

Arthur Walter Burks

Born October 13, 1915, Duluth, Minn.; one of the principal designers of the ENIAC, working with John Mauchly and J Presper Eckert; with Herman H. Goldstine, helped John von Neumann develop the logical design of the Institute for Advanced Study (IAS) computer-the von Neumann architecture.



Education: BA, mathematics and physics, DePauw University, 1936; PhD, philosophy and logic, University of Michigan, 1941.

Professional Experience: instructor, Moore School of Electrical Engineering, 1941-1946; Institute for Advanced Study, 1946, and summers 1947, 1948; University of Michigan, 1946-present, now professor emeritus of philosophy, and of electrical engineering and computer science.

Honors and Awards: DSc (Hon.), DePauw University, 1973; Russel Lecturer, University of Michigan, 1977-1978; IEEE Computer Pioneer Award, 1982.

Arthur W. Burks earned his BA in mathematics and physics from DePauw University in 1936, and his PhD in philosophy from the University of Michigan in 1941. He became an instructor at the Moore School of Electrical Engineering in the fall of that year and did war research on mine-sweeping, radar antennas, and the ENIAC. He left the Moore school after the ENIAC was dedicated and then worked at the Institute for Advanced Study with John von Neumann. There he joined with John von Neumann and Herman H. Goldstine to write one of the most influential reports in the field of computing, "Preliminary Discussion of the Logical Design of an Electronic Computing Instrument," which is mentioned in the biographies of many other pioneers.

Burks joined the philosophy department at Michigan in 1946. In 1949 he founded a research group in the logic of computers, which operated until his retirement in 1986. This group did research on programming, automata theory, neural net simulation, computer modeling, self-reproducing and cellular systems. He now does research on adaptive computation.

He co-founded a doctoral program in computer and communication sciences at Michigan in 1956, and when it became a department, he was its first chairman. He was named the Henry Russel Lecturer for 1977-1978, the highest honor his university can bestow on a faculty member. He has been a visiting Professor at the University of Chicago, University of Illinois, Indian Institute of Technology (Kanpur, India), Center for Advanced Study in Behavioral Sciences (Stanford University), and the Chinese Academy of Social Sciences (Beijing, People's Republic of China).

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Biographical

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Significant Publications

Burks, Alice Rowe, and Arthur W. Burks, *The First Electronic Computer.- The Atanasoff Story*, Univ. of Michigan Press, Ann Arbor, Mich., 1988.

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Burks, Arthur W., and Alice R. Burks, "The ENIAC: First General Purpose Electronic Computer," *Ann. Hist. Comp.*, Vol. 3, No. 4, 1981, pp. 310-399.

von Neumann, John, and Arthur W. Burks, *Theory of Self-Reproducing Automata*, Univ. of Illinois Press, Urbana, Ill., 1966.

Patents

Holland, John H., and Arthur W. Burks. 1987. "Adaptive Computing System Capable of Learning and Discovery," US Patent 4,697,242.

Holland, John H., and Arthur W. Burks. 1989. "Method of Controlling a Classifier System," US Patent 4,881,178.

UPDATES

¹ A festschrift with comments by Burks

Arthur Burks died May 14, 2008 (MRW, 2012)