Letter (p. 5) “We can see that the term ‘software maintenance’ accurately describes the activities performed during this phase of the software life cycle. I propose that ‘software maintenance engineers’ should become standard nomenclature for those who perform the vital function of correcting, modifying, and maintaining the thousands of existing computer programs.”

Graphical Programming (p. 7) “In this article, we describe our work on developing a programming methodology called Pict that permits humans to use their native intelligence in programming.”

Interview (p. 42) “Four advances in technology—the microprocessor, the Winchester disk, the relational database, and a novel interprocessor communication scheme—formed the foundation for a startup company’s approach to the $2 billion annual database market.”

Software Development (p. 57) “To remain competitive in an international software field that includes system communications as well as programming, NEC set up an integrated, corporation-wide development and production project.”

Software Management (p. 66) “This article presents the management perspective on the GTE software engineering culture methodology, environment, and tools as well as the problems of new technology transfer.”

Workstation Networks (p. 74) “Our research had two primary goals. The first was to identify the factors behind the development of local area network–based systems of workstations. ... The second goal was to construct a profile of a workstation and its environment, to distinguish it from such products as word processors and intelligent terminals.”

Packaging Workshop (p. 90) “This year’s keynote session featured a panel that discussed wafer-scale integration [WSI], specifically the differences in Trilogy and Mosaic WSI, and the alternatives of silicon on silicon and other dense-packaging schemes.”

Introspective Integration (p. 94) “Since inexpensive logic for testing and reconnecting modules eliminates the need to customize wafers, the concept of self-configurability is creating new interest in [WSI] ... However, there seems to be little public debate about the merits of various approaches to WSI, and this note is an attempt to initiate a discussion and provide a personal answer.”

Gentle Printing (p. 102) “A nonimpact office printer based on a patented, thin-film magnetic recording head has been introduced by Ferix Corporation. The Model 800 magnetic page printer ... can store images on its magnetic drum so that once an image has been created, it can be used indefinitely as a magnetic master in a duplicator mode to print 14 pages per minute without data retransmission.”

Ombudsman (p. 113) “Computer Society [CS] membership has grown to almost 80,000, making it inevitable that some members would run afoul of the society business routine and face problems like lost magazines, inaccurate dues notices, and no answers to their complaints. To resolve such problems, the CS Governing Board created the post of ombudsman to help CS members cut through organizational red tape.”

The Future (p. 114) “The personal expert system is a computer so small, yet so powerful, it can provide the problem-solving capabilities of a human expert anywhere they are needed.”

Public Policy (p. 117) “The formation of a national commission on computer and communications systems has been recommended to Congress. The purpose is to examine the legal, economic, institutional, social, and technical aspects of safeguarding computerized resources, as well as to study the scope and nature of threats and vulnerabilities of computer/communications systems.”
Letter (p. 4) “I appreciated reading Neville Holmes’s recent article on reforming the Olympic Games (‘Olympic Games Reform: A Study in System Engineering,’ Sept. 2000, pp. 91–93). I found the article rather appealing in both its content and its well-presented perspective of system engineering.”

Mixed-Signal Chips (p. 12) “The technology’s profile has increased dramatically with its growing use in intelligent handheld devices, which take advantage of the chips’ powerful digital capabilities to leverage analog functionality.”

Broadband Gaming (p. 16) “Now that video gaming has leaped onto the Internet, avid gamers—in their thirst for the fastest, most intense, and most realistic experiences—are adopting residential broadband technologies ... at a faster rate than the general public.”

A Modern Museum (p. 22) “This article describes the issues we faced in the design and management of our Web-based image collection, the Thinker ImageBase, containing more than 75,000 images of artwork from the Fine Arts Museums of San Francisco.”

Summary Automation (p. 29) “Although some summarizing tools are already available, with the increasing volume of online information, it is becoming harder to generate meaningful and timely summaries. [Available] tools ... are useful, but their application is limited to extraction—selecting original pieces from the source document and concatenating them to yield a shorter text. Abstraction, in contrast, paraphrases in more general terms what the text is about.”

Compressed Search (p. 37) “In this article, we discuss the recent techniques that permit a fast and direct method for searching compressed text, and we explain how these new techniques can improve the overall efficiency of IR [information retrieval] systems.”

Visual Search (p. 46) “My colleagues and I developed a prototype system called ImageScape ... to find visual media over intranets and the Web. The system integrates technologies such as vector quantization–based compression of the image database and k-d trees for fast searching over high-dimensional spaces.”

Addressable Issues (p. 54) “In this article, we identify a set of issues organized within an overall framework that software developers must address for component-based systems (CBSs) to achieve their full potential.”

Animated Networks (p. 63) “Nam, the network animator that we developed in our work at the VINT [Virtual Internet Testbed] project, provides packet-level animation, protocol graphs, traditional time-event plots of protocol actions, and scenario editing capabilities. Nam benefits from a close relationship with ns, which can collect detailed protocol information from a simulation.”

A Competition (p. 70) “The CS challenges undergraduates from around the world to put their learning to the test in the second annual CS International Design Competition [CSIDC]. Intended to replicate the type of project students might encounter in industry, the CSIDC is an extensive contest in which students work autonomously to design and build a working prototype of a device that could be used to solve a real-world problem.”

Genetic Search (p. 118) “Genetic search algorithms enable intelligent and efficient Internet searches. They are especially useful when the search space is relatively large.”

Clashing Models (p. 120) “The authors offer two techniques for avoiding the conflicting assumptions that often snare software projects in a costly and time-consuming spiderweb.”

Background Computers (p. 123) “Making computers ubiquitous is not enough; we should also strive to make them invisible. But, in doing so, we will face many research challenges.”

Program Coding (p. 128) “In our push to make programs more understandable, we have often overlooked the equally important goal of making them easier to code correctly.”

NEXT ISSUE MULTIDEVICE INTERACTIONS