ELECTRONIC PUBLISHING

ORIGINATION, DISSEMINATION AND DESIGN

CONFERENCE SPECIAL ISSUE

RIDT'94

RIDT'94

Proceedings of the Third International Conference on

Raster Imaging and Digital Typography

11-13 April 1994, Darmstadt, Germany

Proceedings Editors

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SEPTEMBER 1993 VOLUME 6 ISSUE 3
EPODEU 6(3) 115–312 (1993) ISBN 0-471-94823-3 ISSN 0894–3982

WILEY
Publishers Since 1807

Chichester · New York · Brisbane · Toronto · Singapore

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Indexed or abstracted by 'Cambridge Scientific Abstracts', 'Computing Reviews', 'Engineering Index', 'INSPEC', 'Library and Information Science Abstracts'

EPODEU 6(3)115–312(1993)
ISSN 0894-3982

ELECTRONIC PUBLISHING, VOL. 6(3), 115–116 (SEPTEMBER 1993)

Editorial

SPECIAL ISSUE: PROCEEDINGS OF THE RASTER IMAGING AND DIGITAL TYPOGRAPHY CONFERENCE

This issue of *Electronic Publishing* contains the papers presented during the third Raster Imaging and Digital Typography conference, held at Darmstadt, Germany, from 11 to 13 April 1994. Earlier conferences in the series took place in 1989 at Lausanne, Switzerland (organized by Roger D. Hersch, EPFL) and in 1991 at Boston, Massachussets (organized by Robert A. Morris, University of Massachussets at Boston). The corresponding proceedings are published by Cambridge University Press (see below, page 307).

Digital typography is a relatively new field: the first commercial cathode-ray-tube photo-composing machine appeared in 1966. Since that time, the field has been growing very fast, and is still active. During the RIDT'89 conference, emphasis was laid on the rasterisation of outline characters and on rendering techniques. RIDT'91 concentrated more on digital halftoning and on greyscale characters. However, both of these conferences bore in mind that beyond the mathematics of shapes and their rendering, printing types exist with their own aesthetic rules. That is why the presentations were made by a mix of technologists, scientists and designers.

The RIDT'94 programme committee tried to attract a similar mix of papers when this conference was launched. As expected, the fields have moved on since the last conference, but we hope that the selected papers adequately exhibit the present state of the art in raster imaging and digital typography.

In the recent past, formal research in digital typography has dealt with graphical algorithms, such as the rendering of outline characters and the generation of outline characters from bit-mapped drawings, to name but two. Present research focuses on models and methods for concise but precise font description and modelling. That trend began in industry with font interpolation programs and font systems such as Adobe Systems' Multiple Master technology. This research definitively belongs to computer science, with keywords such as *object orientation*, *regular expressions*, *string matching* and *shape parameterization*.

A look at related fields, such as computer-aided design, shows that there still remains plenty of mathematical research to be done in digital typography. Mathematics is already used in CAD to express aesthetic criteria, both at the local (individual curves/surfaces) and the global level, for ensuring overall appearance and design consistency.

Research presented at this conference shows that there is a connection between character shapes and formal languages. A special family of formal languages called *developmental languages* models the growth of plants, giving a uniform appearance to plants in synthetic images. These formal systems can also describe other shapes and objects. Their application to describing uniform character appearance within a font thus appears natural.

It is noticeable, too, that some of the graphic-design community's long-standing dissatisfactions with the established technology of contour character shape descriptions and

0894–3982/93/030115–02$6.00

Received 1 September 1993
Revised 3 December 1993

simple-minded rasterizing algorithms are beginning to be reflected in current research. Non-linear scaling of character dimensions according to character image size, and description methods which cooperate in the intelligent rasterization of character shapes, are discussed in papers presented here: both are topics which have been on typographers' wish-lists for a long time.

Setting up such a conference has required a lot of work and energy from a number of people. Our cordial thanks go to everyone involved in this task, including the Programme Committee members for their hard work in selecting and reviewing papers (with the help of anonymous additional experts), the organization committee (including personnel from INRIA, France and GMD, Germany) and the CAJUN and John Wiley and Sons Ltd. teams for their help in preparing these proceedings.

