algorithmic analysis, implementation, and testing. He resolves the pedagogical problem of which to do first, line searches or direction generators, through the clever device of considering directions generated by the simple and intuitive coordinate search and simplex algorithms. He introduces these in a historical perspective called *ad hoc methods*.

Such thoughtful organization is an indication that it would probably be easy to lecture from this book. Indeed, I think it would be if one presented exactly this material, but I would not. I feel a need for more motivation and more rigor in a text than there is room for in 120 pages including text, exercises, references and index. The lack of rigor is sometimes a lack of specific reference to definition of terms. For example, stability is used in the traditional sense and also to mean something like "proceeding steadily toward a solution". We are left to infer both meanings from context, and an advanced student certainly will. In Theorem 2.4.1 on page 21, the same notation is used first for a sequence, then a subsequence, then for the whole sequence again in a completely ambiguous way.

Chapter 5 is a lucid exposition of modern Levenberg–Marquardt-type algorithms for varying search direction along with step length, and Chapter 6 briefly treats the nonlinear least squares and nonlinear simultaneous equations problems. The index is quite good, but the references are somewhat eccentric. There is no reference to Ortega–Rheinboldt or to Wolfe's important paper on Goldstein–Armijo-type step acceptance conditions, but there is a reference to Hardy's analysis book.

This is a well-written compact book with helpful numerical examples and useful figures. I look forward to Volume II, and I only hope that the publisher will constrain the price a bit in keeping with the topic.

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Computability: An Introduction to Recursive Function Theory. By N. J. CUTLAND. Cambridge University Press, Cambridge, 1980. ix+251 pp.

Professor Cutland has written a delightful primer on recursive function theory. As was the goal of the author, the fundamental results of classical recursion theory are presented in a style which is accessible to undergraduates with a minimal mathematical background. A salient feature of the book is the appropriate blend of intuition and rigor used in the exposition of proofs. Examples and exercises are abundantly scattered throughout the text. This reviewer's reading uncovered very few typographical errors.

As with any text, no matter how lucid the prose, the size of the intended audience must be considered. Cutland's book would make an excellent text for an introductory course in recursion theory for mathematics students. The author claims that his book is also useful for computer scientists pursuing knowledge in abstract computability. Unfortunately, there is no mention of any of the work done in the last decade by researchers taking a recursion theoretic approach to computer science. Hence, any instructor must be prepared to substantially augment the material in Cutland's book when it is used as a text for computer scientists. This reviewer has used portions of the book (Chapter 9 on Reducibility and Degrees) as source material for lectures. Preparation was straightforward.

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