

*Computers and Thought*. Edited by Edward A. Feigenbaum and Julian Feldman. AAAI Press, Menlo Park, CA/MIT Press, Cambridge, MA. (1995). 535 pages. \$18.00.

Contents:

I. Artificial intelligence. Introduction. 1. Can a machine think? Computing machinery and intelligence (A.M. Turing). 2. Machines that play games. Chess-playing programs and the problem of complexity (Allen Newell, J.C. Shaw, and H.A. Simon). Some studies in machine learning using the game of checkers (A.L. Samuel). 3. Machines that prove mathematical theorems. Empirical explorations with the logic theory machine: A case study in heuristics (Allen Newell, J.C. Shaw, and H.A. Simon). Realization of a geometry-theorem proving machine (H. Gelernter). Empirical explorations of the geometry-theorem proving machine (H. Gelernter, J.R. Hansen, and D.W. Loveland). 4. Two important applications. Summary of a heuristic line balancing procedure (Fred M. Tonge). A heuristic program that solves symbolic integration problems in freshman calculus (James R. Slagle). 5. Question-answering machines. Baseball: An automatic question answerer (Bert F. Green, Jr., Alice K. Wolf, Carol Chomsky, and Kenneth Laughery). Inferential memory as the basis of machines which understand natural language (Robert K. Lindsay). 6. Pattern recognition. Pattern recognition by machine (Oliver G. Selfridge and Ulric Neisser). A pattern-recognition program that generates, evaluates, and adjusts its own operators (Leonard Uhr and Charles Vossler). II. Simulation of cognitive processes. Introduction. 1. Problem-solving. GPS, a program that simulates human thought (Allen Newell and H.A. Simon). 2. Verbal learning and concept formation. The simulation of verbal learning behavior (Edward A. Feigenbaum). Programming a model of human concept formulation (Earl B. Hunt and Carl I. Hovland). 3. Decision-making under uncertainty. Simulation of behavior in the binary choice experiment (Julian Feldman). A model of the trust investment process (Geoffrey P.E. Clarkson). 4. Social behavior. A computer model of elementary social behavior (John T. Gullahorn and Jeanne E. Gullahorn). III. Survey of approaches and attitudes. Introduction. Attitudes toward intelligent machines (Paul Armer). Steps toward artificial intelligence (Marvin Minsky). IV. Bibliography. A selected descriptor-indexed bibliography to the literature on artificial intelligence (Marvin Minsky). Index.

*Diagrammatic Reasoning: Cognitive and Computational Perspectives*. By Edited by B. Chandrasekaran, Janice Glasgow, and N. Hari Narayanan. AAAI Press, Menlo Park, CA/MIT Press, Cambridge, MA. (1995). 780 pages. \$50.00.

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Acknowledgments. Foreword. Introduction. I. Historical and philosophical background. Section introduction (Aaron Sloman). 1. Musings on the roles of logical and non-logical representations in intelligence (Aaron Sloman). 2. Problem solving with diagrammatic representations (Brian Funt). 3. Why a diagram is (sometimes) worth 10000 words (Jill Larkin and Herbert Simon). 4. Imagery and inference (Robert Lindsay). 5. How do scientists think? Capturing the dynamics of conceptual change in science (Nancy Nersessian). 6. Qualitative spatial reasoning: Framework and frontiers (Kenneth Forbus). II. Theoretical foundations. Section introduction (Patrick Hayes). 7. Heterogeneous logic (Jon Barwise and John Etchemendy). 8. On visual formalisms (David Harel). 9. Reasoning with analogical representations (Karen Kyers and Kurt Konolige). 10. Applying semantic concepts to analysing media and modalities (Keith Stenning, Robert Inder, and Irene Neilson). 11. Reasoning with diagrammatic representations (Dejuan Wang, John Lee, and Henk Zeevat). III. Cognitive and computational models. Section introduction (David Waltz). 12. Imagery and mental models in problem solving (Yulin Qin and Herbert Simon). 13. Computational imagery (Janice Glasgow and Dimitri Papadias). 14. Visual interaction: A link between perception and problem solving (Erika Rogers). 15. Behavior hypothesis from schematic diagrams (N. Hari Narayanan, Masaki Suwa, and Hiroshi Motada). 16. Mental animation: Inferring motion from static displays of mechanical systems (Mary Hegarty). 17. Abstract planning and perceptual chunks: Elements of expertise in geometry (Kenneth Koedinger and John Anderson). 18. Partonomies and depictions: A hybrid approach (Christopher Habel, Simone Pribbenow, and Geoffrey Simmons). IV. Problem solving with diagrams. Section introduction (Yumi Iwaski). 19. Analogical representations of naive physics (Francesco Gardin and Bernard Maltzer). 20. A model of interaction with geometry diagrams (Timothy McDougal). 21. Qualitative structural analysis using diagrammatic reasoning (Shirley Tessler, Yumi Iwaski, and Kincho Law). 22. A hybrid architecture for modeling liquid behavior (Jo DeCuyper, Didier Keymeulen, and Luc Steels). 23. Diagrams for solving physical problems (Gordon Novak). Index.

*Learning Networks: A Field Guide to Teaching and Learning Online*. By Linda Harasim, Starr Roxanne Hiltz, Lucio Teles, and Murray Turoff. MIT Press, Cambridge, MA. (1995). 329 pages. \$35.00.

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Preface. I. The field. 1. Learning networks: An introduction. 2. Networks for schools: Exemplars and experiences. 3. Networks for higher education, training, and informal learning: Exemplars and experiences. II. The guide. 4. Designs for learning networks. 5. Getting started: The implementation process. 6. Teaching online. 7. Learning online. 8. Problems in paradise: Expect the best, prepare for the worst. III. The future. 9. New directions. 10. Network learning: A paradigm for the Twenty-first Century. 11. Epilogue: Email from the future. Appendices. A. Learning network resource list. B. Commercial services. C. Vendors of computer conferencing systems. D. List of free-nets. E. Nonformal education and online services. F. Sample course description and letter to online students. G. Annotated excerpts from an online course. References. Index.