Contributors

JANICE S. AIKINS

Dr. Aikins received her Ph.D. in computer science from Stanford University in 1980. She is currently a research computer scientist at IBM's Palo Alto Scientific Center. She specializes in designing systems with an emphasis on the explicit representation of control knowledge in expert systems.

ROBERT L. BLUM

Dr. Blum received his M.D. from the University of California Medical School at San Francisco in 1973. From 1973 to 1976 he did an internship and residency in the Department of Internal Medicine at the Kaiser Foundation Hospital in Oakland, California, where he was chief resident in 1976. He received his Ph.D. in computer science and biostatistics at Stanford University in 1982. Currently a research associate in the Heuristic Programming Project at Stanford, Dr. Blum is principal investigator of the RX project. The goal of the RX project is the automated discovery and confirmation of medical knowledge from large time-oriented data bases.

BRUCE G. BUCHANAN

Professor Buchanan was a mathematics major at Ohio Wesleyan University and received his Ph.D. in philosophy from Michigan State University. He joined the Computer Science Department at Stanford University in 1966 and is now a professor of computer science research. He is co–principal investigator of the Heuristic Programming Project. His main research interest is artificial intelligence, specifically designing expert systems for scientists and physicians. He has helped develop several well-known programs, including DENDRAL, Meta-DENDRAL, MYCIN, and EMYCIN.

B. CHANDRASEKARAN

Professor Chandrasekaran received his Ph.D. from the Moore School of Electrical Engineering of the University of Pennsylvania in 1967. He spent the next two years as a research scientist at the Philco-Ford Corporation in Blue Bell, Pennsylvania, working on problems in the design of pattern-

recognition machines. He joined the faculty of Ohio State University in 1969, and is currently a professor of computer and information science. His current research interests span several areas in artificial intelligence, and include knowledge-based problem solving and vision.

WILLIAM J. CLANCEY

Dr. Clancey received his Ph.D. in computer science from Stanford University in 1979. He is currently a research associate in the Heuristic Programming Project at Stanford University. He specializes in computer-aided instruction in order to investigate, through student modeling and explanation in teaching, general principles of human learning and knowledge representation.

RANDALL DAVIS

Professor Davis received his Ph.D. in computer science from Stanford University in 1976. He spent two additional years at Stanford as a Chaim Weizmann Postdoctoral Scholar. In 1978 he joined the faculty at M.I.T. and held an Esther and Harold Edgerton Endowed Chair from 1979 to 1981. His current research focuses on systems that work from descriptions of structure and function and hence are capable of reasoning from "first principles" to support a wider range of robust problem-solving performance.

LAWRENCE M. FAGAN

Dr. Fagan received his B.S. degree from M.I.T. with an interdisciplinary program of computer science, psychology, and decision-making courses. He received his Ph.D. from Stanford in 1980, where he continued research in the Department of Medicine and the Department of Computer Science. He recently received his M.D. from the Ph.D.-to-M.D. program at the University of Miami. He has returned to Stanford as a senior research associate in the Department of Medicine. His research interests include computer-based therapy planning and knowledge representation of temporal events.

EDWARD A. FEIGENBAUM

Professor Feigenbaum is a professor of computer science at Stanford University. He is co–principal investigator of the Heuristic Programming Project at Stanford, a leading laboratory for work in knowledge engineering and expert systems. His work on the DENDRAL program, beginning

in 1965, initiated these fields of applied artificial intelligence. Dr. Feigenbaum also heads the SUMEX-AIM facility, the national computer facility for applications of artificial intelligence to medicine and biology, established by NIH at Stanford University.

FERNANDO GOMEZ

Professor Gomez was born in Arahal, Spain. He received his *licenciatura* in philosophy from the University of Valencia in 1972 and his M.A. in romance linguistics and his Ph.D. in computer science from Ohio State University in 1974 and 1981, respectively. He is currently an assistant professor of computer science at the University of Central Florida. His current research interest is the study of the comprehension of scientific discourse. In particular, he is interested in the acquisition of knowledge via natural language and in how commonsense knowledge and reasoning vary as a result of their interaction with new pieces of knowledge.

G. ANTHONY GORRY

G. Anthony Gorry received his Ph.D. in computer science from M.I.T. in 1967. From then until 1975 he was an associate professor at the Sloan School of Management and in the Department of Computer Science at M.I.T. At M.I.T. he conducted research in the use of computers to improve decision making, with particular emphasis on medical problems. He is now Vice-President for Institutional Development at Baylor College of Medicine. His broadly based interests continue to include the analysis of clinical cognition and the analysis of health policy.

PAUL E. JOHNSON

Professor Johnson received his Ph.D. from Johns Hopkins University in 1964. He is currently a professor of management sciences and psychology and a faculty member in the Center for Research in Human Learning at the University of Minnesota. He specializes in methodology for the study of expertise in complex decision environments. His recent work has focused on investigation of expert problem solving in several professional fields including medicine, science, law, engineering, and management.

JEROME P. KASSIRER

Dr. Kassirer received his M.D. from the University of Buffalo in 1957 and trained in internal medicine and nephrology in Buffalo and at New England Medical Center in Boston. He is a professor and associate chair of

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CASIMIR A. KULIKOWSKI

Professor Kulikowski is a professor of computer science and associate director of the Laboratory for Computer Science Research at Rutgers University. Since 1972 he has also been a senior investigator and associate director of the Rutgers Research Resource on Computers in Biomedicine. His research is in the fields of artificial intelligence and pattern recognition, with emphasis on expert systems and their applications. He has directed several collaborative projects for the development of expert medical consultation systems.

