Authors

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Mr. Bongiovanni received the Laurea in information science from the University of Pisa, Italy, in 1973. In 1974 and 1975, he was with Selenia S.P.A., Italy, working on digital signal processing. Since 1976 he has been associated with the Istituto di Scienze dell' Informazione, University of Pisa, as a Research Associate. During part of 1980, he was a Visiting Scientist at the IBM Thomas J. Watson Research Center, Yorktown Heights, New York. His present interests are in the fields of magnetic bubble memories, scheduling algorithms for satellite switching/time domain multiple access systems, and algorithms for VLSI implementation.

Thomas C. Clarke

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Dr. Clarke joined the IBM Research laboratory in San Jose as a research staff member in 1975. He is currently a member of the conducting polymers group in the Organic Solids Department. His research interests include the synthesis and investigation of materials with novel electronic properties and the study of chemical reactions in the solid state. He received his B.A. in chemistry in 1969 from Rice University, Houston, Texas, and his Ph.D. in organic chemistry from the California Institute of Technology, Pasadena, in 1974. Prior to joining IBM, he did a year of postdoctoral research at Columbia University, New York. Dr. Clarke is a member of the American Association for the Advancement of Science, the American Chemical Society, and Sigma Xi.

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Dr. Chang received his B.S. in electrical engineering from the National Taiwan University in 1962. He received both his M.S. and Ph.D. in electrical engineering from Carnegie-Mellon University, Pittsburgh, Pennsylvania, in 1965 and 1968. Since joining IBM in 1967, he has worked in semiconductor diffusion, bipolar and field effect transistor device design, chip design, and advanced LSI packaging coupled-noise studies. He is currently a senior engineering manager at the East Fishkill laboratory, where he is responsible for programming tool development for semiconductor device modeling, electronic package modeling, and circuit simulation. Dr. Chang is a member of the Institute of Electrical and Electronics Engineers.

Arthur F. Diaz

Research Division, San Jose, California

Dr. Diaz joined IBM in 1975 at the Research laboratory in San Jose, where he is a member of the organic solids group. His current interests are in the area of the preparation and study of modified surfaces and of organic polymer films for use as electrodes. He received his B.S. in chemistry from San Diego State College in 1960 and his Ph.D. in chemistry from the University of California at Los Angeles in 1964. He held several positions before coming to IBM, including staff appointments at the National Science Foundation, the University of California at San Diego, TRW Systems, and the University of California at Los Angeles.

Dominique N. Godard

IBM France, La Gaude

Dr. Godard is a member of the advanced technology department at the La Gaude laboratory, where he is currently working on digital signal-processing and data-transmission systems. He joined IBM in La Gaude in 1974. He obtained an M.S. in physics from Lyon University, France, in 1971 and a Ph.D. in electrical engineering from Paris University, France, in 1974. In 1979, he received an IBM Outstanding Innovation Award for the definition of modem signal-processing algorithms. Dr. Godard is a member of the European Association for Signal Processing and the Institute of Electrical and Electronics Engineers.

Algirdas J. Gruodis

Data Systems Division, East Fishkill, New York

Dr. Gruodis joined IBM at Poughkeepsie, New York, as a junior engineer in 1959. He has held various engineering and management positions in the logic circuit design areas. At the present time, he is a senior engineer in a computer-aided package design department. He received his B.E. in 1958 and M.E. in 1959 in electrical engineering, and as a participant of the IBM Graduate Resident Study Program, his M.S. in 1966 and Ph.D. in 1971 in applied science, all from Yale University, New Haven, Connecticut. Dr. Gruodis has received six IBM invention awards for a total of 46 inventions related to logic circuits. Dr. Gruodis is a member of the Institute of Electrical and Electronics Engineers.

