

Authors

Yonathan Bard

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Dr. Bard is currently working on system performance measurement and evaluation. He has been with IBM since 1957 and has worked on the development of computer applications in the field of multicomponent distillation, nonlinear programming, mathematical model fitting, and optimal control. He received a B.S. in 1954 from the University of Pennsylvania and an M.S. and a Ph.D. in chemical engineering in 1956 and 1966 from Columbia University, New York. He published a book entitled *Nonlinear Parameter Estimation* in 1974.

J. S. Beeteson

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Mr. Beeteson is a project engineer in the display group at the Hursley development laboratories. He joined IBM in 1977 to work on various aspects of color display technology. He received his electrical engineering B.Sc. in 1964 from Rugby College of Engineering Technology, Rugby, England, as a student sponsored by Associated Electrical Industries Limited. Prior to joining IBM, he worked at Associated Electrical Industries on data analysis and simulation of radar systems, and later as chief electronics engineer with Computer Instrumentation (a subsidiary of University Computer), designing a wide range of computer peripherals. Mr. Beeteson is an associate member of the Institution of Electrical Engineers.

Hi Dong Chai

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Dr. Chai is currently working for IBM Fellow J. P. Pawletko on an exploratory printing technology. Since joining IBM in 1968 at Endicott, he has worked in areas of electromagnetic compatibility, modeling and design of electromechanical devices, and integrated circuit device technology. Prior to joining IBM, Dr. Chai taught at Merrimack College, North Andover, Massachusetts (1962 to 1965) and at Northeastern University, Boston,

Massachusetts (1965 to 1968). He received his B.S. from the University of Texas in 1960, his M.S. from Ohio State University in 1962, and his Ph.D. from Northeastern University in 1968, all in electrical engineering. Dr. Chai is a member of Eta Kappa Nu, the Institute of Electrical and Electronics Engineers, Phi Kappa Phi, Sigma Xi, and Tau Beta Pi.

T. H. P. Chang

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Dr. Chang received the B.A., M.A., and Ph.D. degrees from Cambridge University, England. From 1967 to 1971, he was with the Cambridge Scientific Instrument Company in England, working on electron-beam technology. In 1971, he joined the IBM Thomas J. Watson Research Center, where he has been engaged in research in electron-beam lithography and the development of electron-beam fabrication systems. Dr. Chang is presently manager of electron-beam fabrication systems.

Donald E. Davis

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Mr. Davis is an advisory engineer in the electronics systems development department at the East Fishkill laboratory. He is engaged in circuit and system design for scanning electron-beam lithography tools. His current interests include automatic registration, X-Y table electronics, and the measurement/inspection capabilities of these tools. In 1962, he joined IBM at the Poughkeepsie laboratory, where he developed circuit designs for various memory programs. Mr. Davis obtained his B.S. and M.S. in electrical engineering from Virginia Polytechnic Institute, Blacksburg, and from the University of Illinois, Urbana. He is the recipient of two IBM Invention Achievement Awards and an IBM Outstanding Innovation Award for his work in electron-beam technology. Mr. Davis is a member of Eta Kappa Nu, Phi Kappa Phi, and Tau Beta Pi, and a senior member of the Institute of Electrical and Electronics Engineers.

Peter A. Franaszek

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Dr. Franaszek is a member of the computer sciences department at the Thomas J. Watson Research Center. His interests include analytical problems associated with storage hierarchies, magnetic recording, and digital communications. He received the B.Sc. degree from Brown University, Providence, Rhode Island, in 1962, and the M.A. and Ph.D. degrees from Princeton University, New Jersey, in 1964 and 1965. During the academic year 1973 to 1974, he was on sabbatical leave at Stanford University, California, as a Consulting Associate Professor of Electrical Engineering and Computer Science. Prior to joining IBM in 1968, he was a member of the technical staff at Bell Telephone Laboratories. Dr. Franaszek is a member of Sigma Xi, Tau Beta Pi, and the Institute of Electrical and Electronics Engineers.

