Authors

George F. Abbott

B.S.E.E., 1964, Polytechnic Institute of Brooklyn. From 1951-59 was with the Bell Telephone Laboratories in New York and Murray Hill where he worked on such projects as the #5 Crossbar System, Subscribers Line Concentrator, and Electronic Switching System #101. Worked at RCA Surface Communications Laboratory, New York, in 1959-60. Here, he supervised development of the Com Log Net (DATA-COM) Circuit Switching Unit. Joined IBM in 1960 to work at the Systems Development Division Laboratories in Pough-keepsie and Kingston on systems planning for data communications systems. His current position is Engineering Planning Manager, Communication Devices Development, in Kingston. Member, Eta Kappa Nu, Tau Beta Pi, Alpha Sigma Lambda.

M. Clayton Andrews

B.S. in Electrical Engineering, 1947, University of Missouri; M.S., 1948 and Ph.D., 1952, in Electrical Engineering, University of Illinois. Served in teaching and research functions at the University of Illinois while earning doctorate. Joined IBM in 1952 to do research in ferromagnetics. In 1954 he was selected to formulate and direct a speech recognition research effort; specifically, this involved studies of probabilistic models for the recognition of spoken English with the objectives of identifying principles to optimize the complex recognition procedures. In 1957 he became a member of the Research Planning Staff and was assigned to research on machine organization. A year later he became manager of the Machine Organization Research group, responsible for research on the organization of computing systems; theoretical and applied. In 1961 he became manager of the Optical, Mechanical and Communication Technologies Research group. A year later he became manager of the Information Technology group responsible for research on Coding and Network Theory, Optical Physics, Pattern Recognition, Electron Beam Technology and Applied Mechanics. He also directed special studies on Thermoplastic Recording and Non-Magnetic Digital Surface Recording. In 1963 he became manager of the Communications Systems Department responsible for advanced transmission technology; communications systems and equipment development, design and implementation: technical development in communication's programming, engineering analysis; and optical and microwave techniques. He is now the manager of Advanced Development at the Washington Systems Center of the Federal Systems Division Bethesda. Member, IEEE, Sigma Xi, and Pi Mu Epsilon.

Pieter Balk

Cand. in Chemistry, 1950; drs in Chemistry, 1953, State University, Utrecht (Netherlands); Ph.D. in Chemistry, 1957, Free University, Amsterdam (Netherlands). National Research Council, Ottawa, Canada, on post-doctoral fellowship, 1957 and 1958. Joined IBM Research in 1959, working on Physics and Chemistry of Semiconductor Surfaces. Currently employed at the IBM Thomas J. Watson Research Center. Member of the American Physical Society and the American Chemical Society.

Robert L. Bence

Attended Purdue University, 1924-26, and the U.S. Naval Academy, 1927-29. Has also taken courses at Washington University in St. Louis, America University in Washington, and the University of Michigan. Began work with the Southwestern Bell Telephone Co. in 1929 and has since served the company in a variety of positions. He is presently Planning Director for Southwestern Bell in St. Louis, in charge of Systems Research Planning and Development.

Herman L. Blasbalg

B.E.E., 1948, City College of New York; M.S.E.E., 1952, University of Maryland; Ph.D. in Electrical Engineering, 1956, Johns Hopkins University. From 1948-51 was with Melpar, Inc., Alexandria, Virginia, working on pulse communications; was applied information theory project engineer. From 1951-56, was research scientist in statistical detection theory at the Johns Hopkins University Radiation Laboratory. From 1956-61, worked at Electronic Communications, Inc., Research Division. From 1961 to present has been with IBM; he is presently Manager of Advanced Modulation Techniques, in the Engineering Laboratory, Federal Systems Division, Bethesda. Member, IEEE, Sigma Xi, IMS, AAAS, and New York Academy of Science.

Frank J. Campagna

A.A.S., 1957, Westchester Community College, White Plains, N.Y. Has also taken courses at Bradley University in Peoria, Illinois. Prior to joining IBM, was employed by the Nuclear Development Corporation, White Plains, N.Y. Joined the former Components Division of IBM at Poughkeepsie in 1959 as a cryogenic technician engaged in the study of superconductors. Presently assigned to studies in vapor polishing and surface preparation of silicon in the Thomas J. Watson Research Center, Yorktown Heights.