Simon Huon

IBM France, La Gaude

Currently Mr. Huon is working on the software architecture of distributed processing as applied to advanced technology line switching. He joined IBM in 1962 at La Gaude and was assigned to Poughkeepsie on the solid-logic-design-automation (SLDA) project. In 1963, he became manager of SLDA and installed SLDA in La Gaude. In 1964, he was engaged in software design for a line-switching project, and in 1965 he became software manager of the IBM 2750 system. Mr. Huon was assigned to Endicott in 1969 as an OS/VS1 system planner. Back in La Gaude, he worked as system planner for emulators in 1971, and subsequently worked on software design for the advanced line-switching system (ALSS) in 1974. During 1976 he worked on software tools for microprocessors used in the communications controller. In 1977 he was involved in software design for network problem-determination aids (NPDA) in the IBM microprocessor-based modems 3863, 3864, and 3865. Before joining IBM, Mr. Huon worked on the applications of ferrite in microwave guides at Lignes Télégraphiques and Téléphoniques (LTT) in Paris, France. He graduated from Ecole Nationale Supérieure des Télécommunications (ENST) in Paris in 1955.

William Krakow

Research Division, Yorktown Heights, New York

Dr. Krakow received his B.S. in engineering physics in 1964 from the University of Illinois, Urbana. He received his M.S. and Ph.D. in physics from Northwestern University, Evanston, Illinois, in 1966 and 1970. From 1970 to 1973 he was a research associate and staff member of the Department of Applied Physics, Cornell University, Ithaca, New York, where he worked on macromolecular structure of proteins and DNA and inorganic crystalline materials using high-resolution electron microscopy. From 1974 to 1979, Dr. Krakow was manager of the scanning electron microscope and transmission electron projects at Xerox Corporation. There his research interests included the atomic arrangement of crystalline surfaces, the structure of amorphous materials, point defects in metals, and image processing. Dr. Krakow joined IBM at the Thomas J. Watson Research Center in the Thin Film Sciences Department in 1979. Presently, he is a research staff member working on computer modeling of electron microscope images and diffraction patterns, electron optics and electron beam microfabrication, point defects in semiconductors, and novel imaging modes of electron microscopes. Dr. Krakow is a member of the American Institute of Metallurgical Engineers, the Electron Microscopy Society of America, the Materials Research Society, and Sigma Xi. He has received a prize paper award from the IEEE Industrial Applications Society for his contribution to the understanding of electrostatics in charged particles and a poster award from the Electron Microscopy Society of America for his work in introducing color into electron microscopy.

C. N. Liu

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Dr. Liu is currently manager of the medical ultrasound group, which is engaging in the development of digital techniques and systems for improved ultrasonic imaging. He received his B.S. in electrical engineering from South Dakota School of Mines and Technology, Rapid City, in 1956, and his M.S. and Ph.D. in electrical engineering from the University of Illinois in 1957 and 1961. After joining IBM at Research in 1957, he worked on a number of projects involving the development of pattern recognition and image processing techniques and systems. In 1969 he was a Visiting Associate Professor at the School of Electrical Engineering, Purdue University, and in 1971 he was a Visiting Research Professor at the Academia Sinica, Taiwan. In 1964 he received an IBM Outstanding Contribution Award for his work on character recognition and in 1978 an IBM Outstanding Innovation Award for signature verification methods. Dr. Liu is a member of the Association for Computing Machinery and the Institute of Electrical and Electronics Engineers.

Alejandro Martinez Duran

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Mr. Martinez is currently on the faculty of the University of Guanajuato. He received his B.S. in chemical engineering in 1976 and his M.S. in 1979 from the University of Guanajuato in Guanajuato. Mr. Martinez spent six months during 1979 at the IBM Research laboratory in San Jose, California, under a joint study arrangement between IBM and the University of Guanajuato.