Warren D. Grobman

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Dr. Grobman received the B.A. in physics from the University of Pennsylvania, Philadelphia, in 1964, and the M.A. and Ph.D. in physics from Princeton University in 1966 and 1967. He was a member of the technical staff at Bellcomm Inc. from 1967 to 1969. In 1969, he joined the IBM Thomas J. Watson Research Center as a research staff member. At IBM he has worked in the field of experimental photoemission spectroscopy and has done theoretical work on the electronic structure of solids and in the area of many-body systems. Since 1976, he has worked in the area of high-resolution lithography. Currently, he is a manager of a group responsible for applications of electron-beam lithography and for development of techniques in x-ray lithography. He is also on the Proposal Review Committee of the Stanford Storage Ring Laboratory. Dr. Grobman is a member of the American Physical Society, the Electrochemical Society, and Sigma Xi.

Philip Heidelberger

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Dr. Heidelberger is a research staff member working on computer performance modeling and simulation analysis at the Thomas J. Watson Research Center, where he joined IBM in 1978. He received his B.A. in mathematics from Oberlin College, Ohio, in 1975 and his Ph.D. in operations research from Stanford University, California, in 1978. Dr. Heidelberger is a member of the Association of Computing Machinery and the Operations Research Society of America.

Kris T. Jarzebowski

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Mr. Jarzebowski is a senior associate engineer in the distributed display products department at the Hursley laboratory. Since joining IBM in 1974, he has worked in special engineering, involving himself in specialized microcode development for IBM terminals; in 1976 he moved to distributed display products to develop the microcode for the digital convergence system on the IBM 3279 color display. He was sponsored by International Computers Ltd. in 1970 to begin an electrical/electronics engineering course at Brunel University, Uxbridge, England. For his final-year project he did research into arithmetic operations and applications on an associative memory.

Ho Chong Lee

System Products Division, Endicott, New York

Dr. Lee is a senior engineer in the printer technology group at the Endicott laboratory. He has been engaged in the development of printer components for impact and nonimpact printers since he joined IBM in 1968. He was an Assistant Professor of Mechanical Engineering at Rensselaer Polytechnic Institute, Troy, New York, from 1962 to 1968, during which time he was also retained as a consultant by Mechanical Technology, Inc., Latham, New York (1962 to 1965) and by the General Electric Company, Schenectady, New York (1965 to 1968). His education includes a B.S. in mechanical engineering from the University of Bridgeport, Connecticut, in 1957, an M.M.E. in 1959 and a Ph.D. in 1962, both from Rensselaer Polytechnic Institute. Dr. Lee is a member of the American Society of Mechanical Engineers.

John H. Magerlein

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Dr. Magerlein joined IBM at the Thomas J. Watson Research Center in 1977 as a member of the Josephson cryogenic technology group. He is presently interested in electron-beam lithography and in the physical and electrical characterization of Josephson tunnel barrier structures. Prior to joining IBM, he held a postdoctoral position with Bell Laboratories in Murray Hill, New Jersey, working on Josephson logic devices. He received his B.A. in 1969 from Kalamazoo College, Michigan; and his M.S. in 1971 and his Ph.D. in 1975, both in physics, from the University of Michigan. Dr. Magerlein is a member of the American Physical Society.

George Markowsky

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Dr. Markowsky is a member of the theory of programming group at the Thomas J. Watson Research Center. He joined IBM in 1974. His current interests include the applications of order theory to computation, combinatorics, and analysis of algorithms. He received his B.A. in mathematics from Columbia University in 1968 and his M.A. in mathematics from Harvard University in 1969. From 1969 to 1972, he was instructor and then Assistant Professor of Mathematics at St. Mary's College of Maryland in St. Mary's City. He returned to Harvard and received his Ph.D. in mathematics in 1973. He stayed on at Harvard as a postdoctoral fellow in 1973 and 1974. Dr. Markowsky is a member of the American Mathematical Society, the Mathematical Association of America, and Phi Beta Kappa.