RIDT'94 was sponsored by the Rank Xerox Research Centre (Grenoble, France) and URW (Hamburg, Germany).

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These RIDT'94 proceedings have been made using the same sequence of operations as the proceedings of previous *Raster Imaging and Digital Typography* conferences [1,2]:

1. Authors received rough guidelines from the editors, together with the corresponding LaTeX style. This formatter was recommended, but not mandatory. The main reason for using such a style was to allow authors: (a) to know if their text was too long, and; (b) to prepare figures which would fit into the physical frame of the page.
2. Following these guidelines, authors prepared their papers using various formatting systems (such as LaTeX, Microsoft Word, FrameMaker, etc.) and sent them to the editors through different channels (email, ftp, floppies, etc.).
3. The editors translated this heterogeneous material into LaTeX files, using the house style `epodd.sty` designed by John Wiley & Sons.
4. Source texts were then corrected both for typography (use of space, capitalization etc.; generally, though not entirely, in accordance with the rules of [3]) and for English idiom (note that more than half of the authors are not native English speakers).
5. In a parallel process, figures and images were electronically pasted in as Encapsulated PostScript (EPS) files, either supplied by the authors or generated by the editors.
6. More typographical corrections were made by the *EP–odd* team.
7. The corrected papers were rerun through LaTeX, and the output was converted to PostScript and transferred to a Linotronic typesetter to produce high-resolution bromides which were sent as camera-ready copy to the publisher.

However, the process has been more laborious than previously. The following reasons are worth mentioning:

- These proceedings are published as a special issue of a journal. The house style is far more rigid than it would be for a book series. For example, we would have preferred to use other fonts than *Times* + *Courier* + *CMR*[1]; however, the publisher refused our choices (such as *Lucida* as in [2]) and even some minor deviations from the style (such as the use of bold italic instead of normal-weight italic for emphasis in the bold text of the summaries).
- The journal offers both the regular paper version and an electronic version on CD-ROM, using Adobe Acrobat. This version has been prepared by the Cajun team at Nottingham [4]; however, we had to supply them with a 100% electronic form of the proceedings. There was no question of pasting images on to bromides of the text:

[1] Actually, *EP–odd* uses Blue Sky Research CMR fonts.

0894–3982/93/030307–02$6.00

Received 1 December 1993
Revised 3 December 1993

all of them had to be scanned (which takes time and space). Furthermore, due to the differences in output resolution (1270 dpi on the Linotronic, far less with Acrobat), some pictures had to be scanned or computed for differing resolutions.

- Authors use more and more sophisticated tools, belonging mainly to three different worlds (Unix, Macintosh and IBM PC). We are today in a period of transition: old tools are superseded, and new ones are neither safe nor stable. Typical examples are:
  1. LaTeX is rather old. Many new features have been added (such as `makeindex`, two-column styles). However, the new LaTeX 3.0 is not yet ready, even if LaTeX 2_ε is announced. Today, every installation has its own LaTeX.
  2. Although only two or three standards were in use until recently, many new ways of handling fonts, selecting font schemes, encoding characters (e.g. 16-bit Unicode) etc. are common these days, and no general translator exists.
  3. Even if EPS is a *de facto* standard, many products do not use it properly. For example, one diagram in these proceedings was produced with a drawing tool which generated EPS code. However, the file was extremely large (more than 400 KB). Looking at it, we saw that it contained all the standard fonts such as Times, Courier etc. and thousands of procedure definitions, not one of which was used subsequently in the file. Reprogramming this diagram directly in PostScript reduced the file size to less than 20 KB. Futhermore, the label EPS does not guarantee that the content of the file is safe.
  4. Although we tried to get the intersection of the different PostScript levels, we are not sure that the pages will be printed in the same way on any given PostScript engine.

In spite of all this, we expect that the results will be acceptable for the proceedings of a conference on typography.

ACKNOWLEDGEMENTS

The editors wish to thank all the people who helped in the making of this issue, and especially Philippe Louarn (INRIA-Rennes) and Éric Picheral (CRI-Rennes) for their help in preparing the files, David Brailsford, David Evans, and the CAJUN team at Nottingham for distilling the Acrobat version, and Christoph Hüser (GMD-IPSI, Darmstadt) for the Linotronic bromides.

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