Are technical conferences really valuable? Today everyone is pressed for time. The daily job is all consuming. The idea of attending a technical conference seems more a luxury than a necessity. The question asked is "Do technical conferences really provide value for the time they require to attend?"

This special issue of the IEEE Transactions on Software Engineering hopes to demonstrate the value of technical conferences by highlighting one conference, the International Computer and Software Applications Conference known as COMPSAC. Here are 18 of the best papers from COMPSAC, 9 each from COMPSAC '82 and COMPSAC '83. They are representative of the quality and informative value received from this conference. They represent the best of a set of excellent papers. Your own review of the proceedings will verify that selecting the best papers is difficult with so many fine papers so select from. They are also indicative of the wealth of information that any conference can provide those who attend.

The question of value obtained from technical conferences is still open for discussion. If value cannot be measured in dollars and cents for the kind of information obtained at conferences, and often it cannot, then it may be expressed in the qualitative benefits of keeping abreast in this profession. The value of conferences is in direct proportion to the need to stay in touch with the technological changes in the computer profession. This point can be made by looking closely at the computer profession and the directions of its expanding technology.

Consider the explosive growth of this profession. In the last decade, the number of Bachelor of Computer Science degrees has tripled. The Bureau of Labor Statistics predicts that between 1980 and 1990 the number of people in computer related fields will increase by 48 percent. By 1990, over 2 million people will be employed in the computer profession. This does not consider the fact that nearly everyone else will be some form of computer user.

The increasing number of people in the computer field are a reflection of the ever-expanding diversity of computer technology. As computer technology evolves, it encompasses more areas of human activity. In those areas it has existed for some time, the technology has increased in complexity. The pressures of a broadening base and increasing complexity are creating strains on the computer profession. One of the results of this is the replacement of the computer generalist by the computer specialist.

The evolution of the data center systems expert provides an example of broadening and increased complexity aspects of computer technology. In the past, data centers were large batch processing operations. The expertise required in this area was focused on the mainframe and software from one manufacturer. Today's data center experts are required to know about on-line applications, networking, distributed systems, and telecommunications. The hardware is no longer one mainframe, but a combination of large and small computers, not one operating system, but many. No longer from only a single manufacturer, it is becoming more common to see hardware and software from a host of manufacturers. One person cannot be expert in all this.

The pressures of specialization are also felt by the application software developers. The simple analyst-designer-programmer team is evolving into various new forms to meet the demands of changing processes and technology. The new influences of databases, the pressures to apply higher levels of technology to applications, the addition of components to the development process such as configuration management and quality control groups for software are causing major changes in how application software is developed.

The environment for software developers and their tools is also undergoing significant changes. Workstations are still in their infancy, however they offer great potential for software developers. Formalism in requirements and design specification is becoming more widespread as a host of tools propagate formal specification languages. Automatic code generation is still rapidly maturing to take some of the burden from programmers. However, the technology used today for developing computer products may be radically altered if the research on artificial intelligence meets its objectives.

The increasing rate at which software is being developed is causing a major problem in maintaining this software. Process improving methods for software developers have been focused mainly on new software. However, existing software causes a substantial drain on the number of people available to develop new computer products. Today an ever-increasing number of tools and approaches are being created to reduce the software maintenance problem. Program analyzers and code restructures are emerging as major aids in reducing the burden of software maintenance.

Now back to the original question of the value of technical conferences. The sheer growth of the computer profession has made it very difficult for a person to maintain expert level competence across the entire field. As in other professions, the computer profession is evolving toward a greater degree of specialization. Each specialty demands significant time and energy to stay up on the current state of its technology. The most effective way to keep abreast of technical developments in the profession is through publications, like this one, and by attending technical conferences.

Conferences offer not only the technical content of the state of the art, but they also provide the people who are advancing the technology. They give you first-hand access to these people. They make it possible to obtain an interactive dialog with those whose ideas are shaping the future of the profession.

This issue of the IEEE Transactions on Software Engineering features some very interesting papers to give you
Insight into the International Computer Software and Applications Conference. Several of the papers have been expanded from their original published version. Many of the authors have updated their papers to include current research. The papers presented here are representative of the excellent information conferences offer.

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