

H. J. SIEGEL - BRIEF PROFESSIONAL BIOGRAPHY (October 17, 2022)

H.J. Siegel is a Professor Emeritus and Senior Research Scientist/Scholar at Colorado State University (CSU). From 2001 to 2017, he was the George T. Abell Endowed Chair Distinguished Professor of Electrical and Computer Engineering at CSU, where he was also a Professor of Computer Science. From 2002 to 2013, he was the first Director of the CSU Information Science and Technology Center (ISTeC), a university-wide organization for enhancing CSU's activities pertaining to the design and innovative application of computer, communication, and information systems. At CSU, Prof. Siegel developed and taught a dual level (senior and graduate) course on computer architecture and a graduate level course on heterogeneous computing.

From 1976 to 2001, he was a professor in the School of Electrical and Computer Engineering at Purdue University (Assistant Professor 1976-1981, Associate Professor 1981-1985, Full Professor 1985-2001). At Purdue, Prof. Siegel taught a sophomore course on digital logic, and developed/co-developed and taught a junior level course on discrete mathematics for computer engineering, a senior level course on systems programming, a dual level course on computer architecture, a dual level course on parallel programming, a graduate level course on parallel processing, and a graduate level course on heterogeneous computing.

Prof. Siegel received a B.S. degree in electrical engineering and a B.S. degree in management (1972) from the Massachusetts Institute of Technology (MIT), and the M.A. (1974), M.S.E. (1974), and Ph.D. degrees (1977) from the Department of Electrical Engineering and Computer Science at Princeton University. He has been a Fellow of the IEEE (Institute of Electrical and Electronics Engineers) electrical and computer engineering professional society since 1990 (top ~2% of the membership) and a Fellow of the ACM (Association for Computing Machinery) computer science professional society since 1998 (top ~1% of the membership).

Prof. Siegel has co-authored over 460 published technical papers, most on parallel and distributed computing and communications. He wrote the book *Interconnection Networks for Large-Scale Parallel Processing* (second edition 1990). He has edited/co-edited nine volumes. There have been over 21,000 citations to his publications (based on Google Scholar). He has supervised 37 Ph.D. students and 33 Master's thesis students. He is an international tutorial presenter, keynote speaker, and invited lecturer: 67 tutorials at conferences and companies; 40 keynote talks at conferences and workshops; and 191 invited lectures for academic, industry, government, and professional groups. He has been the invited moderator or an invited panelist for 60 conference and workshop panels. He has served as a consultant for 27 industry, government, and academic organizations. He is a co-inventor of two issued patents.

Prof. Siegel's research interests include scheduling for drones/UAVs, robust energy-aware resource management for heterogeneous parallel and distributed computing, the "smart grid" for electricity, parallel algorithms, parallel machine interconnection networks, and reconfigurable parallel computer systems. His drone/UAV research focuses on the design of models and performance measures and their use in scheduling heuristics that consider energy, target characteristics, and drone capabilities. In the area of resource management for heterogeneous computing, he is studying ways to allocate the varied compute and communication resources of a collection of different interconnected machines to applications to be executed on the system, with the goal of maximizing some given performance criterion; focus areas include robust and energy-aware resource allocation. The "smart grid" research investigates how an aggregator in the retail electric power market can find a customer-incentive pricing and schedule of loads to mitigate peak demands. His algorithm work has involved minimizing execution time by exploiting architectural features of parallel machines. Topological properties, routing control, and fault tolerance have been the focus of his research on interconnection networks for large-scale parallel machines. In his reconfigurable system studies, he has analytically and experimentally

investigated the utility of the three dimensions of dynamic reconfigurability supported by the PASM parallel system design ideas and the small-scale proof-of-concept prototype: mixed-mode parallelism, switchable inter-processor communications, and system partitionability.

As Principal Investigator (PI) or Co-PI, he has received over \$20 million in research grants and contracts. Agencies that have supported his research include the Air Force Office of Scientific Research, Air Force Rome Laboratory, Army Research Office, Ballistic Missile Defense Agency, Colorado Commission on Higher Education, DARPA, Defense Mapping Agency, Department of Defense, IBM, NASA, Naval Ocean Systems Center, Naval Research Laboratory, National Science Foundation, Oak Ridge National Laboratory, and Office of Naval Research.

Prof. Siegel was a Coeditor-in-Chief of the Journal of Parallel and Distributed Computing (1989-1991), and was on the Editorial Boards of the IEEE Transactions on Parallel and Distributed Systems (1993-1996) and the IEEE Transactions on Computers (1993-1996, 2002-2004). He is Chair of the Advisory Board for the Journal of Parallel and Distributed Computing (1992-present) and a member of the Advisory Board for the Journal of Interconnection Networks (1999-present).

Prof. Siegel was Program Chair/Co-Chair of six international conferences (1983, 1992, 1994, 2001, 2011, 2017), General Chair/Co-Chair of nine international conferences (1982, 1988, 1994, 1996, 2004, 2005, 2006, 2018, 2019), and Chair/Co-Chair of five workshops (1980, 1991, 1996, 1997, 2001). He has served on the Steering Committees for five annual conferences and five annual workshops. He has served as a member of 62 conference and workshop program committees.

Prof. Siegel was Chair of the IEEE Computer Society Technical Committee on Computer Architecture (TCCA) in 1982 and Chair of the ACM Special Interest Group on Computer Architecture (SIGARCH) from 1983 to 1985. He was a founding member of the IEEE Computer Society Technical Committee on Parallel Processing (TCPP), serving on the executive committee or advisory committee since 1992.

Prof. Siegel was an "IEEE Computer Society Distinguished Visitor" (1979-1982) and an "ACM Distinguished Lecturer" (1993-2000), giving invited seminars about his research around the country. He is a member of the Eta Kappa Nu electrical engineering honor society, the Sigma Xi science honor society, and the Upsilon Pi Epsilon computing sciences honor society.

After retirement, Prof. Siegel became involved with three community boards of directors. One is for the Rist Canyon Volunteer Fire Department (RCVFD), in his home area of Bellvue, CO. RCVFD is responsible for responding to wildfires, house fires, motor vehicle accidents, and medical emergencies in a rural area of over 110 square miles that includes approximately 1,200 home sites. Prof. Siegel has been a firefighter since 2001, a certified emergency medical responder since 2009, and a Vice President of the Board of Directors since 2018. Another board was for the Redstone Estates Road Association (RERA), Bellvue, CO. RERA is responsible for the maintenance and improvement of the dirt road system supporting approximately 120 rural home sites. He was a member of that Board from 2019 to 2022. The third is for Congregation Har Shalom (CHS), in Fort Collins, CO. CHS is a Jewish synagogue with a membership of approximately 190 households. He was on the Board of Directors from 2017 to 2022, and was President of the Board in 2020/2021.

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