JOHN KUNZ

Dr. Kunz worked as a biomedical engineer before entering the Ph.D. program in computer science at Stanford University, which he completed in 1984. He currently works for IntelliGenetics and continues his interests in using artificial intelligence as the basis for computer-assisted decision-making systems.

REED LETSINGER

Dr. Letsinger received his Ph.D. in philosophy from Stanford University in 1976 and his M.S. in artificial intelligence from the computer science program in 1981. He is currently working at Hewlett-Packard, where his present research focus is the application of expert systems technology to engineering problems.

RANDOLPH A. MILLER

Dr. Miller has been associated with the INTERNIST/CADUCEUS project since 1973. He received his M.D. from the University of Pittsburgh in 1976. After completing internal medicine house-staff training in 1979, he joined the University of Pittsburgh School of Medicine as an assistant professor of medicine. His research involves the further development of the INTERNIST/CADUCEUS computer-assisted medical diagnosis system.

JAMES H. MOLLER

Dr. Moller received his M.D. from Stanford University in 1959. He received house-staff training in pediatrics at the University of Minnesota Hospital and then served as a fellow in pediatric cardiology at that institution. He is currently Paul F. Dwan Professor of Pediatric Cardiology at the University of Minnesota. One of his current research interests is understanding the development of medical expertise, of which one component is the development of computer-assisted diagnostic programs in pediatric cardiology.

JACK D. MYERS

Dr. Myers received his M.D. from Stanford University in 1937 and had graduate training at Stanford and Harvard. He has served on the faculties of the schools of medicine at Emory, Duke, and Pittsburgh. During the past decade, as a professor-at-large at the University of Pittsburgh, he has cooperated in devising a computerized consultation system in internal medicine, INTERNIST/CADUCEUS.

RAMESH S. PATIL

Professor Patil received his Ph.D. in computer science from M.I.T. in 1981. He is currently an assistant professor in the Laboratory for Computer Science at M.I.T. His current research interests include the application of artificial intelligence techniques to medicine, with an emphasis on fundamental issues of representation and reasoning with causal knowledge and explanation of consultant program reasoning.

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Dr. Pauker received his M.D. from Harvard Medical School in 1968 and trained in internal medicine and cardiology at New England Medical Center, Boston City Hospital, and Massachusetts General Hospital. He is currently a professor of medicine at Tufts University School of Medicine and chief of the Division of Clinical Decision Making at New England Medical Center. His research interests involve the applications of decision analysis to clinical medicine and the development of computer-based decision aids.

PETER POLITAKIS

Dr. Politakis joined Digital Equipment Corporation in 1982, as principal engineer, after completing his Ph.D. and SEEK research in the Computer Science Department at Rutgers University. Prior to that, he was at M.I.T.'s

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HARRY E. POPLE

Dr. Pople studied electrical engineering at M.I.T. and did his graduate work under Herbert Simon in the systems and communications sciences program at Carnegie-Mellon University. A member of the University of Pittsburgh faculty since 1969, his principal research interests have been in the study of intelligent decision support systems, with particular emphasis on applications in medicine and management.

ARIN SAFIR

Dr. Safir began his career working as an electrical engineer, then became interested in medicine and received his M.D. from New York University in 1954. He trained in ophthalmology at the New York Eye and Ear Infirmary during 1956–1959. Dr. Safir also completed a fellowship in physiological optics at the University of Cambridge, in Cambridge, England, in 1962. He was the director of the Institute of Computer Science at Mount Sinai Medical Center in New York City for six years and is currently a professor and chief of ophthalmology at the University of Connecticut School of Medicine in Farmington.

WILLIAM B. SCHWARTZ

Dr. Schwartz, a professor of medicine and Vannevar Bush University Professor at Tufts School of Medicine, is a graduate of Duke University School of Medicine and did his postgraduate training in internal medicine at the University of Chicago and at Peter Bent Brigham Hospital. He was for many years head of the nephrology division at Tufts–New England Medical Center and from 1971 to 1976 was chairman of the Department of Medicine at Tufts. His subsequent work has been in the area of decision analysis and in the application of artificial intelligence techniques to clinical problem solving.

EDWARD H. SHORTLIFFE

Dr. Shortliffe received his Ph.D. in medical information sciences and his M.D. from Stanford University in 1975 and 1976, respectively. After completing his MYCIN research, he undertook house-staff training in internal medicine at Massachusetts General Hospital and Stanford University Hos-

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DAVID B. SWANSON

Dr. Swanson received his Ph.D. in educational psychology from the University of Minnesota in 1978. He is currently an assistant director of the American Board of Internal Medicine in Philadelphia. His research interests are in the psychology of clinical decision making, the measurement of clinical competence, and computer applications in medical education.

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Dr. Swartout received his Ph.D. in computer science from M.I.T. in 1981. He is currently a member of the research staff of the Information Sciences Institute of the University of Southern California. His research interest is the development of techniques that will allow programs to explain their reasoning, making them more understandable to both their users and their implementers.

PETER SZOLOVITS

Professor Szolovits received his Ph.D. in computer science from California Institute of Technology in 1975. He is currently an associate professor in the Department of Electrical Engineering and Computer Science at M.I.T. A specialist in artificial intelligence with an emphasis on medical applications, he is currently concerned with fundamental issues of representation and reasoning, including protocol analysis to discover how clinicians reason about probability and causality, and with programs that model human expert performance in some areas of medical diagnosis and care.

SHOLOM M. WEISS

Professor Weiss received his Ph.D. in computer science from Rutgers University in 1974. He is currently an associate research professor of computer science at Rutgers University and senior investigator in the medical modeling and decision-making group of the Rutgers Research Resource on Computers in Biomedicine. His current research interests include the development of generalized approaches to designing expert systems and the application of these systems to real-world problems in medicine and other domains.