$$\vec{g}(t, u) = \sum_{i=0}^{m} \vec{f}^{*}\left(\frac{i}{m}, u\right)\binom{m}{i} t^{i}(1-t)^{m-i} + \sum_{j=0}^{n} \vec{f}^{*}\left(t, \frac{j}{n}\right)\binom{n}{j} u^{j}(1-u)^{n-j} - \sum_{i=0}^{m}\sum_{j=0}^{n} \vec{f}^{*}\left(\frac{i}{m}, \frac{j}{n}\right)\binom{m}{i} t^{i}(1-t)^{m-i}\binom{n}{j} u^{j}(1-u)^{n-j} \qquad (9.3)$$

Of these methods the first is probably the most suitable for interactive design.

10. Conclusions

The Bézier method is one of the most convenient methods devised for the interactive approximation of curves. Moreover, the method extends naturally to surface description and provides a simple way of controlling surface parameters. Surface twist vectors which have been stumbling blocks in interactive surface design (they are essential for doubly curved surfaces) are easily defined, in a disguised manner.

It is hoped that this paper will stimulate further work both in the field of shape description and in the field of interactive approximation.

11. Acknowledgements

The author is indebted to Professor Bézier, Professor W. J. Gordon of Syracuse University, and members of the Cambridge CAD Group for criticisms of a preliminary version of this paper.

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Book review

Picture Language Machines, by S. Kaneff (editor), 1970; 425 pages. (*Academic Press Ltd.*, £4·50)

This book is concerned with pictures and with attempts to describe them in a precise language having meaning to a machine (the term 'machine' implying an appropriately programmed computer). These descriptions are formulated in such a way that the machine receives essentially the same information about a picture as would an observer viewing the picture.

Generally speaking, it is the structure of a picture which carries what is regarded as the important information. Thus the relative positions of black areas in a picture is more informative than a count of the areas. In the same way, the ordering of words in a sentence, together with a notion of how such words interrelate, enables the meaning of a sentence to be conveyed. It is suggested that pictures can be regarded as two-dimensional sentences and that studies of the structured description of natural languages, as has been proposed by Chomsky, can be adapted to the analysis of pictures.

A conference held in Canberra in 1966 drew together workers from various disciplines including Picture Languages, Graphical Communication, Interaction Systems, Pattern Recognition, Linguistics and Psychology in an attempt to explore aspects of these areas of study which would throw light on the development of picture language machines. As is stated in the Foreword by Dr. Max Clowes, the first four papers were intended to be primarily tutorial in character to provide an introduction to the notion of a picture language machine whereas the remaining 11 papers reported current research interests of the authors.

The volume taken as a whole provides a valuable review of this relatively new and fast developing subject and is particularly useful in a field where publications tend to be distributed over a wide range of journals. The important discussions during the conference are reported verbatim; these discussions add useful comments to the formal papers and are effective in putting over some of the atmosphere of the Canberra conference. The photographed typescript is beautifully printed and the illustrations are both clear and plentiful. Academic Press Ltd. have produced an attractive 425-page volume at the reasonable price of £4·50.

M. J. B. DUFF (London)

Errata

In Algorithm 69, Trigonometric curve fitting to equally or unequally spaced data (this *Journal*, Volume 14, Number 2, pp. 213-214) there were a number of typing mistakes. These were all at the top of the second column of page 214.

Line 2 should read

'*we will have a full set of coefficients A;*'.

In line 11 '*A*[*mmax*, *mmax*]' should read '*a*[*mmax*, *mmax*]'.
In line 16 '*A*[*k*, *i*]' should read '*a*[*k*, *i*]'.
In line 17 '*A*[*k*, *k*];' should read '*a*[*k*, *k*]'.