

Princeton University

Honors Faculty Members
Receiving Emeritus Status



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

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Faculty Members Receiving Emeritus Status

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Kenneth Steiglitz



Kenneth Steiglitz is a pioneer of computer science at Princeton, a founder of the field of digital signal processing, a major figure in combinatorial optimization, and an influential and dedicated teacher.

Ken was born in 1939 and grew up in West New York, New Jersey. He received a bachelor's and doctorate in electrical engineering from New York University, and joined Princeton as an assistant professor of electrical engineering in 1963. (Ken once quipped that he was so young that it was a choice between coming to teach here or going to summer camp.) In the next decade he was a professor of electrical engineering and computer science, and in 1985 became one of the initial faculty of the Department of Computer Science. In his role as heart and soul of the department, he served several times as acting chair and acting director of graduate studies. He also served as founding director of the undergraduate certificate Program in the Applications of Computing. Ken was elected a fellow of the Institute for Electrical and Electronics Engineers in 1981, and of the Association for Computing Machinery in 1997. In 1986 he received the IEEE Signal Processing Society award for outstanding technical contributions and leadership. He retires as the Eugene Higgins Professor of Computer Science.

As countless computer scientists around the world and at Princeton can attest, Ken is a great teacher, with a low-key and gemütlich style, with such dedication that only in 2005 did he take his first sabbatical after 83 consecutive semesters of teaching. He has taught a greater breadth and variety of courses than anyone in the history of the department.

Ken's early research was on digital signal processing, and he may have been among the first to use that term. He was there at the dawn of computer music when he bumped into Godfrey Winham and Jim Randall in the E-Quad trying to get a cranky digital-to-analog converter to work. Ken introduced them to the beauties and mysteries of digital

filters; thus began a lasting association with the music department. He was an invaluable resource for the musicians, helping Godfrey and Mark Zuckerman buy and design first-generation digital audio hardware and software, helping Paul Lansky implement Linear Predictive Coding, and advising music students on their dissertations. A lot of valuable and interesting work would not have happened without Ken's wisdom, patience, and guidance.

Ken did early work on the theory of computer networks, mathematical programming, and the theory of algorithms. As the latter two fields converged into "combinatorial optimization," he captured the moment in his 1982 book *Combinatorial Optimization: Algorithms and Complexity*, co-authored with his former student Christos Papadimitriou, which is one of the most cited references in that field.

Ken's significant body of work in computer music and sound synthesis culminated in his 1996 book, *A Digital Signal Processing Primer with Applications to Digital Audio and Computer Music*, which has many devotees in the fields of music and videogames.

In recent years Ken has been interested in nonstandard models of computation, such as computing with solitons in continuous media. He is interested in rederiving the theory of macroeconomics by observing the emergent behavior of agent-based market simulations. His 2007 book *Snipers, Shills, and Sharks: EBay and Human Behavior* engagingly covered the history, theory, and practice of Internet (and pre-Internet) auctions, and in his undergraduate course "Internet Auctions: Theory and Practice" he would demonstrate the phenomenon of the "winner's curse" by auctioning off a jar full of nickels for real money during class.

Ken is an expert numismatist; his collection has many interesting Roman and Greek coins, and several equally interesting fakes. He will continue living in Princeton with his wife Sandy, and will continue his research on nonstandard computation and nonstandard economics. In the words of a former student, "Ken is a giant intellect passionately given to the novel and the untrodden, always doing it his way, with crystalline integrity, inner peace, and a genuine humility."