Thomas W. Parks

March 16, 1939 – December 24, 2020

Professor Thomas (Tom) W. Parks passed away on December 24, 2020 at the age of 81. He served on the faculty of the School of Electrical and Computer Engineering from 1986 until 2008. While at Cornell and Rice, he authored over 100 books and papers and supervised 22 Ph.D. and 18 M.S. students. Along with his pioneering contributions to Digital Signal Processing, Tom was noted for his good humor and ready smile; he will be sorely missed.

Tom was born on March 16, 1939 in Buffalo, New York to Mildred W. and William K. Parks. He received all of his degrees – the B.E.E. (’61), M.S. (’64) and Ph.D. (’67) – from Cornell’s School of Electrical Engineering. Tom’s thesis advisor was the late James Thorp, a long-serving faculty member and former director of the School of ECE. Jim had many glowing things to say about Tom’s student career, and at least one telling anecdote. Upon reading a draft of Tom’s thesis, a math professor refused to sign off on the thesis until Tom proved an off-hand comment. It took a year, but Tom proved it.

After receiving his Ph.D., Tom accepted a faculty position at Rice University, where he taught and conducted research for twenty-one years. He returned to Cornell ECE as a faculty member in 1986, conducting research, teaching, and providing professional service until his retirement in 2008.

Tom made significant contributions in the areas of time-frequency and wavelet analysis, signal reconstruction, array processing for sonar and seismic applications, digital filter design, pattern classification, and neural networks. His first major research contribution (1972) was the development of what is now known as the "Parks-McClellan Algorithm," a technique developed with his Rice Ph.D. student, James H. McClellan for the fast and reliable design of digital filters. Their paper "Chebyshev approximation for nonrecursive digital filters with linear phase" is a classic that has been cited well over a thousand times. The Parks-McClellan Algorithm is still the design method of choice and is cited in most textbooks on the subject of filter design. James McClellan went on to a distinguished career at Georgia Tech, where he is credited with the

development of that school's strong signal processing program.

Tom made many other major contributions in the formative years of digital signal processing. He was recognized at the 1996 International Conference on Signal Processing as one of the pioneers in the field. President Gillis of Rice University presented "The Rice Award" to Tom and Dean Sidney Burrus (Rice) at "The First 30 Years of DSP" conference, held in February 1999. Tom was also co-recipient (with James H. McClellan) of the IEEE Jack S. Kilby Signal Processing Medal in 2004 "for fundamental contributions to digital filter design and interpolation, especially the Parks-McClellan algorithm."

Tom was elected Fellow of the IEEE in 1982 for his development of signal processing algorithms and for leadership in education. He is the recipient of an IEEE Third Millennium Medal, which was presented at the IEEE International Conference on Image Processing in Vancouver, Canada in September 2000. Tom was also a Senior Fulbright Fellow and received the Alexander von Humboldt Foundation Senior Scientist Award. He was elected to the U.S. National Academy of Engineering in 2010

Tom was also noted for his professional service, making significant contributions to the IEEE Signal Processing Society through his early activities as an ADCOM (Administrative Committee) member, his service as associate editor of the Transactions, as distinguished lecturer, and as a member of the Digital Signal Processing Technical Committee of the Signal Processing Society.

Tom was recognized both locally and nationally for his excellent teaching. The IEEE Acoustics, Speech, and Signal Processing Society appointed him as a "National Lecturer" for 1987-88 and a "Distinguished Lecturer" in 1988-89. He developed and taught courses for Mathworks on Matlab and on the use of Matlab in signal processing. He was a member of an NSF sponsored group (CASPER) for developing software for signal processing education. He is one of five co-authors of *Computer-Based Exercises for Signal Processing Using MATLAB* (Prentice Hall 1994). He also wrote a successful textbook at the senior level, *Digital Filter Design*, with C. S. Burrus based in part on his lecture notes for what was then EE425, "Digital Signal Processing," a course he developed when he first joined the Cornell ECE faculty.

Tom received the Ruth and Joel Spira Excellence in Teaching Award in the School of Electrical Engineering in 1992 and the Dean's Fund Award in 1995. He always had a high teaching load because of the popularity of EE425, the EE course that enjoyed the highest enrollment beyond the sophomore year. He completely restructured the laboratory in EE425 in the fall of 1991 by introducing Matlab and Texas Instruments DSP development systems.

Tom Parks will be remembered for his outstanding contributions to research, professional service and teaching. He was, in many ways, an ideal colleague.

Written submitted by Stephen B. Wicker (chair), C. Richard Johnson, and Clifford Pollock