

Princeton University

HONORS FACULTY MEMBERS
RECEIVING EMERITUS STATUS



May 2019

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

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ANDREA S. LAPAUGH



Professor of Computer Science Andrea S. LaPaugh becomes the first female professor emerita in the School of Engineering and Applied Science, on July 1, 2019, after a 38-year career at Princeton.

Andrea grew up in Middletown, Connecticut, and attended Cornell University to study mathematics and physics. While an undergraduate, she took a course in mathematical logic and was fascinated by Gödel's incompleteness theorem, so she took a computer science course in formal languages and computability with Anil Nerode, followed by other theoretical computer science courses with Juris Hartmanis and John Hopcroft. Like most universities at the time, Cornell did not have an undergraduate major in CS, but these and other professors made Cornell a leader in the field. Andrea was inspired to pursue a Ph.D. in computer science, and in 1974 she started at MIT where she did a master's thesis with Ron Rivest on path finding in graphs.

By the late 1970s, very large-scale integrated circuits (VLSI) were creating the microprocessor revolution, and computer scientists were beginning to study the issues of large-scale design and layout. Andrea's Ph.D. thesis at MIT in 1980, *Algorithms for Integrated Circuit Layout: An Analytic Approach*, was the beginning of a number of works bringing algorithm considerations and efficiencies to the world of VLSI layout, which had previously been a field full of heuristics. After a year teaching at Brown University, Andrea came to Princeton in 1981 as an assistant professor, where she continued her research on algorithms for VLSI and on general graph algorithms. This body of work by her and others helped usher in the age of computer-aided design automation, the technology by which our computers and phones are designed.

In the 1990s, with the rise of the World Wide Web, Andrea turned her attention to algorithms for search, information retrieval, and content delivery. She created an undergraduate course in information retrieval, teaching the search algorithms of the 21st century such as clustering, recommendation systems, page rank, and map/reduce.

Andrea advised 10 Ph.D. students on topics including graph algorithms for VLSI and other applications, information retrieval and document clustering, scheduling, social networks, and internet architecture.

For a time, she was the only woman on the faculty of the School of Engineering and Applied Science, and then for a time she was the only tenured woman. She served on Dean of the College Joan Girgus's 1991 committee that made influential recommendations on how to recruit more women and underrepresented minorities to the faculty. Andrea served 2000–04 as the head of Forbes College, during which time she participated in the planning for Princeton's transition to the four-year residential college system. She enjoyed working with the small group of dedicated people who constitute the staff of a residential college.

From 2003–18, as the number of undergraduates concentrating in computer science grew from 25 per year to more than 160, Andrea was one of the professors who organized and coordinated the advising of undergraduate independent work, and served effectively as departmental representative from 2014–18, running the largest undergraduate concentration in the University's history.