Book Reviews

CHARLES RATTRAY and ROBERT G. CLARK
The Unified Computation Laboratory—Modelling, Specifications, and Tools. Oxford University Press. 019–853–6844. £60.00

The Unified Computation Laboratory—Modelling, Specifications, and Tools is an edited volume of papers presented at the conference entitled 'The Unified Computation Laboratory' held at the University of Stirling in July, 1990. The conference was organized by the Institute of Mathematics and its Applications (IMA) with the aim of providing a forum for discussing the application of mathematics to software engineering problems and for considering possible unifying mathematical frameworks.

The wide range of papers demonstrates the tremendous breadth of the area. The volume contains 28 papers altogether, in four parts, and includes papers from the invited speakers: Michel Bidoit (LIENS, Ecole Normale Supérieure, Paris), Christine Choppy (LRI, Université Paris-Sud), Klaus Jantke (Technische Hochschule, Leipzig), Teodor Rus (University of Iowa) and Eric Wagner (IBM, T.J. Watson Research Centre, New York).

The four parts are entitled: Modelling and specification, Formal methods and software development, Specification for communication and concurrency, and Program verification and development. A brief summary of (some of) the topics covered and some of the papers of particular interest (to this reviewer) follows.

The first part includes papers on logic and foundational issues, term rewriting and the use of algebra and category theory in compilation and language design. One paper which addresses the problem of a unifying framework is the paper "On the Expressiveness of Equational Type Logic" by Manca *et al.* This logic provides a uniform framework for abstract data types by allowing for the expression of partiality, polymorphism and type dependency. "Inductive Reasoning for Completing Equational Software Specifications" by Jantke continues the author's interesting application of inductive inference learning techniques to the synthesis of equational programs.

The second part includes papers on specification refinement and prototyping, software complexity, and a very readable survey of temporal logic methods (by Wilson). The papers by Choppy and Bidoit ("Prototyping and Formal Specifications" and "Development of Modular Specifications by Stepwise Refinements Using the PLUSS Specification Language", respectively) report on recent work on the well-established ASSPEGIQUE environment and PLUSS specification language. Cherniavsky and Smith provide the only paper concerned (explicitly) with program complexity. They give an interesting collection of axioms for software complexity based on classical results from recursion theory.

The third part is the most uniform and includes three papers on specification techniques and three papers about the LOTOS specification language/approach. The two papers by Rafsanjani discuss how to 'model' the basic LOTOS language, first by abstract data types, and then by petri nets. In "Specification and Derivation of Process Networks", Carrez and Méry present an alternative specification language and method based on both abstract data types and temporal logics.

The final part is mostly concerned with program verification and theorem proving. At least four papers (by Méry, Gamiche and Hermann, Horn and Smaill, and Hamilton) are based on the development of programs and proofs within an intuitistionic logical framework.

The volume enjoys, and suffers from, being a collection of papers delivered at a conference. On the one hand, there is little uniformity in approach, style, and standard of work; there is little evidence of a 'unified computation laboratory'. On the other hand, it is a good 'snapshot' of current research work and the interconnexions between topics, and it contains many valuable contributions. A small, but refreshing, feature is that the volume have been uniformly type-set. Although this feature may have delayed publication, the result is a very smart-looking and readable text.

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ERIC LOUW & NEIL DUFFY.
Managing Computer Viruses. Oxford University Press. 0–19–853974–6. £14.95

This is a scholarly book citing numerous literature references (it looks as if it has been based on an academic theses), aimed at the management aspect of computer viruses. As such, it tries to avoid all technical aspects of the problem, as far as possible.

A major problem is caused by this. It is necessary to understand how viruses replicate in order to take sensible management measures. The authors of the book seem to be suffering from the misapprehension that boot sector viruses can only replicate from bootable diskettes; they do not say otherwise and they quote references that reinforce this view. As a result, we see under "Unsafe practices", booting up from the diskette drive. In fact, this would be better put under "Safe practices", as this is generally recognised as the best way to start up before running anti-virus software. Nowhere in the book was there such a recommendation.

The idea of a book aimed at management of the virus problem is a good one; the implementation in this book