Designed to serve as a guide to resources on artificial intelligence (AI) and expert systems, this Library of Congress bulletin is divided into 18 sections that contain lists of books, journal articles, periodicals, associations, and other sources of information. A brief statement of the scope of the guide introduces the sections, which are listed here with the number of citations included for each: (1) introductory texts (2); (2) subject headings used by the Library of Congress under which books on AI can be located in most catalogs (24); (3) background texts (12); (4) basic texts (10); (5) additional texts (14); (6) collected works (7); (7) related texts (13); (8) handbooks, encyclopedias, and dictionaries (8); (9) bibliographies (3); (10) state-of-the-art reviews and conference proceedings (17); (11) government publications (5); (12) abstracting and indexing services that index relevant journal articles (11); (13) journals that often contain articles relevant to AI (12); (14) representative journal articles (19); (15) subject headings for reports and other types of literature indexed in Scientific and Technical Aerospace Reports and the U.S. Government Reports & Announcements Index; (16) selected technical reports from the National Technical Information Service (NTIS) (10); (17) selected materials available in the Library of Congress Science Reading Room (7); and (18) additional sources of information—e.g., associations and university departments (12). (JB)
ARTIFICIAL INTELLIGENCE
Compiled by Kay Rodgers

January 1986

SCOPE: Artificial intelligence is an emerging technology. This technology is concerned with understanding the nature of intelligent action and constructing computer systems capable of reason by which machines can learn functions normally associated with human intelligence. This includes problem solving, perception, learning, symbolic activity, creativity, language and related processes. The interdisciplinary nature of artificial intelligence is reflected by its appearance in the literature of the engineering sciences, mathematics, linguistics, psychology and the biological sciences. The interaction between automatic control and living organisms is not included in this guide.

Related titles in the LC Science Tracer Bullet series include Industrial Robots (TB 80-19), CAD/CAM (Computer Aided Design/Computer Aided Manufacture) (TB 85-7) and Brain and Behavior (TB 79-3). Not meant to be a comprehensive bibliography, this Tracer Bullet is designed—as the name of the series implies—to put the reader "on target."

INTRODUCTORY TEXTS


SUBJECT HEADINGS used by the Library of Congress, under which books on artificial intelligence can be located in most card, book, and online catalogs, include the following:

- ARTIFICIAL INTELLIGENCE (Highly relevant)
- EXPERT SYSTEMS (COMPUTER SCIENCE) (Highly relevant)
- HEURISTIC PROGRAMMING (Highly relevant)
- AUTOMATIC SPEECH RECOGNITION (Relevant)
- COGNITION (Relevant)
- FUZZY SETS (Relevant)
- FUZZY SYSTEMS (Relevant)
- LINGUISTICS—DATA PROCESSING (Relevant)
- MACHINE LEARNING (Relevant)
- MACHINE TRANSLATING (Relevant)
- OPTICAL PATTERN RECOGNITION (Relevant)
2

PATTERN RECOGNITION (Relevant)
PATTERN RECOGNITION SYSTEMS (Relevant)
PROBLEM SOLVING—DATA PROCESSING (Relevant)
SELF-ORGANIZING SYSTEMS (Relevant)
SPEECH PROCESSING SYSTEMS (Relevant)
SUPERCOMPUTERS (Relevant)
CAD CAM SYSTEMS (Relevant)
CYBERNETICS (Related)
ROBOTICS (Related)
ROBOTS (Related)
ROBOTS, INDUSTRIAL (Related)
INFORMATION THEORY (More general)
LOGIC, SYMBOLIC AND MATHEMATICAL (More general)

BACKGROUND TEXTS


Bibliography: p. 393-408.

Bibliography: p. 301-308.


Bibliography: p. 891-901.
A classic work in the field.


*Available in the reference collection, Science Reading Room.


BASIC TEXTS


Bibliography: p. 497-518.

ADDITIONAL TEXTS


Bibliography: p. 179-186.


Bibliography: p. 198-204.


Bibliography: p. 243-255.

Bibliography: p. 243-255.

Bibliography: p. 274-278.

Bibliography: p. 802-819.


COLLECTED WORKS


RELATED TEXTS


311 p.


Bibliography: p. 249-255.

"Portions of this work previously appeared in the January, February and March 1981 issues of Science digest."


B29.M535 1984

Bibliography: p. 325-345.

Bibliography: p. 405-408.


**HANDBOOKS, ENCYCLOPEDIAS, DICTIONARIES**


**BIBLIOGRAPHIES**


STATE-OF-THE-ART REVIEWS and CONFERENCE PROCEEDINGS


Based on presentations at the Second Anglo-French Philosophy Colloquium organized by Middlesex Polytechnic Faculty of Humanities and the Universite de Lille III U.E.R. de Philosophie held at Middlesex Polytechnic, April 1983.


"A selection of papers and updates of papers from the 1982 European Conference on Artificial Intelligence in Orsay, France."


GOVERNMENT PUBLICATIONS


ABSTRACTING AND INDEXING SERVICES that index relevant journal articles and other literature are listed below. Some suggested terms are given as aids in searching.

