Carnegie Mellon University

Transforming Education Based on Data and What Works • Since 1955

Carnegie Mellon has successfully redefined education through its study of the science of learning for more than 50 years. Through its vast technology-enhanced, educational ecosystem of data, research and development, CMU’s innovations are helping students learn more effectively and efficiently.

1955: Allen Newell (TPR ’57) joins Prof. Herbert Simon’s research team as a Ph.D. student.

1956: CMU creates one of the world’s first university computation centers. With Alan Perlis (MCS ’42) as its head, it is a joint undertaking of faculty from the business, psychology, electrical engineering and mathematics departments, and the precursor to computer science.

1956: Simon creates a “thinking machine”—enacting a mental process by breaking it down into its simplest steps. Later that year, the term “artificial intelligence” is coined by a small group including Newell and Simon.

1956: Simon, Newell and J. C. Shaw (CIT ’45,’46) of the Rand Corporation develop Logic Theorist, the first artificially intelligent computer program.

1956: Prof. Kenneth R. Koedinger (HSS ’88,’90) and Anderson develop Practical Algebra Tutor. The program pioneers a new form of computer-aided instruction for high school students based on cognitive tutors.

1956: Jack Mostow (SCS ’81) develops Project LISTEN, an intelligent tutor that helps children learn to read. The National Science Foundation included Project LISTEN’s speech recognition system as one of its top 50 innovations from 1950-2000.

1956: The Center for Automated Learning and Discovery is formed, led by Prof. Thomas M. Mitchell.

1975: Newell and Simon receive the Turing Award for their work on artificial intelligence, the psychology of human cognition and list processing. The pair inspires a wealth of other work on learning and cognition.

1975: Prof. John R. Anderson (CIT ’61) and CMU colleagues further bring together the disciplines of cognitive psychology and computer science to develop a new model of how people learn.

1975: The Open Learning Initiative (OLI) begins at CMU, supported by the Hewlett Foundation.

1975: The SOAR cognitive architecture and unified theory of cognition begins, led by Newell, John Laird (SCS ’78,’84) and Paul Rosenbloom (SCS ’78,’83). During the 1980s, CMU established three of the four cognitive architectures that were used to explore human perception, reasoning, learning and language.

1978: Simon wins the Nobel Prize in Economic Sciences for his work on decision making.

1983: The CMU Human-Computer Interaction Institute is created, connecting faculty from computer science, social sciences and design, with James H. Morris (MCS ’63) as the first director.

1994: The Pittsburgh Science of Learning Center (PSLC) is established as a joint CMU-University of Pittsburgh initiative, with funding from the National Science Foundation.

1998: Spinoff company Carnegie Learning is founded by CMU scientists to expand adoption of cognitive tutors that rely on sound learning principles in U.S. public schools.


2004: Paving the way to a data-driven understanding of robust learning, the Pittsburgh Science of Learning Center (Pittsburgh Science of Learning Center) is established as a joint CMU-University of Pittsburgh initiative, with funding from the National Science Foundation.

2004: Major study of students at six U.S. public universities shows that CMU’s OLI statistics course (taught in “hybrid” mode) is just as effective as regular lecture classes, showing the potential of interactive learning systems to reduce cost and maintain quality.

2010: CMU launches The Simon Initiative, named after Nobel Laureate and CMU professor Herbert Simon, dedicated to learning research to improve student performance.

2013: CMU creates the Global Learning Council (GLC). President Subra Suresh serves as the founding chair of the GLC, a virtual entity, committed to the use of science and technology to enhance learning outcomes.

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