FOREWORD

This Symposium is the fourth in a series of meetings sponsored by the IEEE Computer Society and dedicated to the advancement of the understanding and of the applications of computer arithmetic. The first meeting was a one-day Workshop preceding the IEEE Computer Group Conference at Minneapolis, Minn., on June 16, 1969. R.R. Shively organized the Workshop and was the Guest Editor for the August 1970 issue of the IEEE Transactions on Computers, which contained formal versions of several papers presented at the Workshop and was the first Special Issue ever on the topic of computer arithmetic. The second meeting was a one-and-a-half day Symposium, hosted by the Electrical Engineering Department of the University of Maryland on May 15-16, 1972. The key organizers were H.L. Garner and D.E. Atkins, who followed up by co-editing a Special Section on computer arithmetic in the June 1973 Transactions on Computers. The third meeting at Dallas, Texas took two full days - November 19-20, 1975. It was hosted by Southern Methodist University and chaired by T.R.N. Rao and D.W. Matula, who also co-edited the third Special Issue of the Transactions which appeared in July of 1977. Formal Symposium Proceedings were published for the first time, and proved to be a very valuable and timely innovation.

A look at the three preceding meetings shows a steady growth of the number of attendees and papers presented. Even more encouraging is the expanding scope of subject matter. As defined by the content of papers given at the preceding three meetings, computer arithmetic occupies a territory bounded by the disciplines of numerical analysis, number theory, computational complexity, mathematical software, computer architecture, fault-tolerance, logic design, and integrated circuit design. Many paths between these disciplines lead through computer arithmetic, whose interface function is being more widely recognized only now. A continuation of the trend to relate computer arithmetic to its neighboring fields of research is very much in evidence in the 33 papers which appear in these Proceedings. The contributions to the present Symposium represent a wide and balanced spectrum of interests covering the theoretical foundations, software and hardware implementation, and applications of computer arithmetic with an emphasis on new number representation systems and algorithms.

It is a real pleasure to express our appreciation to the members of the Program Committee and the referees whose prompt and thorough responses made the selection of papers for the Symposium a manageable task. Our thanks also belong to the UCLA Computer Science Department and its Chairman, Professor Walter J. Karplus, for the essential technical support given to us during the preparations for this Symposium.

We close our foreword with a very special note. With the consent of the Program Committee, we wish to dedicate these Proceedings of the Fourth IEEE Symposium on Computer Arithmetic to Professor Antonin Svoboda on the occasion of his retirement from active academic life which has spanned a half century of creative activity in Europe and in the United States. Among his varied interests in computer science and computer engineering, Tony's continuing contributions to computer arithmetic have inspired many of us by their originality, rigor, and by the infectious enthusiasm of his personal presentations. We are certain that all authors and participants of this Symposium will join us in wishing Professor Svoboda good health and many happy returns to join his fellow arithmeticians in future Symposia on Computer Arithmetic.

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