Applied Science & Technology Index (1913-) Z7913.I7*
See: Artificial Intelligence

Artificial Intelligence Abstracts (1984-) Q334.A76

Computer & Control Abstracts (Science Abstracts--Series C) (1966-)
See: Adaptive Systems
Artificial Intelligence
Brain Models
Heuristic Programming
Learning Systems
Neural Nets
Self-Adjusting Systems

Computer Literature Index (1971-) QA76.Q3*
See: Artificial Intelligence
Expert Systems

Electrical & Electronics Abstracts (Science Abstracts--Series B) (1898-)
See: Adaptive Systems
Artificial Intelligence
Brain Models
Heuristic Programming
Learning Systems
Neural Nets
Self-Adjusting Systems

Engineering Index (1892-) Z5851.E62*
See: Computer Programming--Algorithms
Computer Programming Languages
Speech--Computer Applications
Systems Science and Cybernetics--Artificial Intelligence
Vision--Computer Applications

*Note: Consult reference librarian for location of abstracting and indexing services in the Science Reading Room.
International Aerospace Abstracts (1961-) TL500.I57*
See: Artificial Intelligence
  Cognitive Psychology
  Computer Vision
  Expert Systems
  Pattern Recognition
  Speech Recognition

Magazine Index (July 1981-) uncataloged
See: Artificial Intelligence
  Computer Programs--Technological Innovations
  Expert Systems (Computer Science)
  Heuristic Programming
  Logic Design
  Machine Translating
  Perceptrons
  Question-Answering Systems
  Turing Machines

Monthly Catalog of United States Government Publications (1895-)
See: Artificial Intelligence Z1223.A18*

See: Artificial Intelligence

Readers' Guide to Periodical Literature (1900-) AI3.R45
See: Artificial Intelligence
  Expert Systems (Computers)
  Turing Machines

JOURNALS that often contain articles relevant to artificial intelligence are

AI Magazine Q334.A5
Artificial Intelligence Q335.A785
Association for Computing Machinery. Journal QA76.A77
Byte QA76.5.B9
Cognition BF311.C545
Cognitive Science BF311.C552
Communications of the ACM QA76.A772
Fuzzy Sets and Systems QA248.F87
Institute of Electrical and Electronics Engineers. Transactions on Pattern Analysis and Machine Intelligence Q327.119
Journal of Pragmatics P99.4.P72J68
Robotics Age TJ211.R56

REPRESENTATIVE JOURNAL ARTICLES


Entire issue is devoted to artificial intelligence.


How NASA will use AI in space; expert systems will track, manage power, and schedule payloads. Electronics, v. 58, Sept. 16, 1985: 32-33.


Lerner, Eric J. Why can't a computer be more like a brain? High technology, v. 4, Aug. 1984: 34-41.


**REPORTS and other types of literature are indexed in the following guides:**

**Scientific and Technical Aerospace Reports (1968-)** TL500.S35*
- See: Artificial Intelligence
  - Cognitive Psychology
  - Expert Systems

**U.S. Government Reports & Announcements Index (1946-)** Z7916.G78*
- See: Artificial Intelligence
  - Cognition
  - Expert Reasoning
  - Expert Systems
  - Heuristic Methods
  - Knowledge Representation
  - Mathematical Logic
  - Pattern Recognition

**SELECTED TECHNICAL REPORTS**, sold by the National Technical Information Service, Springfield, Virginia 22161, include the following:


Hanson, Andrew J. Installing a copy of the ARPA/DMA image understanding testbed at the U.S. Army Engineer Topographic Laboratories. Menlo Park, Calif., SRI International, Artificial Intelligence Center, June 30, 1985. 8 p. AD-A158 395**


**Available in the microform collection, Science Reading Room**


This report is an annotated bibliography on artificial intelligence.

**SELECTED MATERIALS** available in the Science Reading Room pamphlet boxes include:


This issue contains a special section on expert systems beginning with p. 501 and continuing through p. 585.


**ADDITIONAL SOURCES OF INFORMATION**

American Association for Artificial Intelligence
445 Burgess Drive
Menlo Park, California 94025
Telephone: (415) 328-3123
Artificial Intelligence Center
Computer Science and Technology Division
SRI International
333 Ravenswood Avenue
Menlo Park, California 94025
Telephone: (415) 859-5288

Artificial Intelligence Laboratory
Massachusetts Institute of Technology
545 Technology Square
Cambridge, Massachusetts 02139
Telephone: (617) 253-6773

Association for Computational Linguistics
c/o Dr. D. E. Walker, Secretary-Treasurer
Bell Communications Research
445 South Street-MRE 2A379
Morristown, New Jersey 07960
Telephone: (201) 829-4312

Department of Mechanical Engineering
Pennsylvania State University
207 Mechanical Engineering Building
University Park, Pennsylvania 16802
Telephone: (814) 865-2519

Laboratory for Artificial Intelligence Research
Department of Computer and Information Science
College of Engineering
Ohio State University
2036 Neil Avenue Mall
Columbus, Ohio 43210
Telephone: (614) 422-0208

Department of Computer Science
University of Colorado
Campus Box 430
Boulder, Colorado 80309
Telephone: (303) 492-6361

Department of Systems Engineering
Faculty of Engineering
Kobe University
Rokkodai, Nada
Kobe, Hyogo 657, JAPAN
Telephone: 078 881-1212

Information Services
Robotics Institute
Carnegie-Mellon University
Schenley Park
Pittsburgh, Pennsylvania 15213
Telephone: (412) 268-3818
Institute for Mathematical Studies in the Social Sciences
Stanford University
Ventura Hall
Stanford, California 94305
Telephone: (415) 723-3111

Institute for New Generation Computer Technology
Mita-Kokusai Building, 21F
1-4-28 Mita, Minato-ku
Tokyo 108, JAPAN
Telephone: 03-456-3191, 2511

Laboratory of Brain Evolution and Behavior
National Institute of Mental Health
NIH Animal Center, Building 110
Poolesville, Maryland 20837
Telephone: (301) 496-9556