ARTICLES

6 The Theory and Practice of Functional Testing
William E. Howden
Viewing programs as syntheses of requirements, design, and programming functions allows programmers to address a wide variety of errors—even subtle and difficult-to-find missing code faults.

18 Practical Priorities in System Testing
Nathan H. Petschenik
During the system test phase, "thorough testing" can pass the limits of practicality. Test case selection, based on simple priority rules, is one solution to the problem of practicality vs. thoroughness.

24 The Larch Family of Specification Languages
John V. Guttag, James J. Horning, and Jeannette M. Wing
Larch specifications are two-tiered. Each one has a component written in an algebraic language and another tailored to a programming language.

37 Large Software Problems for Small Computers: An Example from Medical Imaging
Gideon Frieder, Gabor T. Herman, Craig Meyer, and Jayaram Udupa
Small computers can be called on to perform large tasks. Doing so requires careful organization of input, output, auxiliary data structures, and memory.

48 Who Owns What Software Produces?
Michael C. Gemignani
When programs rather than humans create products, the issues of product ownership create thorny legal problems which the law has yet to address.

53 Logic Programming and Prolog: A Tutorial
Ruth E. Davis
Logic programming offers significant advantages for the massively parallel computer systems of tomorrow. This tutorial examines the potential of Prolog to implement those advantages.

DEPARTMENTS

2 Editor-in-Chief’s Message: Referees
63 Software Standards: Workaday Software Requirements Specifications
66 Software Reviews: Modula-2—Language of the Future?
69 New Products
70 New Product Reviews: Telpac; E-Z-DOS-IT
73 Product Highlights
76 Personal & Peripheral
77 Soft News: NASA Space Station Software Planning; NSF Supercomputer Access
82 Calendar; Call for Papers
83 Books Reviews: Personal Computers for Education; Structure and Interpretation of Computer Programs; Mathematics for the Analysis of Algorithms; Compiler Construction; Effective Design of CODASYL Data Base; Writing and Analyzing Effective Computer System Documentation
88 Advertiser/Product Index
Reader Service Cards, p. 88A; IEEE Software Subscription Form, p. 5.