JOSEPH O'ROURKE
Computational Geometry in C. Cambridge University Press. 1994. ISBN 0-521-44034-3. £16.95. 346 pp. softbound.

Computational geometry, which O'Rourke defines as 'the study of algorithms for solving geometric problems on a computer' is a relatively young field in Computer Science. In early years, under this heading, most attention was given to the design and analysis of algorithms. This is no longer the case and researchers are beginning now to tackle some of the difficult problems of geometric algorithm implementation. This book attempts to combine geometric algorithm design and analysis with many of the practical considerations that concern the implementor.

O'Rourke focusses on discrete and combinatorial geometry so that the main components of most of the sections of the book are based upon polygons as opposed to curves, which are usually part of a course in geometric and solid modelling. His book is aimed primarily at an introductory undergraduate course and assumes only an elementary knowledge of mathematics. However, the book should also be of use to graduate students in fields such as computer graphics and robotics because, in most sections, he reaches topics that are currently being researched. Many of the algorithms described are accompanied by relevant segments of C code. In general this blend of theory and practice is well balanced, and should give the interested reader a sound footing in the subject. The geometric figures are particularly clear and informative, and experimental data on program performances are well presented. Sensible exercises are provided at the end of every chapter and these are also well balanced in terms of degree of difficulty.

The book compares very well with the previous 'classic' texts in this field, i.e. *Introduction to Computational Geometry* by Preparata and Shamos and *Algorithms in Combinatorial Geometry* by Edelsbrunner, both of which are much more geared to theory and can be rather daunting to an undergraduate or non-specialist reader.

O'Rourke concentrates on what he considers to be the core areas of computational geometry. These are polygon partitioning, convex hulls, Voronoi diagrams, arrangements of lines, geometric searching and motion planning. Although he often includes C code, the book should still be of interest to a non-programming mathematician. The chapters on arrangements and motion planning, which he admits are probably the most demanding in terms of degree of abstraction, are presented clearly and should not be a problem for the understanding of a non-expert reader.

In several parts of the book he touches on the difficult area of robustness in geometric algorithms which anyone who has tried to implement even the most apparently simple geometric algorithm should be aware. The book is particularly useful as a 'source' for most of the current literature in the fields covered and my overall opinion is that it is a worthwhile text which should create a deserved interest in this field. I would certainly recommend it to undergraduates taking an advanced level course in computer graphics or robotics.

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KONRAD ZUSE
The Computer–My Life. Cambridge University Press. 1993. ISBN 3-540-56453-5. 245 pp. hardbound.

It does not take deep delving into the contexts of this book before it becomes clear that Zuse's memoirs have suffered in their translation from the original German. Even the title of the book has not passed through this ordeal unscathed: it was originally *Der Computer—Mein Lebenswerk* (*The Computer–My Life's Work*). After further examination, I could even suggest that the book had been translated by a piece of computer software on a word-for-word basis, resulting in difficult grammatical constructs and insensible idioms.

The book chronicles the life of Zuse from his birth in 1910 until the present, although after a charming passage on his childhood in which he describes how he first became interested in logic and the concept of computing devices, it concentrates chiefly on his pioneering work between the 1930s and early 1950s.

The description of the development of the machines from Z1 to Z4 before and during world War II is fascinating, although Zuse tends to jump erratically from subject to subject. The text is filled with interesting anecdotes and insights into the development of these first machines. Particularly enthralling is the description of the flight from Berlin during heavy air raids, with the Z4 on the back of a truck, to a small alpine village, Hinterstein bei Hindelang.

In describing the activities of the Zuse KG company during the 1950s and 1960s, Zuse makes the important point that computer use in Germany was typically limited to use in replacement of humans. He gives the example of computer-aided design of the shape of optical lenses; a German computer would be used to test a proposed geometry that was designed by a human, while in the US the computer would be fed the required parameters for the new lens and then left to calculate an appropriate geometry. Zuse attributes the downfall of his company in part to this attitude, but also to the rising costs of developing software.

Zuse then indulges himself with a chapter split between a list of the honours he has received in recognition of his early work and a discourse on his view of the future of computer technology. His predictions appear to draw heavily from the old-guard of science fiction (Asimov, Clarke *et al.*) and are propped up by his strong confidence in the future of traditional logic-based artificial intelligence. He describes in detail his views on