

MAY 1981

www.computer.org/csdl/mags/co/1981/05/index.html

PUBLICATION (p. 4) “During 1981, the IEEE Computer Society will publish about 5000 pages—consisting primarily of edited and refereed material—in its six periodicals. And, an even greater amount of technical material will appear in conference proceedings, tutorials, and special publications.”

MACHINE LANGUAGE (p. 9) “... Using a subset of Pascal oriented directly to the machine level is surely a worthwhile approach, and is another way of moving the programmer as far away as possible from the machine—all he needs to know is the language’s grammar. In the future, there may very well be a macro-type Pascal assembly language that will become a practical tool for programming large programs that still need to be tightly coupled to the machine.”

SPECIAL ISSUE (p. 11) “... This special issue of *Computer* focuses on recent office information systems research that is directed at improving the environment and productivity of office workers.”

QBE/OBE (p. 13) “Typically, professional programmers have provided interactive applications for [nonprogrammer professional] users in the form of so-called ‘friendly user interfaces.’ In most cases, these interfaces are based on menu selection options for setting the parameters of prewritten programs. The drawback of such an approach is that it gives so little flexibility to the user. If a user wishes to modify a function or add a new one, he must consult the programmers who maintain the application; the turnaround time for such a request can be weeks or months. ...”

OFFICE MODELING (p. 41) “Costs appear to be an increasingly important cause of the trend toward the automated office. If automation is to control costs, a greater effort must be made to understand how the office functions as a system. Furthermore, managers must gain a better understanding of the procedures by which information is processed in their offices. ... One way to accomplish this is to employ formal modeling techniques suitable for representation, transformation, and analysis.”

OFFICE INFORMATION SYSTEMS (p. 59) “... The OIS design goals of flexibility, efficiency, and modularity must not preclude the accountability needs of managers, stockholders, and auditors. This will require meticulous examination of the OIS system to ensure that it satisfies the multi-attribute control criteria used by auditors. Our

approach is to model the firm’s internal behavior, of which the OIS is a subset, using the computer-acceptable Internal Control Description Language. ...”

TUTORIAL (p. 73) “The transmittal of digital information over telephone channels led to a number of refinements in the use of carrier modulation. The communication bandwidth requirements of digital-to-analog conversion restricted the data capacity of the 3-KHz audio voice channel to a nominal limit of 4.8K bps ... The desire for higher data rates and the emergence of digital transmission technology have resulted in the development of a number of digital networks designed to handle data in purely digital form. ...”

SPECIAL FEATURE (p. 96) “The Japanese software industry has pluses and minuses. On one hand, Japanese workers are known for their loyalty, an important element in establishing stable organizations. On the other, the Japanese language is extremely difficult to handle by machine. If the difficulties can be overcome and the advantages exploited, the Japanese software industry will contribute significantly to the development of world software technology.”

COMPUTER AIDED WRITING (p. 105) “... We are trying to create several template scientific papers. These template papers will be quite sophisticated, with passive-voice construction, repetition of ideas, and other features of scientific papers. They will lack only the nouns associated with the topic. The scientific author will eventually be able to supply topic nouns to the computer and see the scientific paper produced automatically. ...”

OPTOELECTRONICS (p. 115) “A team of Caltech researchers has recently demonstrated the world’s first integrated optoelectronic circuit—the combination of optical (laser detectors) and electronic (transistors) elements ‘grown’ monolithically on a single layered crystal.”

LOS ALAMITOS OFFICE (p. 122) “The IEEE Computer Society’s New West Coast Operations facility was officially opened February 26, when current and past officers and active volunteers gathered at the new building, located at 10662 Los Vaqueros Circle in Los Alamitos, California, for formal dedication ceremonies ...”



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SOFTWARE DESIGN (p. 10) “If more ‘computer scientists’ were better read, we wouldn’t be seeing this mass hysteria over yet another high-level language [Java]. As [Frederick] Brooks[, Jr.] points out, the biggest gains from high-level languages were made during the transition from low-level assembly language. Furthermore, anyone who thinks a new language is going to solve all their problems doesn’t understand their problems. The real difficulty in the software industry is design, not the manual effort of entering the representation.”

COMPUTERS AS SCAPEGOATS (p. 11) “As long as we allow people to think of computers as anything else than machines to be owned and used, powerful people and institutions will be able to use computers as scapegoats and avoid blame for the social inequities they are able to bring about for their own benefit by using computers.”

THE SKILLS SHORTAGE (p. 14) “The Information Technology Association of America (ITAA), an IT industry trade association, recently issued a report entitled ‘Help Wanted: The IT Workforce Gap at the Dawn of a New Century,’ which estimated that large and mid-sized US companies had 190,000 unfilled IT positions.”

SOFTWARE PRODUCTION (p. 24) “The Personal Software Process is a defined and measured framework that helps software engineers plan and track their work and produce high-quality products. PSP shows engineers how to manage the quality of their products and how to make commitments they can meet. It also provides them with the data to justify their plans. ...”

BEYOND PROCESS (p. 33) “... At Rockwell, we found that risk management is more than just another process; it is a fundamental change in the way uncertainty and decision making are viewed. More specifically, we found that effective risk management requires obtaining *functional behavior*, not just following a process or having diverse sources of information.”

ADVANCING E-COMMERCE (p. 44) “... Launched in 1994 as a not-for-profit organization, CommerceNet (www.commerce.net) is dedicated to advancing electronic commerce, which is fast becoming synonymous with Internet commerce. The group’s nearly 250 member companies seek solutions to technology issues, sponsor numerous industry pilots, and foster market and business development.”

DIGITAL ANARCHY (p. 48) “... the Internet’s potential is imperiled by the rising specter of digital anarchy: closed

markets that cannot use each other’s services; incompatible applications and frameworks that cannot interoperate or build upon each other; and an array of security and payment options that confuses consumers.”

EXPLOITING E-COMMERCE (p. 56) “My research shows that firms use the Internet to improve enterprise information and workflows, redefine the way they communicate with customers, and leverage global resources. Companies like Cisco Systems, Amazon, Onsale, BidnAsk, and Virtual Vineyards are pioneering new business models with e-commerce.”

PROGRAM TRACING (p. 63) “Conventional program analysis and presentation techniques are insufficient when dealing with object-oriented concepts, but tool developers have nevertheless found a way to obtain and visualize OO traces.”

BETTER BRANCHES (p. 71) “... If designers are to continue increasing processor performance, they must turn to methods that exploit *instruction-level parallelism* within each program. ... However, performance has stalled at speedups of two to three instructions per cycle, on average. This stagnation is due to branch effects.”

MULTIVALUED LOGIC (p. 83) “... As chip feature sizes continue to shrink, binary VLSI systems face serious problems such as increased power consumption and interconnection complexity. The solution may lie in using an alternative to binary logic.”

THE GIGABIT ETHERNET (p. 96) “With a peak data rate of 1,000 Mbps to the desktop, users can be confident that their local network connection will not be the constraining piece in their network for years to come. Wide area network, server, and software bandwidth will once again be the limiting items for a while.”

SOFTWARE DEVELOPMENT (p. 103) “What [Roger] Osmond advocates—and what the industry needs—is what I will call the Quality First model: Quality remains constant. You always strive to get everything right from the start and fix it immediately if it is not. The only thing that changes is functionality. ...”

ONLINE LEARNING (p. 108) “The data and our own experience lead us to believe that an online course like this [Introduction to Psychology] is a viable alternative to the traditional lecture course. The second offering of the course is in progress, and we intend to offer it regularly, improving and testing its components as we go. ...”

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