

Princeton University

HONORS FACULTY MEMBERS
RECEIVING EMERITUS STATUS



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The biographical sketches were written by staff and colleagues in the departments of those honored.

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DOUGLAS WELLS CLARK



Professor of Computer Science Douglas W. Clark transferred to emeritus status on February 1, 2016, after more than two decades on the faculty at Princeton University. Throughout his career, his research focused on computer architecture and organization, and particularly techniques for measuring and analyzing the performance of modern processors.

Doug was born in Richland, Washington, and grew up mainly in Lexington, Massachusetts. He received his bachelor of science in engineering and applied science from Yale University in 1972, and his Ph.D. in computer science from Carnegie Mellon University in 1976, with Sam Fuller as his doctoral thesis adviser. He then joined the storied Xerox Palo Alto Research Center (PARC), where he worked for four years. At Xerox PARC, he worked on the cache subsystem of the Dorado, one of the earliest high-performance workstations. Doug then worked from 1980 to 1993 at Digital Equipment Corporation (DEC), where he was one of the principal designers of the VAX 8700 and VAX 8800, highly successful machines of the late 1980s. While at DEC, Doug spent a year as a visiting lecturer in the Division of Applied Sciences at Harvard in 1990–1991. Doug joined the Princeton faculty in 1993 as a professor. At Princeton, Doug worked on the SHRIMP (Scalable High-Performance Really Inexpensive Multi-Processor) project, specializing in performance monitoring issues, on automatic projector alignment for a multiscreen display wall, and on low-power techniques for modern microprocessors.

Doug is, in many ways, the engineer's engineer. His first job, as a teenager in high school and into college, was as an apprentice to a Boston-area harpsichord maker. During his time at Xerox and DEC, his work included both hardware design and implementation, as well as empirical computer performance analysis of newly built systems. He is particularly noted for his work, with colleagues Joel Emer and Dileep Bhandarkar, characterizing the performance of some of the classic VAX machines, as well as methodological advances in performance evaluation that helped provide some of the fundamental comparisons of RISC and CISC designs in the late 1980s and early

1990s. Doug brought these engineering sensibilities with him to Princeton.

While at Princeton, Doug became known and valued as an influential educator and mentor, with a knack for making abstract concepts concrete. Doug taught a number of different undergraduate courses during his time at Princeton, ranging from a popular “Computers and Computing” course for students in the humanities and social sciences, to the “General Computer Science” introductory course (developed by Princeton colleagues Bob Sedgewick and Kevin Wayne), as well as “Computer Architecture and Organization” (his specialty). He received the Excellence in Teaching award from Princeton’s Undergraduate Engineering Council three years in a row. With his colleague Margaret Martonosi, Doug also helped to create and teach a popular and innovative graduate course on “Great Moments in Computing” that covers seminal papers describing the discoveries and innovations that underlie the major historical advances in computer systems.

Doug is the son of the late Wesley A. Clark (1927–2016), a legendary computer engineer whose work from the 1950s to the 1970s underpinned the revolutions in personal computing, computer graphics, and the Internet. Doug’s father designed and built a working Turing machine, which Doug kept in his office for many years, and which he demonstrated in COS 126 each semester. Economics major Glenn Weyl specifically mentioned the COS 126 Turing machine demonstration in his 2007 valedictory address, as part of noting how Princeton professors forced him to “ask questions and think about ideas far beyond [his] personal experience” and managed to make “abstract ideas intimate.” Doug’s influence through courses and through other forms of mentoring has been widespread, and former students that he taught in classes or advised in research are now themselves academic and industry leaders.

Doug has also been a great example to many of his students and colleagues of the importance of living a broad life with many interests. He is well-known for playing (mainly) classical music before and after his lectures (a practice he copied from fellow Professor Emeritus Ken Steiglitz), and for taking carillon lessons at the Cleveland Tower Carillon on campus. In recent years, he has sung in the chorus of the Philadelphia Savoy Company, devoted exclusively to Gilbert and Sullivan. He has been a longtime regular participant

in annual University Commencement ceremonies, and an avid and successful recruiter of other faculty to participate as well. This enthusiasm for the pageantry and joy of Commencement led him to become a faculty marshal and eventually to be named chief marshal for University convocations. For eight years as chief marshal, he was responsible for aspects of Baccalaureate and Commencement, and for hooding graduate students receiving their degrees. Doug was known for hooding not just the advanced degree candidates themselves, but also any young babies carried in their arms (a practice he copied from his predecessor as chief, Professor Emeritus John Fleming).

Doug Clark has had a career spanning industry and academe. In it, he has demonstrated an engineer's knack for concreteness, a scientist's appreciation for abstraction, and a master educator's ability to bridge the two.