32 & 16 YEARS AGO

EDITOR NEVILLE HOLMES
holmeswn@yahoo.com.au

APRIL 1983

Special Message (p. 4) “In 1982, five new regular chapters and 12 new student chapters were established, bringing the total number of chapters to 97 and student chapters to 67—both new highs.”

Introduction (p. 16) “In recognition of the tremendous growth of and the benefits provided by communications satellites, we believe it important to present this special issue covering the broad spectrum of software associated with communications satellites.”

Tutorial (p. 21) “This tutorial, directed toward nonspecialists, surveys the entire range of software applications for communications satellites and touches on topics addressed in greater depth by companion articles in this issue.”

System Selection (p. 35) “Today, spacecraft designers face an extremely complex task when selecting the spacecraft computer. ... To perform this task, the spacecraft designer must not only be aware of the computers available from different vendors but must also be able to properly evaluate them against each other and against his requirements. ... This article explores the process of selecting a satellite computer system.”

Orbit Control (p. 43) “This article takes a tutorial approach to the types of problems addressed by orbit-control software for communications satellites. The methods and implementations described are drawn largely from my own experience and represent only a limited set of the possible variations.”

Intelsat Software (p. 53) “A system of this size requires sophisticated computer models to ensure smooth and timely operation. Software models are used to quickly determine accurate channel routing, to optimize transmission planning, and to monitor performance for system quality assurance and control.”

Satellite Design (p. 69) “This article describes the CAE [computer-aided engineering] techniques employed in the spacecraft industry. Although several analytic tools have been available for some time now, the major data flow is still by paper only. A better way to accomplish full automation in CAE is via an integrated database and distributed networking.”

Spacecraft Computers (p. 85) “Putting computers into spacecraft systems offers many potential advantages—which are about to increase dramatically. Most satellite equipment—antennas, solar cells, and so on—represent relatively stable technologies. Onboard computing, however, is in a dynamic stage. This article surveys the state of the art.”

Computer Music (p. 98) “Existing computer music compositions are chiefly demonstrations of the technical possibilities (with exceptions). A subset that has quickly bored audiences revolves around the sound of a new instrument—the Moog synthesizer—as it is normally used. No one seems to realize that the Moog synthesizer sound came about because we hadn’t yet mastered the sound of existing instruments.”

Used Programs (p. 100) “Often we are faced with a schedule or budget that forces us to work smarter, not harder. Here is where good programming practice pays off. When systems are properly modularized, documented, and debugged, and have all the other good things done to them, they can be used as basic components of or building blocks for other systems.”

Computer Farming (p. 112) “Zoologist Warren Porter and his mechanical engineering colleagues at the University of Wisconsin have developed a computer program that can tell a farmer what kind of shelter would best protect his cattle against intense heat or cold. And the shelter for cattle would be quite different from one for goats or chickens, the computer would point out, because each animal interacts differently with bad weather.”

Education (p. 120) “Scotland, with the largest concentration of computer industries already outside the US, is expanding university and college educational opportunities as part of a long-term electronics strategy launched in 1979. Last year alone, electronics-related course capacity at both the graduate and undergraduate levels increased by at least 15 percent at Scotland’s eight universities, institutes, and colleges.”
eral-purpose OSs. We contrast the platform requirements for communication-oriented liquid software with those of computation-oriented software, identify the limitations of current platforms, and outline the benefits of Joust.

**Information Warfare** (p. 57) “An information warfare attacker’s goal is to damage an organization by disrupting its information systems. The specific target of an attack may be the system itself or its data. Although attacks that bring down the system are severe and dramatic, they must be well timed to achieve the attacker’s goal, because immediate and concentrated attention will be applied to restoring system operation. That accomplished, a thorough diagnosis will precede installation of measures designed to prevent further such attacks.”

**Web Sharing** (p. 64) “The principal functions of financial markets are to bring buyers and sellers together and to provide a price discovery mechanism for the assets being traded. In this article, we describe our financial bundle trading system (FBTS), a Web-based continuous electronic market that traders can use to execute bundle orders.”

**Check Processing** (p. 102) “The Post Press System replaced highly labor-intensive, inflexible check-order processing and fulfillment with an approach that integrates flexible manufacturing with real-time, object database concepts. Several months after initial deployment, the benefits of this integration are significant. Our company can process new orders more quickly, with higher accuracy, and at lower cost. The system also allows rapid order cancellation.”

**Software Assurance** (p. 103) “Computer security is taking on new importance as electronic commerce metamorphoses from hype to reality. Large and small businesses alike are reinventing themselves as e-commerce players. The implications for computer security practice are immense. When bits count as money, protecting bits becomes as important as any other aspect of running a successful business.”

**Professionalism** (p. 106) “... The question is really about whether engineers and computer scientists consider themselves to be members of a bona fide profession, and whether they should have a true professional society to work on their behalf.”

**Open Source** (p. 111) “I agree that we need a quantum leap in software productivity. Sure, reuse is good, but it has been around for ages and hasn’t significantly boosted software development. Free labor is a real productivity enhancer, too. Free intellectual property, zero labor costs, and hundreds of peer reviewers all lead to greater productivity because everything is free. The problem is, this utopia is a fantasy.”