Joseph A. Ceonzo

B.S.E.E., 1960, Polytechnic Institute of Brooklyn. From 1942-60 worked at Bell Telephone Laboratories, and most recently was responsible for adding CAMA, Foreign Area Translation and Direct Distance Dialing features to the #5 Crossbar Marker Circuit. Was with RCA from 1960-63 as a Project Engineer developing military digital and analog communications systems. Joined IBM in 1963 and is currently Communications Products Planning and Requirements Manager in the Systems Development Division, Kingston. Member, Tau Beta Pi and Eta Kappa Nu.

Robert T. Chien

B.S. in Electrical Engineering, 1954; M.A. in Mathematics, 1957; Ph.D. in Electrical Engineering, 1958, all from the University of Illinois. Joined IBM Research in 1958 and in 1961 became manager of the Coding and Network Theory group at the Thomas J. Watson Research Center. In 1964 he went on leave from IBM to teach at the University of Illinois and is presently an Associate Professor in the Electrical Engineering Department at the University. Member, IEEE, RESA, and Sigma Xi.

353

Francis P. Corr

B.E.E., 1954, Manhattan College; M. Eng., 1957, and D. Eng., 1960, both in Electrical Engineering from Yale University. Began work with IBM in 1960 at the World Trade Corporation Laboratory in Nice. Transferred to the Federal Systems Division in 1963 and is presently Manager of the Modulation Techniques Laboratory in the Engineering Laboratory at Bethesda. Member, Sigma XI.

Richard C. Crutchfield

B.E.S., 1957, and M.S., 1963, both in Electrical Engineering from The Johns Hopkins University. After working at Westinghouse in Baltimore, joined IBM Federal Systems Division in 1963. Presently employed at the Federal Systems Division Engineering Laboratory in Bethesda. Member, Tau Beta Pi and IEEE.

James E. Dammann

A.B., 1956, University of Illinois; M.S., 1958, University of Michigan; Ph.D. in Communication Sciences, 1964, University of Michigan. Joined IBM Development Laboratory, Poughkeepsie, N. Y., in 1959 to begin work in the areas of computer audio output, dynamic displays, and automatic speech recognition. Currently Manager of Advanced I/O Technology at the Systems Development Division in Poughkeepsie. Member of Phi Beta Kappa, Sigma Xi, IEEE, ACM and Acoustical Society of America.

Donald G. Freeman

B.S. in Electrical Engineering, 1960, University of Florida; M.S. in Electrical Engineering, 1965, George Washington University. Joined IBM in 1960 and worked on Project Mercury as a programmer. Currently doing telemetry data handling problems in the Engineering Laboratory of the Federal Systems Division in Bethesda.

Etienne Gorog

Baccalauréat degree, University of Paris, first part 1952, second part 1953; License és-Sciences, 1957, University of Paris and Rennes; Doctorate degree in Applied Mathematics, with distinction and honors, 1961, (3rd cycle thesis), Faculté des Sciences, Grenoble. Joined IBM World Trade Corporation in 1960 at the IBM France Laboratory and has been engaged in research on applications of modern algebra to coding and switching theory. Since 1963 he has been working on Advanced Modem Technology and in 1965 has been charged with the responsibility of Corporate Technological Assignment management for modems.

Lawrence V. Gregor

B.S., 1954; M.S., 1959, both in Chemistry at the Pennsylvania State University; Ph.D. in Chemistry, 1961, University of California at Berkeley. After service in the U.S. Navy from 1954-56 and work concurrent with graduate study at the Lawrence Radiation Laboratory, University of California, then joined IBM in 1961 at the Thomas J. Watson Research Center. Engaged there in the investigation of polymer dielectric films, thermal oxidation of silicon, and

behavior of metal-oxide-silicon systems. Is presently Manager of Semiconductor Surface Physics, IBM Systems Development Division Components Laboratory, East Fishkill. Member, AAAS, American Chemical Society, and Sigma Xi.

