



THE RENDERING OF A DRESS USING THE ASSYST ® 3D VIDYA SOFTWARE

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Abstract: *This papers' main aim is to present the rendering method for a dress within the 3D Vidya module of the Assyst design program. Rendering is one of the major topics of 3D computer graphics, and in practice it is always connected to the other topics. It is the last important step in the graphics pipeline, giving models and animation their final look. With the increasing sophistication of computer graphics since the 1970s, it has become a more distinct subject. Assyst has the largest 3D dimensioning and fitting portal in the world. It enables the integration of customer sizing and fitting directly into the used processes and systems, with a multitude of functions ranging from market and target group studies to 3D and CAD integration and avatar creation. The computer-aided design program Assyst is in the top 3 of the profile programs used on the European market, the latest development is the 3D Vidya design module. Assyst 3D Vidya combines both the design process, the product, the 2D designed model and its subsequent simulation in 3D. The texture of materials is displayed in the highest photo quality, and the simulation of the use of accessories such as zipper, snaps is very realistic. Using the 3D Vidya module can save the sample execution process and increase the quality and efficiency of the supply chain.*

Key words: *Assyst Vidya, V-Ray, 3D modelling, apparel, rendering.*

1. INTRODUCTION

The ease of use and the multitude of tools, commands and functions that serve the drawing, modeling and styling process have made graphic programs increasingly used and beloved in the textile industry [1], [2], [3]. Rendering is the process of generating a photorealistic or non-photorealistic image from a 2D or 3D model by means of a computer program. The resulting image is called a rendering [4]. Multiple models can be defined in a file containing objects in a strictly defined language or data structure. The file contains geometry, viewing angle, texture, lighting, and shading information that describe the virtual image. The data contained in the file is then passed to a rendering program to be processed and translated into a digital image or raster graphic image file. The term "rendering" is also used to describe the process of calculating effects in a video editing program to produce the final video output [4]. The computer-aided design program Assyst is in the top 3 of the profile programs used on the European market, the latest development is the 3D Vidya

design module. Assyst 3D Vidya combines both the design process, the product, the 2D designed model and its subsequent simulation in 3D [5], [6].

2. RENDERING OF A DRESS


The emphasis here is on transparency, roughness, color and opacity. Opening the desired file in our case being the DRESS, we are changing the working mode to "material texture editing"  from the top menu bar, clicking on a piece and then selecting a wool/elasthane composition for the main material from the left menu **Fig. 1**.



Fig. 1: Rendering a dress, with the material being wool elasthane composition

2.1. Transparency

To reduce the transparency, depending on the density of the garment, select the desired value from the menu on the right, the default value is always 100%, the lower the value, the more transparent the texture [4], **Fig. 2**.

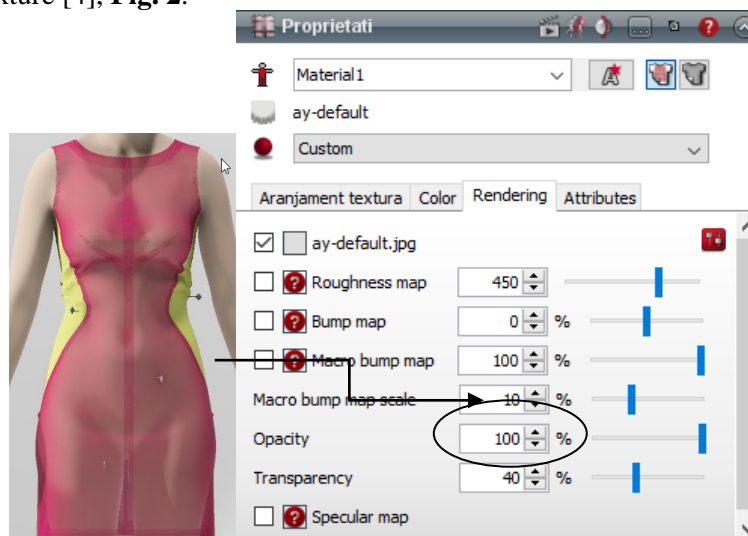


Fig. 2: Setting the desired transparency value

2.2. Roughness

Roughness determines how much light is reflected from the materials surface. The higher the value, the less light is reflected. Therefore the texture is rougher [4] **Fig. 3**.



Roughness value 0 Roughness value 100 Roughness value 5000

Fig. 3: Examples of applied roughness values and the effect on the material surface

The roughness map determines where the texture reflects more or less light. The map consists of a grayscale image. White or lighter spots reflect less light than darker or black ones. Thus, the texture on the brighter/white areas of the map looks rougher. Roughness is diffused and nuanced by the map [4].

Roughness map and roughness values work together:


- The roughness value 0 (=black) always results in a lacquer-like texture, whether with or without a map file.
- Conversely, the black spots on the map retain the lacquer effect, regardless of the roughness value
- The white spots on the map behave according to the roughness value: The higher the value the rougher.
- Gray tones of the roughness map weaken the effect. [4] **Fig. 4**.



Black Anthracite Grey White

Fig. 4: Examples of roughness 0 for black, dark grey, grey and white

2.3. Rendering lace surface for the side inserts of the dress

In order to be able to highlight various pieces by using other materials than the main one, in our case we select the lace for the side inserts of the dress, the "material texture editing" mode  is active and from the este activ and in the "fabrics and accessories" menu on the left we select from the database the picture of the material we want to insert as shown in **Fig. 5**.

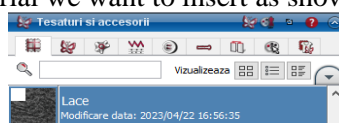


Fig. 5: Selecting lace for the side inserts



Left-click on the side inserts of the dress and from the "*fabrics and accessories*" menu by "drag & drop" we insert the new material, as shown in **Fig. 6**.



Fig. 6: Final appearance of the dress

3. CONCLUSIONS

With the 3D Vidya module, the efficiency is given by the multiple options in terms of converting the designed pattern in Assyst CAD by means of only a few steps in the 3D simulation process. The program also offers the possibility of selecting fabrics with real parameters such as: density, thread thickness, color, structure or effects. At the same time, flexibility is found in the ease of implementing changes, which within a company significantly reduces the decision making reaction time and the costs needed to produce more samples.

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