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(54) **METHOD FOR GENERATING A PERSONALIZED 3-D FACE MODEL**

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(57) **ABSTRACT**

A method for generating a 3-D model of a person's face is disclosed. The 3-D face model carries both the geometry (shape) and the texture (color) characteristics of the person's face. The shape of the face model is represented via a 3-D triangular mesh (geometry mesh), while the texture of the face model is represented via a 2-D composite image (texture image). The geometry mesh is obtained by deforming a predefined standard 3-D triangular mesh based on the dimensions and relative positions of the person's facial features, such as eyes, nose, ears, lips, chin, etc. The texture image is obtained by compositing a set of 2-D images of the person's face which are taken from particular directions such as front, right, left, etc, and modifying them along region boundaries to achieve seamless stitching of color on the 3-D face model. The directional images are taken while the mouth is closed and the eyes are open. In order to capture the color information of the facial regions that are not visible in the directional images, i.e., the inside of the mouth and the outside of the eyelids, additional 2-D images are also taken and included in the texture image.

47 Claims, 16 Drawing Sheets