FOREWORD

Of the four papers in this issue, two are concerned with technical subjects and two consider the wider social and cultural contexts of information technology. These concerns are, of course, not at all separate. Without the practical application technologies, computer science would not be the economically important field that it is. On the other hand, technical applications, no matter how ingenious and sophisticated, will have minimal economic impact unless their use is in tune with the needs and culture of a particular economic entity. As we have often emphasized in the past, it is the purpose of this journal to bring technical advances together with analyses of the wider contexts in which the technology must operate.

The first of the more technical articles, by Ajin Jirachiefpattana, considers the use of a particular symbolic formalism, Petri nets, for the sophisticated dynamic modeling of communications protocols in computer networks. This technique has been used for some time, but has been limited to the analysis of a single state of a communications system that changes in an ongoing manner. The author considers an extension of the technique that allows the modeling of the system on an ongoing basis.

The second technical article, by Nasir Hayat and Andrew Wirth, considers another advanced technique, genetic algorithms as applied to complex problems of machine scheduling. This technique, which has its origin in the fields of artificial intelligence and life, has played an important role in helping manufacturers use their machines with full efficiency.

What is most important about the version of this method is that it can be run on readily available PC software, thus allowing small manufacturing facilities to achieve the type of efficiency that was previously only open to large firms.

An international team of researchers from the People's Republic of China and Canada, consisting of Zhongzhi He, Mohamed Khalifa, Martin Kusy, and Tiesheng Zhao, also considers the use of computers in the organization of manufacturing processes, in their case Manufacturing Resource Planning (MRPII). Rather than focusing on the technical details of this method of using computers to increase manufacturing productivity, however, the authors are concerned with the factors involved in the possible adoption of the technology in the People's Republic of China, where the technique has been thus far only minimally used.

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