

IN MEMORIAM: THOMAS J. SCHRIBER (1935–2024)



Thomas J. Schriber, a pioneer in the field of computer simulation, passed away on December 31, 2024. Over the course of six decades, Tom was a distinguished teacher, researcher, and practitioner in that discipline; moreover, he was one of the most prominent and effective advocates for all aspects of the discipline. This commemoration of Tom summarizes his groundbreaking contributions to computer simulation as well as his exemplary service to the international simulation community and the Winter Simulation Conference (WSC).

Tom loved to teach. Tom taught for fifty years at the University of Michigan's Ross School of Business, and along the way he introduced the use of digital computers to thousands of individuals and discrete-event simulation to tens of thousands. Early in Tom's career—at the beginning of the digital era—he taught digital computing to two hundred fifty business school faculty in summer school short courses to enable them to return to their home colleges and universities to teach computing to their students. During his career Tom taught simulation to thousands of students; and through his famous “red book,” *Simulation Using GPSS*, tens of thousands of others learned simulation.

Tom was a Michigander. He was born in Flint on October 28, 1935, raised in East Tawas and Rogers City, and lived his adult life in Ann Arbor. Tom's academic journey began at his beloved Notre Dame, where he graduated magna cum laude with a BS in Chemical Engineering in 1957. With a National Science Foundation (NSF) Fellowship in hand, he went to the University of Michigan for graduate study in the Department of Chemical and Metallurgical Engineering, where he earned his MSE in 1958 and his PhD in 1964. The digital computer era was in its beginning, and the University of Michigan was one of the first universities developing computers and teaching their use. Tom immediately took to learning about computers by attending computer courses in engineering and in the Department of Mathematics, which allowed him to earn an MA degree in Mathematics in 1959. The Department of Chemical and Metallurgical Engineering had an NSF Grant to teach summer short courses in computing to engineering faculty at other colleges and universities. During these short courses, Tom was an assistant who had the task of documenting the various lectures.

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Tom's PhD research was both theoretical and experimental in nature; and prior to finishing his dissertation, Tom was a Fulbright Fellow in Germany during the period 1961–1962. Upon his return from Germany, Tom joined the faculty of the Department of Mathematics at Eastern Michigan University (1962–1966) to teach computing courses while he finished his PhD dissertation. During his second year at Eastern Michigan University, he also became Director of their newly established Academic Computer Center. In 1965, Tom was contacted by the University of Michigan's Ross School of Business about joining their faculty to create and teach computing-related courses. Tom decided to try this, and it became his career of fifty years (1966–2016). He rose quickly through the ranks to become a full professor in 1972 and was awarded the Ross School of Business's Andy Andrews Distinguished Faculty Service Award in 2006 and the Victor L. Bernard Faculty Award for Leadership in Teaching in 2013. He was also a Visiting Scholar at Stanford University (1972–1973), Swiss Federal Technical University (1987), and National University of Singapore (1995).

During Tom's early years at the Ross School of Business, he had three major activities. Since the era of computers was at its beginning, there was a lack of computer textbooks. Tom proceeded, as one activity, to write the manual *Fundamental Use of the Michigan Terminal System* (five editions, 1967–1983) and two textbooks published in 1969 by John Wiley and Sons, Inc.: *Fundamentals of Flowcharting* and *FORTRAN Case Studies for Business Applications*. Another activity occurred after Tom recognized that most business schools had no faculty who knew about computing. He wanted to teach business school faculty about computing, and to accomplish this objective he followed the model used by Michigan's Department of Chemical and Metallurgical Engineering to teach computing to other engineering faculty. Grants were obtained by Michigan's School of Business to accomplish this, and Tom taught summer computing short courses to business school faculty members from other institutions in 1970, 1971, and 1973. Each of these resulted in a publication—namely, Volumes I, II, and III of *FORTRAN Applications in Business Administration* (1970, 1971, and 1973), coedited by Schriber and Madeo. Grant money was available to make hundreds of copies of each to distribute to the libraries of the various business schools. Tom's third major activity was suggested by the department chair during the latter part of his first year, namely, that he should develop a course to teach discrete-event simulation, hereafter referred to as simulation. During the following summer (1967), Tom proceeded to study the newly developing field of simulation, and to develop a simulation course. After investigating the simulation languages GASP, SIMSCRIPT, and GPSS, Tom decided to base his simulation course on GPSS. This activity resulted in Tom devoting his career to simulation.

Starting in the fall of 1967 and through 1995, Tom taught a simulation course each semester using the GPSS simulation language. Tom always created handouts to give to the students when he taught the course; and over time he developed a complete, thorough set of notes for his simulation course that he had refined each year. Book publishing companies were soon asking Tom to develop these notes into a textbook. Tom did this and in 1974, John Wiley & Sons, Inc. published *Simulation Using GPSS*. This book had red covers, measured 8.5 by 11 inches, and soon became known as the "Red Book." This book was so comprehensive and well written that it had only one edition, it remained in print for 21 years, it had numerous print runs, and an estimated 40,000 copies were printed—a record number for a simulation book at that time. In addition to these copies in English, this book was translated into Russian; and 10,000 Russian copies were made with red covers, and this book became known as the "Red Red Book." In addition to the Red Book, Tom wrote the textbook, *An Introduction to Simulation Using GPSS/H*, published in 1991 by John Wiley & Sons, Inc. This book was for the GPSS/H version of GPSS that was developed by the Wolverine Software Company and that provided numerous advanced features that were not available in other versions of GPSS.

