

3D Feature Lines: Dermatograph for Generating 3D Facial Form

Hiroshi Kono

Graduate School of Kyushu Institute of Design

Etsuo Genda

Kyushu Institute of Design

Abstract

There are a few methods to model the facial form in computer graphics: generating the facial form by using three-dimensional computer graphics (3DCG) software, automatic generation of the human body in virtual space by measuring the real human with such as 3D digitizer, and so on.

In animation of these data, the collapsing of the form sometimes becomes a problem. Especially the modeler of the facial form in facial expression requires the knowledge of the distribution and function of facial muscle, and the visual recognition of the change in facial expression.

So we proposed 3D Feature Lines as one way for these requirements to be solved. By using this technique, it became possible to model of the facial form considering the data quantity and expressiveness.

We decided 3D Feature Lines based on anatomy for artists, somatology, and captured facial data by using 3D digitizer. 3D Feature Lines has a structure which combines dermatograph for somatology and component lines of 3D facial form. The applicability of 3D Feature Lines can be described by: a set of reference lines of the facial form for modeling and animation, generating the facial form taking the data quantity into consideration, and grasping of the visual recognition of facial expression.

Keywords

Facial Expression, Dermatograph, Facial Form, 3D Digitization, Somatology, Anatomy for Artists, and Virtual Human.

A Measurement Tool for Idea Potential

Luh, Ding-Bang, Ph.D.

Instructor

Department of Industrial Design

National Cheng Kung University

Tainan, Taiwan, R. O. C.

Abstract

Measurement tools are fundamental to any science. Industrial design deals mainly with innovations or new products, to which ideas are central. Idea measures are basic and critical to design science. However, meaningful and effective methods remain undefined. This paper proposes a useful tool for measuring ideas. It has two components: NewIdea model and IdeaIndex process. The former is essentially a scoring model which functions to describe ideas in a systemic and systematical way for further quantification.

The latter is primarily a quantification method that works to translate qualitative idea profiles into quantitative idea potential. According to relative probability to achieve commercial success, ideas are gauged, represented by potential indexes for adoption (short-term interest) and diffusion (long-term benefit). For illustration, the well-known product of Post-It by 3M is employed as an example. For verification, more cases are examined.

Keywords

idea measurement, quantification method, design management