

1975 ACM Turing Award Lecture

The 1975 ACM Turing Award was presented jointly to Allen Newell and Herbert A. Simon at the ACM Annual Conference in Minneapolis, October 20. In introducing the recipients, Bernard A. Galler, Chairman of the Turing Award Committee, read the following citation:

" It is a privilege to be able to present the ACM Turing Award to two friends of long standing, Professors Allen Newell and Herbert A. Simon, both of Carnegie-Mellon University.

" In joint scientific efforts extending over twenty years, initially in collaboration with I.C. Shaw at the RAND Corporation, and subsequently with numerous faculty and student colleague's at Carnegie-Mellon University, they have made basic contributions to artificial intelligence, the psychology of human cognition, and list processing.

" In artificial intelligence, they contributed to the establishment of the field as an area of scientific endeavor, to the development of heuristic programming generally, and of heuristic search, means ends analysis, and methods of induction, in particular; providing

demonstrations of the sufficiency of these mechanisms to solve interesting problems.

" In psychology, they were principal instigators of the idea that human cognition can be described in terms of a symbol system, ar they have developed detailed theories for human problem solving verbal learning and inductive behavior in a number of task domair using computer programs embodying these theories to simulate th human behavior.

"They were apparently the inventors of list processing, and hav been major contributors to both software technology and the development of the concept of the computer as a system of manipulating symbolic structures and not just as a processor of numerical data.

"It is an honor for Professors Newell and Simon to be given thi award, but it is also an honor for ACM to be able to add their nam to our list of recipients, since by their presence, they will add to th prestige and importance of the ACM Turing Award."

Computer Science as Empirical Inquiry: Symbols and Search

Allen Newell and Herbert A. Simon



Computer science is the study of the phenomena surrounding computers. The founders of this society understood this very well when they called themselves the Association for Computing Machinery. The machine-not just the hardware, but the programm living machine-is the organism we study.

This is the tenth Turing Lecture. The nine persons who precede us on this platform have presented nine different views of comput science. For our organism, the machine, can be studied at many levels and from many sides. We are deeply honored to appear here today and to present yet another view, the one that has permeated scientific work for which we have been

Key Words and Phrases: symbols, search, science, computer science, empirical, Turing, artificial intelligence, intelligence, list processing, cognition, heuristics, problem solving.

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Authors' address: Carnegie-Mellon University, Pittsburgh.

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