William D. Kehr

B.S. in Physical Metallurgical Engineering, 1960, Stanford University. Joined the Materials Laboratory of the IBM Systems Development Division Laboratory, Rochester, in 1960 and worked on projects in the area of mechanical metallurgy. Currently associated with the Manufacturing Services Laboratory at IBM San Jose and working toward an M.S. in Physics at San Jose State College. Member, American Society for Metals.

Robert W. Keyes

M.S., 1949, and Ph.D., 1953, University of Chicago. Worked in solid state physics at the Westinghouse Research Laboratory until May, 1960, when he joined IBM Research. He is currently at the IBM Thomas J. Watson Research Center, Yorktown Heights, N.Y. Member, American Physical Society.

Daniel J. McAuliffe, Jr.

B.S.E.E., 1964, Manhattan College. Joined the Rome Air Development Center, Griffiss Air Force Base, Rome, New York in 1964 as a Project Engineer. Engaged primarily in the study of communications switching equipment as applied to Military Communications.

Joseph F. Marchese

B.S.E.E., 1956, Duke University; M.S.E.E., 1964, Drexel Institute of Technology. Has done various engineering work at Sperry Gyroscope in Great Neck, N.Y., at the Bendix Corp. in Towson, Md., and at the Martin Co. in Baltimore. Was Communications and Electronics officer in the U.S.A.F., 1957-59. Joined the IBM Federal Systems Division Engineering Laboratory at Bethesda in 1964, where he is currently working on spread-spectrum signal processing problems.

Richard L. Mattson

B.S.E.E., 1957, University of California at Berkeley; M.S.E.E., 1959, Massachusetts Institute of Technology; Ph.D., Stanford University, 1962. Currently Assistant Professor of Electrical Engineering, Stanford University. Member, ACM, IEEE.

John M. Regan

B.S.E.E., 1964, Polytechnic Institute of Brooklyn. While with the Bell Telephone Laboratory from 1953-60, worked on the #5 Crossbar System, CAMA, Line Concentrator, and Personal Radio Signaling. At RCA from 1960-63, worked on Com Log Net (DATACOM) Circuit Switching

Unit and Vocom programs. Joined IBM Systems Development Division at Kingston in 1963 where he is currently a Staff Engineer in the Communications Products Planning and Requirements group. Member, IEEE.

Kuno M. Roehr

Dipl-Eng in Electrical Engineering, 1956, Technical University, Stuttgart, Germany. Presently enrolled in D.Sc., Electrical Engineering program at George Washington University, Washington, D.C. From 1956-58, worked on computer logic circuit design at Standard Electric, Germany. From 1959-61 was responsible for systems and logic design for data acquisition processor at Naval Ordnance Test Station, China Lake, California. Since joining IBM Communications Systems Department, Federal Systems Division, Bethesda, Maryland in 1961, has worked mainly in the areas of space telemetry, data compression, random access communications and advanced switching and multiplexing techniques. Member, IEEE.

Richard E. Sears

Joined IBM in 1957 and has since done programming work on a variety of projects. Presently working on simulation programs in the Engineering Laboratory of the Federal Systems Division in Bethesda.

Donald T. Tang

B.S. in Electrical Engineering, 1953, Taiwan University, Taiwan, China; Ph.D. in Electrical Engineering, 1960, University of Illinois. Joined IBM Research Laboratory at Mohansic in 1960 and is presently at the Thomas J. Watson Research Center at Yorktown. Main research interests include network approximations, communication networks, and coding theory. Member, Eta Kappa Nu, Sigma Xi, and IEEE.

Paul M. Thrasher

B.S. in Physics, 1941, University of the South; B.S.E.E., 1943, Lehigh University; M.S.E. in Electrical Engineering, 1965, George Washington University. Joined IBM in 1960. Experience includes digital and sampled data processing and signal analysis. Is presently working on multiplexing and switching techniques as an Advisory Engineer in the Communications Systems Department of the Federal Systems Division Engineering Laboratory at Bethesda.