Kelly M. Pan

Harvard Business School, Boston, Massachusetts

Ms. Pan is presently on leave from the Corporate Research Group at the Digital Equipment Corporation. Previously she was with IBM on co-op assignments since 1976 at the Thomas J. Watson Research Center, where her areas of interest included ultrasonic imaging and computerized image reconstruction. Her current interests are in the areas of graphic terminals, small-end systems, and computer applications. Ms. Pan received a B.S. and M.S. in electrical engineering in 1979 from the Massachusetts Institute of Technology and is a candidate for an M.B.A. from the Harvard Business School. Ms. Pan is a member of the Institute of Electrical and Electronics Engineers, the Massachusetts Engineers Council, and the Society of Women Engineers.

Daniel L. Pilost

IBM France, La Gaude

Mr. Pilost is presently working on signal-converter products development in the La Gaude laboratory. In 1966, he joined IBM at La Gaude, where he worked on line switching in the microwave field. Later he worked on a voice-excited vocoder and was involved in the development of a pulse-code-modulation telephone-line concentrator. In 1971, he worked on a digital frequency-shift keying (FSK) modem. In 1973, he was involved in a study of field measurements for high-speed data transmission on CATV systems carrying entertainment TV signals. Since 1974, he has been working on the design and development of a microprogrammed 2400-bit/s differential phase-shift keying (DPSK) data modem. Mr. Pilost received his electronic engineering degree from the French Conservatoire National des Arts et Métiers in 1971.

Robert Smith

Data Processing Product Group, White Plains, New York

Mr. Smith joined IBM in 1963 at Lexington, Kentucky, with the Office Products Division, where he was engaged in machine technology work until transferring to Raleigh, North Carolina, in 1967. From 1967 to 1977, he worked in technical and management positions in terminal and multiplexer engineering development. In 1977, he began an assignment in La Gaude, where his primary responsibility was in defining the network-management facilities for the IBM 3863, 3864, and 3865 modems. In 1980, he returned to White Plains, New York, with the Data Processing Product Group, where he has been engaged in telecommunications product evaluation. Mr. Smith received a B.S. in electrical engineering from Virginia Polytechnic Institute in 1962 and an M.S. in electrical engineering from the University of Kentucky in 1967. He also received an M.S. in management from Duke University, Durham, North Carolina, in 1973.

G. Bryan Street

Research Division, San Jose, California

Dr. Street is currently manager of the conducting polymers group in the Organic Solids Department. He is interested in the chemistry of electrically conducting materials. He received his B.S. in chemistry in 1959 and his Ph.D. in applied science in 1962 from the University of Leeds, England. He spent two years as a Research Associate in chemistry at the University of Southern California before joining IBM at San Jose in 1964. Since that time he has also worked on photoconducting and magnetic materials. In 1972, Dr. Street received both IBM's Outstanding Invention

Award, for his discovery of manganese gallium germanide, and an Invention Achievement Award. He is the recipient of an IBM Outstanding Contribution Award, received in 1975, for his work on $(SN)_x$. Dr. Street received in 1977 his second IBM Invention Achievement Award and in 1978 a Research Division Award for his work on halogenated polysulfur nitride.

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Mr. Vasquez is currently on the faculty of the University of Guanajuato in the Department of Chemistry. He received his B.S. in chemical engineering in 1977 and his M.S. in 1979, both from the University of Guanajuato. He spent six months during 1979 at the IBM Research laboratory in San Jose, California, under a joint study arrangement between IBM and the University of Guanajuato.

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Dr. Wong joined IBM in 1969 as a member of the Computer Science Department at the Thomas J. Watson Research Center. His current interests include abstract and concrete computational complexity theory, optimization problems related to data allocation, magnetic bubble memory structures, theory of fuzzy sets, and satellite switching/time domain multiple access systems. Dr. Wong received the B.A. degree in mathematics from the University of Hong Kong in 1965 and the M.A. and Ph.D. degrees in mathematics from Columbia University, New York, in 1966 and 1970. For the academic year 1972–73 he was a Visiting Associate Professor of Computer Science at the University of Illinois, Urbana, and for 1978–79 he was Visiting Professor of Computer Science at Columbia University. He received an IBM Outstanding Invention Award in 1971 for a new family of sorting methods.