

The Felt Collage Generation Method Using 3D Models

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Recently, many research studies on Non-Photorealistic Rendering (NPR) have been performed in computer graphics. Three-dimensional NPR is the style that is most commonly seen in video games and movies. As a type of NPR, there is research on Rendering like paper collage. Previous studies reported rendering methods of paper mosaic images and cut-out paper collage, however a rendering method of felt collage has not yet been unreported. Therefore, this paper describes a method which enables creation of a felt collage image using 3D models. Felt collage is one of the most popular expressions, so it is applied in various places such as packages of candy, toys, children's educational books, and so on. This method makes it possible to generate felt collage images from multiple viewpoints.

This method uses the following six-step process. At first this method displays a 3D model as a 2D model. Next, this method makes an edge-like shadow based on depth data from a 3D model. Third, this method makes an edge-like shadow using color difference. Fourth, this method adds the shadow to the image. Fifth, this method allows texturing of felt. Finally, this method arranges the details of the image which made till now, and generates a felt collage image. As a result of this research, it is possible to generate felt-like collage images from a 3D model. And the proposed method enables changing color and viewpoint freely.