Jeffrey D. Ullman

B.S., 1963, Columbia University. Presently engaged in studies toward the Ph.D. at Princeton University. Has been associated with the IBM Thomas J. Watson Research Center (Summer 1964) and with the Systems Development Corporation, Santa Monica (Summer 1965). Member, IEEE, ACM, and Tau Beta Pi.

Richard Van Blerkom

B.S. in Physics, 1955, Lafayette College; M.S. in Physics, 1956, Harvard University; Ph.D. in Engineering and Applied Mathematics, 1959, Harvard University. Joined IBM in 1959 at Kingston. Presently Development Engineer at the Engineering Laboratory of the Federal Systems Division in Bethesda working on problems in statistical communications. Senior Member IEEE, Member, Phi Beta Kappa. Vice President elect of Washington chapter of IEEE professional group on Information Theory.

Kurt Weiser

A.B., 1949, Harvard University; Ph.D. in Physical Chemistry, 1953, Cornell. Has worked at RCA Laboratories, Princeton, on problems in physical chemistry of semiconductors. Joined the IBM Research Division in 1958 to study III-V semiconductors. For the last several years has been engaged in work on electroluminescence and lasing properties of semiconductors. Member, American Physical Society and Sigma Xi.

Hans J. Zweig

B.A. in Mathematics, 1949, University of Rochester; M.S. in Philosophy, 1951, Brown University; Ph.D. in Statistics, 1963, Stanford University. Worked in the Physics Research Division at Eastman Kodak 1951-62; held a University Fellowship in Statistics at Columbia University 1959 and 1960; received the Journal Award for the best paper published during 1961 in Photographic Science and Engineering. Since joining IBM in 1963, he has been working on statistical aspects of photodetection in the Optics Department, Advanced Technology, Systems Development Division, San Jose. Member, Optical Society of America, Society of Photographic Scientists and Engineers, Institute of Mathematical Statistics, and Sigma Xi.

Contents of previous two issues

March 1965 Vol. 9, No. 2 • Articles: • Short Communications: Hazard Detection in Combinational and Sheet Thermoforming of a Superplastic Alloy Sequential Switching Circuits by E. B. Eichelberger90 A New Method for Frequency-Division Coincidence Counter Models with Applications Multiplexing, and Its Integration with to Photographic Detection Theory Time-Division Switching Electrodeposition of Stress-Insensitive Ni-Fe On Plane Blazed Gratings and Ni-Fe-Cu Magnetic Alloys by E. S. Barrekette and R. L. Christensen 108 by C. LeMehaute and E. Rocher141 Demagnetization of Flat Uniaxial Thin Peculiar Domain Behavior in Thin, Magnetic Films Under Hard Direction Drive Ni-Fe Double Films Average Motion Times of Positioners in Random Access Devices by F. R. Hertrich124

Contents of previous issue

May 1965	Vol. 9, No. 3
• Articles:	Short Communications:
Fresnel Holograms: Their Imaging Properties and Aberrations by J. A. Armstrong	Chain Matrices and the Crank-Nicolson Equation by H. P. Flatt
Some Numerical Experiments in the Theory of Polynomial Interpolation by F. W. Luttmann and T. J. Rivlin	
• Letter to the Editor:	A New Technique for Dynamic Analysis of
On a Circular Crack in a Transversely Isotropic Elastic Material Under Prescribed Shear Stress by W. T. Chen and R. P. Soni	Acoustical Noise by R. H. Peterson and R. L. Hoffman205



The IBM Journal of Research and Development is regularly indexed and abstracted by Science Abstracts (I.E.E.-Britain), Chemical Abstracts, The Engineering Index, Physikalische Berichte, ASM Review of Metal Literature, Mathematical Reviews, Computing Reviews, Computer Abstracts (Technical Information Co. Ltd.-Britain), Bulletin Signaletique (C.N.R.S.-France), Solid State Abstracts, Instrument Abstracts (British Scientific Instrument Research Association), Psychological Abstracts, Computer Abstracts on Cards, Automatic Subject Citation Alert, American Documentation Institute. Reproductions of the magazine by years are available on positive microfilm from University Microfilms, 313 N. First Street, Ann Arbor, Michigan.