FDGA Project Final Report

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This report presents the outcomes of my FDGA sponsored 3D Virtual Avatar Fashion Show research project. The scope of the project includes two parts: the first part is the creation of physical prototypes, 2D digitized patterns, 3D avatar fashion show, and website for virtual exhibition. The second part is conducting research using the first part's outcomes. The first part of the projects have been successfully completed throughout the Fall 2020 semester. The second part research is currently in progress and planned to be completed by January 2021 as written on the project narratives.

Total five garments have been created: Men's shirt, women's jacket, men's T-shirt, women's T-shirt, and face mask with the theme of the Loop for Good - FIT's student-run sustainable pop-up shop project that I am currently serving as a project lead and faculty adviser. Before making physical garments, each garment was digitally designed by using Adobe Illustrator software, then, transformed the designs into 2D digitized patterns, after that, the garments were fitted in a total of ten 3D avatars. After correcting errors identified by 3D avatar fitting, physical garments were made by using real fabrics without creating muslin fit-samples. These processes explained earlier significantly saved time and physical material consumptions by virtually visualizing outcomes of physical garment designs in 3D avatars early on. For men's shirts and women's t-shirts, student volunteer models performed photo shoots and video shoots to compare the results of physical fitting and 3D avatar fitting. The results reveal that 3D avatar fitting is very close to the look and feel of physical live-model fitting. Both the avatars and live model videos were included in "the Loop for Good 2020 Collection 3D Avatar fashion show."

To further identify the roles of 3D garment visualization technology in the classroom, I collaborated with FM441 Computer-Aided Product Development II class students from all sections (one section is taught by myself and other sections taught by fellow professors, Lori Massaro and Mark Higden). The students' final product development projects include 2D Adobe Illustrator technical drawings and tech-packs including bill of materials, garment construction details, and measurement specs created by using Gerber PLM (Product Lifecycle Management) system. I created a total of 37 3D avatars wearing the garments developed by the students, then produced "the FM441 Class 3D Avatar Fashion Show". After watching the fashion show video together with my students, many of them mentioned that it's neat how the actual garment designs flow on the avatar's body so life-like. FM441 students expressed their special thanks to me for their extra-learning opportunities on the 3D garment visualization technology, especially, during the pandemic.

These fashion show videos are currently exhibited under the 3D fashion show tab in the Loop for Good 2020 virtual pop-up shop's Wix.com website, as well as the Youtube video channel of the Loop for Good in the links listed below.

The 3D fashion show & virtual garment exhibition in the website
https://theloopforgood.wixsite.com/popup/3d-fashion-show

The Loop for Good 2020 Collection - 3D Avatar Fashion Show
https://youtu.be/w52mfJllQJ0

FM441 Class - 3D Avatar Fashion Show
https://youtu.be/cTsaCG8EqxM

For website creation, I have taught myself by watching free video tutorials available on Youtube to design the entire the Loop for Good website in wix.com platform (https://theloopforgood.wixsite.com/popup). I also taught web-site design techniques for the Loop for Good 2020 student committee members focused on how to design wallpapers of each page and on how to compose each section efficiently and impactfully to deliver correct messages for target audiences. As the results, the website presenting the 3D avatar fashion shows I created and different virtual exhibitions has been successfully launched in November 2020. The 3D fashion shows are currently being considered by the Media Relations Department for college-wide promotions in December 2020.

After the completion of the project, my achieved outcomes include the enhancement of my 3D garment visualization and website design teaching and research capacity and pedagogical skills for our students. For research related to this project, I am working one two research manuscripts. One is about exploring audiences' perspectives on the use of 3D avatars in the fashion industry by employing quantitative data analysis methods. For data collection for the research, I have submitted my IRB application to FIT's IRB committee to launch the on-line survey in January, 2021. I plan to submit the research to present at one of the national conferences hosted by major Education Magazines such as Educause and Campus Technology in 2021. The other research examines my professional development experiences on 3D garment visualization curriculum development for non-design majored students. I plan to submit the abstract of this research to SUNY IITG Conference (Due December 31, 2020). My experiences and knowledge gained from this FDGA sponsored project are enormous. I would like to express my special thanks to professor Elaine Maldonado and Celia Baez at the Center for Excellence in Teaching for helping me make this research project possible.

The 3D Avatar Fashion Show Stage Images


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Comparison of the Physical Garments and Virtual Garments


SUSTAINABLE
FASHION
POP-UP SHOP
X
Hyder


SAFE! STAY
STAY SAFE!
! STAY