In addition to his academic coursework on the topic of simulation, Tom taught many short courses on "Simulation Using GPSS." He taught this course for 24 summers during the period 1969–1992 at the University of Michigan's Engineering Summer Conferences. Additionally, he taught several "Simulation Using GPSS/H" courses for Wolverine Software from 1982 to 1995.

Tom was an extremely active participant in the Winter Simulation Conference. He attended every conference from 1968 through its 50th anniversary in 2017. He had at least one paper at every conference

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starting in 1971 through 2017 and one paper in 1968. One of his papers received a Landmark Paper Award at the 40th anniversary of WSC in 2007. Tom was the 1976 WSC Program Chair, a member of the WSC Board of Directors (1978–1986), Board Chair (1982–1983), the 2009 WSC “Titan of Simulation” Keynote Speaker, and a recipient of a WSC Board of Directors’ Award for Distinguished Service in 2007. Tom was also a Board Member of the WSC Foundation (2003–2009) and served as its Chair (2007–2008).

Tom contributed significant time and effort to professional service. He was an ACM National Lecturer for Simulation (1969–1972), an Associate Editor of numerous journals, National Vice President of the Decision Sciences Institute (1977–1979), Vice Chairman of ACM’s Special Interest Group on Simulation (1991–1994). Tom also served on and chaired many committees, and he refereed numerous papers. Of particular importance was Tom being one of the six U.S. participants of the joint US–USSR Science and Technology Exchange Program for the period 1977–1980.

Tom’s achievements as a researcher, practitioner, and author are especially noteworthy. According to Google Scholar invoked via Publish or Perish, Tom published 78 archival journal articles, 8 books, 4 coedited books, and 6 book chapters over the period 1967–2017. Many of his articles and 2 of his books are about GPSS and GPSS/H, with special emphasis on how such discrete-event simulation software systems work on a digital computer. Several of Tom’s journal articles concern solving real-world problems that arise in manufacturing and transportation systems. He did simulation methodology research on output analysis that produced several articles. Of special interest is his research with Richard W. Andrews on analyzing simulation outputs using ARMA (autoregressive moving-average) processes that was sponsored by an Office of Naval Research grant. Tom’s research program is distinguished by the breadth and depth of the topics covered and by the time period over which the work was sustained. The following list of selected publications illustrates the breadth, depth, and duration of Tom’s research program.

Schriber, T. J., and G. Paravano. 1967. “The Low Temperature Oxidation of Ammonia over a Supported Ruthenium Catalyst.” *Chemical Engineering Science* 22:1067–1078.

Look, A. T., T. J. Schriber, J. F. Nawrocki, and W. H. Murphy. 1981. “Computer Simulation of the Cellular Immune Response to Malignant Lymphoid Cells: Logic of Approach, Model Design and Laboratory Verification”. *Immunology* 43:677–690.

Schriber, T. J., and R. W. Andrews. 1981. “A Conceptual Framework for Research in the Analysis of Simulation Output”. *Communications of the ACM* 24(4):218–232.

Rachamadugu, R., U. Nandkeolyar, and T. Schriber. 1994. “Scheduling with Sequencing Flexibility”. *Decision Sciences* 24(2):315–341.

Schriber, T. J., D. T. Brunner, and J. F. Smith. 2017. “Inside Discrete-Event Simulation Software: How It Works and Why It Matters”. In *2017 Winter Simulation Conference (WSC)*, 735–749. <https://www.informs-sim.org/wsc17papers/includes/files/054.pdf>.

Tom received many honors beyond those already mentioned. He became a fellow of the Decision Sciences Institute in 1979. He received the INFORMS Simulation Society’s Lifetime Professional Achievement Award in 2001 and its Distinguished Service Award in 1996. He was video interviewed in 2013 as one of the pioneers of simulation for the Computer Simulation Archive located at North Carolina State University. Tom was awarded the Albert Nelson Marquis Lifetime Achievement Award in 2019. He was honored to give keynote addresses for several conferences.

Tom was also known beyond his professional accomplishments for his personal qualities. He was kind and warm, a friend of everyone, and you were his friend as soon as he met you, generous with his time and helpful, open and inspiring, thoughtful, and a hard worker. He loved parties and would usually be one of the first to arrive and last to leave.

Tom Schriber stands as an inspiration and role model for everyone in the international simulation community. We are fortunate to have benefited from his multifaceted contributions over the past six decades. Tom is survived by his wife, Ann; three children, Sarah, John, and Maria; and five grandchildren. He will be sorely missed by his family, friends, colleagues, and all his many students.