Mihir Parikh

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Dr. Parikh joined IBM in 1974 at the Thomas J. Watson Research Center. Currently he is a member of the physical sciences department of the Research laboratory in San Jose. His technical interests include theoretical and experimental studies of interaction of energetic electrons with matter and applications to electron lithography. Dr. Parikh received his B.S. in 1969 and his Ph.D. in 1974 from the University of California at Berkeley in engineering-physics.

Kurt E. Petersen

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Dr. Petersen joined the IBM Research Division in 1975. Since early 1976, he has been involved in the development of micro-mechanical fabrication techniques and the application of those techniques to a wide variety of mechanical devices and components made with silicon. He received his B.S. in electrical engineering in 1970 from the University of California, Berkeley, and his Ph.D., also in electrical engineering, in 1975 from the Massachusetts Institute of Technology, Cambridge, where he worked on amorphous semiconductor devices. Dr. Petersen is a member of the American Physical Society and the Institute of Electrical and Electronics Engineers.

Donald E. Schreiber

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Currently Dr. Schreiber is an associate attorney with Thomas E. Schatzel. In 1965 he joined IBM and worked on the analog input portion of the IBM 1800 computer, computer simulations in fluid mechanics, statistical mechanics, molecular dynamics, electron-beam lithography, computer graphics, and computer process control. Prior to working at IBM, he was employed by the General Electric Computer Research Laboratory. Dr. Schreiber received his Bachelor of Arts in mathematics from San Jose State University in 1967 and his Doctor of Law from the University of Santa Clara in 1977.

Brian R. Sowter

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Mr. Sowter is a development engineer and manager of the advanced display design group in Hursley. He was responsible for development of the color technology aspects of the IBM 3279 color display station. His work assignments have included development of ferrite core, semiconductor, and thin film storage systems as well as management of test technology development in product assurance. He received his B.Sc. degree in electrical engineering from the Imperial College of Science and Technology, London, England, in 1961 and joined IBM in the same year. He has received three IBM Invention Achievement Awards. Mr. Sowter is an associate of the City and Guilds Institute and a member of the Institution of Electrical Engineers and the Royal Television Society.

Albert J. Speth

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Mr. Speth received the B.E.E. from Manhattan College, Bronx, New York, in 1956 and the M.E.E. from Syracuse University, New York, in 1958. Prior to joining IBM, he was in a research group at New York University. In 1962, he joined IBM, where his principal work has been in the development of components and systems in the electron-beam recording and microfabrication area. Mr. Speth is presently a staff member in the applied research department at the Thomas J. Watson Research Center.

Bernard Vergnieres

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Mr. Vergnieres joined IBM in 1969 after graduating from Toulouse University in electrical engineering. He first worked in the manufacturing engineering area at the Essonnes plant. In 1972, he moved to the Essonnes component development laboratory and has since been involved in computer-aided designs. His specific interests include all aspects of the designs of very large scale integrated circuits. Mr. Vergnieres received an IBM Outstanding Contribution Award in 1978 for his work in the area of physical chip design automation.

David J. Webb

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Dr. Webb joined the IBM Thomas J. Watson Research Center in 1976 in the applied research department as a postdoctoral fellow. In 1979 he became a staff member in the Josephson cryogenic technology group. He also is interested in applied micro-lithography. Prior to joining IBM he was a senior systems engineer in the area of electromagnetic compatibility at the Marconi Space and Defense Systems laboratory, Portsmouth, England, from 1975 to 1976. Dr. Webb received his B.Sc. in 1972, his M.Sc. in 1973, and his Ph.D. in 1975, all in electrical engineering, from Manchester University, England.

Michael A. Wesley

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Dr. Wesley is a member of the automation research group at the Thomas J. Watson Research Center. He joined IBM in 1960 at the IBM United Kingdom Laboratories, Hursley, England, and transferred to Yorktown in 1966. He has worked on micro-programmed machines, character recognition, image processing, and system architecture. His current work is on programming systems for mechanical assembly. He received the B.A. degree in mechanical sciences and the Ph.D. degree in control engineering from Cambridge University, England, in 1960 and 1966.