Editorial: Special Issue in Honor of John Rice's 65th Birthday

This special issue of *TOMS* forms part of the proceedings of a symposium held May 22–26, 1999, at West Lafayette, Indiana, to honor John R. Rice for his many contributions to the field of computational science, as well as to computer sciences at Purdue University. The program reflected the breadth of Rice's interests and accomplishments; there were tributes to Rice by his students, collaborators, and friends, perspectives on computational science, and research papers.

Entitled the 1999 International Symposium on Computational Science, the symposium was organized by the Purdue University Department of Computer Sciences, and was sponsored by Working Group 2.5 (Numerical Software) of the International Federation for Information Processing (IFIP), and by the International Association for Mathematics and Computers in Simulation (IMACS). Over the years, John Rice enriched each of these organizations in many ways.

Here we have collected some papers presented at the symposium in recognition of John Rice's pivotal contributions to the field of mathematical software. His work in organizing the conferences Mathematical Software (1970) and Mathematical Software II (1974) at Purdue were key events which served to galvanize a community of researchers which continues to be productive to this day. In 1975, John Rice began an 18-year tenure as founding editor of the *ACM Transactions on Mathematical Software*. He remains as one of its Associate Editors.

The symposium was held in conjunction with his 65th birthday. Those of us who have benefited from his insight, wisdom, mentoring, and presence have wanted for a long time to thank him and wish him the best for the future. We now take that opportunity with great pleasure.

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Ronald Boisvert

Wayne Dyksen

Elias Houstis

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JOHN R. RICE
Biographical and Professional Notes

John R. Rice was born in Tulsa, OK on June 6, 1934. He lived in several small Oklahoma towns and Addis Ababa, Ethiopia before entering Oklahoma State University in 1951. He studied mathematics there (B.S. 1954, M.S. 1956) and then at the California Institute of Technology (Ph.D. 1959). He spent one year at the National Bureau of Standards in Washington, D.C. on a National Research Council postdoctoral fellowship, and then four years as a research mathematician at the General Motors Research Laboratories in Michigan. He came to Purdue University in 1964 as Professor of Mathematics and Computer Science. In 1983–1996 he served as Head of the Department of Computer Sciences, and in 1989 he was appointed W. Brooks Fortune Distinguished Professor of Computer Sciences. He held visiting positions at University of California at Santa Barbara (1970), University of Wisconsin (1979), and California Institute of Technology (2000).

Rice's early research work was mostly in mathematics. He wrote several books and many papers in nonlinear approximation theory, but he always had a strong interest in computers. His very first technical publication in 1953, as a college sophomore, was entitled *Electronic Brains.* In 1969 he published a leading textbook of the day, *Introduction to Computer Science.* Over the years his research gradually shifted to scientific computing, and now he works primarily in the areas of the numerical solution of partial differential equations, parallel computation, computational intelligence, and problem-solving environments.

Rice's preeminent professional contribution was as founder and Editor-in-Chief of the *ACM Transactions on Mathematical Software* (1975–1993). This journal became the cornerstone for the discipline of mathematical software; the citation for his 1994 election to the National Academy of Engineering cited his *"establishing and seminal contributions to the field of mathematical software."* He has also served on the editorial board of a dozen other journals. Other professional recognition includes the 1975 Forsythe Distinguished Lectureship and election as a fellow of the American Association for the Advancement of Science (AAAS) and the Association for Computing Machinery (ACM). His professional career includes terms as Chair of the ACM Special Interest Group on Numerical Mathematics (1970–73), Chair of the Computing Research Association (1991–93), member of the International Federation for Information Processing (IFIP) Working Group 2.5 (Numerical Software, 1977–present), and Vice President/Trustee of the International Association for Mathematics and Computers in Simulation (IMACS, 1994–present). He has participated in over 250 scientific conferences, and was a principal speaker in more than 50 of them.

Rice is the author or co-author of over 20 books and 250 scientific articles. These are roughly divided into scientific areas as follows (many fall into more than one area): Approximation theory—46, Computational intelligence—19, Educational/professional matters—14, Mathematical software—12, Numerical analysis—11, Parallel computing—35, Partial differential equations—45, Problem-solving environments—28, Scientific computing/applications—15, and Software systems/engineering—15.

During his tenure at Purdue, Rice taught courses at all levels, created a number of new courses, and wrote eight textbooks for them. He directed the research of 17 Ph.D. students: Carl Usow (1967), Hermann Burchard (1968), John Hoff (1968), Lawrence Symes (1969), Tom Aird (1973), Rodney Oldehoeft (1973), John Heminger (1974), Elias Houstis (1974), James Lemme (1976), Ronald Boisvert (1979), William Ward (1982), Wayne Dyksen (1982), Ivan Huerta (1983), Calvin Ribbens (1986), Rakesh Sharma (1986), Scott McFaddin (1992), and Tzvetan Drashansky (1996). In 1998 he was named a charter member of the *Great Teachers of Purdue University.*