AN INTERACTIVE FASHION DESIGN SYSTEM ‘INFADS’*

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Abstract—This paper describes an application of a color graphic display system ‘INFADS’ to a fashion design
process using man–machine conversation. One of the main characteristics of the system is the interactive design
facility created by combining a color picture processing system with a data base system. Another important
characteristic is the introduction of a new recursive concept of ‘picture’ and ‘texture’. Some advantages of describing
fashion data in a relational data base are discussed in connection with the need for data independence and the need for
the semantic retrieval of pictorial data via a data description scheme.

1. INTRODUCTION

A variety of objects can be designed with the aid of a
computer display system; they include integrated circuits,
aircraft shapes, automobile parts, buildings and bridges.
However, line-drawing methods used for that purpose are
often misleading in the case of complicated pictures, since
the visual perception of objects is performed by
comprehension of the information of outlines, surface
textures and colors of optical patterns.

In order to remove this difficulty, a specific computer
method of image presentation has been developed for
producing continuous tone pictures at the University of
Utah[1].

Another new color graphic display system has been
developed at the University of Tokyo for displaying
colored surfaces with textures. This graphics system has
been used primarily for the purpose of fashion
designing[2]. However, the software system did not make
the most of the potentiality of the hardware. It was not
intended to support a flexible representation and complex
expression of textures, nor for the accumulation and
retrieval of large amounts of data.

We have constructed an interactive fashion design
system (hereafter abbreviated as INFADS) using this
hardware system. It is expected that systems like
INFADS illustrate many kinds of new problems both in
the fields of computer graphics and of pictorial data bases
used for information retrieval and application develop-
ment.

Fashion designing is a combination of art, industry and
commerce. A fashion designer is so delicate and so
fastidious that he will never employ computer graphics
unless he can easily produce outlines, colors and textures
on a display terminal just as he wishes without having to
write computer programs. He prefers to interact directly
with data in a data-base. Furthermore, he will never use a
computer in the design process unless he can easily refer
to his and other designers’ earlier designs and also to other
data such as marketing and manufacturing data (e.g. sales
and stock amount). Therefore, fashion designing requires
a computer aided system to take a non-programmer
oriented approach and to have the capability of semantic
retrieval of pictorial fashion-related data.

This paper is the first report on INFADS and describes
the experimental results of color graphics applied to the
‘model decision process’ in fashion designing. In section
2, a general fashion design process is analysed and shown
briefly in the form of a flowchart. This section mainly
explains the model design process, and the nature of
model data and pictorial data. The detailed description of
INFADS is presented in section 3. An example of model
design with INFADS is shown in section 4 and includes
several frames of photographs. Some ideas for future
research are suggested in section 5.

2. COMPUTER AIDED MODEL DESIGN

The total process of fashion designing can be summar-
ized in the flowchart in Fig. 1. The process (1) in which the
model is designed is the most creative and visual part of
all the processes, and includes interesting problems for
color graphics. The focus of the present study is on this
process. The model designing process is shown in more
detail in Fig. 2.

In process (1), shown in more detail in Fig. 2, the model
is first created. Initially the designer selects and modifies
body outlines and then he puts clothes on the body. He
looks for a best fit and may modify clothes chosen from
his collection in the data base or he may draw new
clothes. He then selects colors and textures (material
types, weaves, etc.) and adds these to his model. From
this one standard design the hope is to produce patterns
and finally real clothes for many different body shapes
and sizes.

2.1 Relationship between designing process and the model
data

It can be observed in processes (1–3) of Fig. 2, a
designer requires outline data to be retrieved and
displayed one after another from the data base. He also

*Papers presented at the Conference on Computer Graphics
and Interactive Techniques, 15-17 July 1974, sponsored by the
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ACM/SIGGRAPH.
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