar to recognize and correct the pattern fit.”

Today's design and production students step into a changing industry requiring evolving talent. Dr. Reagan adds, “To train future professionals, students will need fabrication knowledge to enable them to synthesize how the physical fabrication properties (i.e., stretch, weight, etc.) will behave when input into computer-aided design software. With a strong background in 3D imaging and body scanning, the designer will be able to evaluate the fit and aesthetic qualities rather than sewing a physical sample. While this process will not completely replace sample-making, it reduces reiterations and repeated fit sessions.”

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