

Authors

Douglas R. Andrews

Systems Development Division, Rochester, Minnesota

B.E.E., 1957, City College, New York. Joined IBM at Poughkeepsie in June, 1957, to work on the design of an optical character recognition system. He is currently doing character recognition work at the Rochester laboratory.

Allan J. Atrubin

Systems Development Division, Rochester, Minnesota

B.A.Sc. in Engineering Physics, 1956, University of Toronto; S.M., 1958 and E.E., 1962, MIT. Since joining IBM in 1958 at Poughkeepsie has been engaged in character recognition work. Member, IEEE and ACM.

Maurice R. Bartz

Systems Development Division, Rochester, Minnesota

B.S. in Electrical Engineering, 1962, North Dakota State University; M.S. in Physics, 1967, St. Mary's College, Winona, Minnesota. Joined IBM in 1962 at the Development Laboratory in Rochester to work in the development of flying spot scanners for optical character recognition systems. He is now in the analog systems technology group at the Laboratory. Member, IEEE.

David A. Bishop

Office Products Division, Austin, Texas

B.E.E., 1960, Georgia Institute of Technology; M.S.E.E., 1965, University of Illinois. Joined IBM at Lexington in 1959 and is now a staff engineer in Product Engineering at Austin. Member, Eta Kappa Nu and Tau Beta Pi.

Caroll J. Brown

Research Division, San Jose, California

B.S. in Electrical Engineering, 1950, University of Southern California; M.S. in Electrical Engineering, 1953, University of Wisconsin; Degree of Engineer in Electrical Engineering, 1960, Stanford University. Worked at the North American Aviation Aerophysics Lab in 1951-52 and with the General Electric Electronics Lab in 1953-54. Joined IBM in 1954 at the Research Laboratory in San Jose and initially worked on random access memories. Is presently concerned with information display systems. Member, IEEE and RESA.

Roderick S. Heard

Office Products Division, Lexington, Kentucky

B.A., 1959 and B.S.E.E., 1960, Rice Institute; M.S.E.E., 1963, Stanford University. Joined IBM at Lexington in 1960 and is now a senior engineer in Electronic Products Development at the same location. Member, IEEE and Tau Beta Pi.

Robert B. Hennis

Data Processing Group Staff, Harrison, New York

Attended the University of Cincinnati, 1948; B.S. in Electrical Engineering, 1954, Iowa State College. Joined IBM in June, 1954, and prior to his current assignment was Operations Mana-

ger at the Laboratory in Rochester; he is now Manager of Technology in the Business Planning Area of the Data Processing Group Staff. Member, IEEE and its professional groups on Engineering Management and Computers.

Kuang-Chi Hu

Advanced Systems Development Division, Rochester, Minnesota

B.S.E.E., 1955, National Taiwan University; M.S.E.E., 1959, University of Minnesota. Was research assistant at the University of Minnesota from 1957-1959, and joined IBM in 1959 to work on speech recognition at the ASDD Mohansic Laboratory. He is currently with the medical applications group in Rochester working on pattern recognition problems in electrocardiogram analysis.

Ronald E. Hunt

Office Products Division, Austin, Texas

B.S.M.E., 1964, Missouri School of Mines and Metallurgy. Joined IBM at Lexington in 1964 and is now a senior associate engineer in Development Engineering at Austin.

John E. Jones

Systems Development Division, Research Triangle Park, North Carolina

B.S.M.E., 1953, University of South Carolina; M.S.M.E., 1957, Massachusetts Institute of Technology. Joined IBM at Lexington in 1961 and is now a development engineer in Factory Data Collection Systems at Research Triangle Park. Member, ASME and Tau Beta Pi.

David P. Kennedy

Components Division, East Fishkill, New York

Member of Radiation Laboratory, MIT, 1940-42, engaged in the design of radar equipment. From 1942-58 was employed by Raytheon Manufacturing Company to work in the fields of microwave tubes, microwave communication systems, and semiconductor devices. Instructed at the Graduate School of Engineering, Northeastern University, 1953-58. Joined the IBM Development Laboratory, Data Systems Division, Poughkeepsie, in 1958 as an Advisory Physicist in the mathematical analysis of boundary value problems relating to the design and development of semiconductor devices. Is currently a Senior Physicist and Manager of Mathematical Analysis, Semiconductor Device Theory at the East Fishkill laboratory. Member, American Physical Society.

Walter J. Kleinfelder

Components Division, East Fishkill, New York

B.E.E., 1961, Rensselaer Polytechnic Institute; M.S. in Electrical Engineering, 1964, Syracuse University, and Ph.D. in Electrical Engineering, 1967, Stanford University. Joined IBM Components Division at Poughkeepsie in 1961. He has worked in various areas of exploratory device and circuit technology in the Components Division since he joined the company and is presently manager of a high performance device development group in East Fishkill, New York. He received the IBM resident study fellowship in 1964 for study at Stanford University. Member, Tau Beta Pi, Eta Kappa Nu, Sigma Xi, ASTM and IEEE.

Joseph Toa-Seng Ma

Advanced Systems Development Division, Los Gatos, California

B.S.M.E., 1947, National Sun Yat-Sen University, Canton; B.S.I.E., 1949, Texas Technological College; M.S.M.E., 1959, Purdue University. Has had experience as a mechanical engineer in heat transfer and power plant design in Lubbock, Texas, and was Assistant Professor in Applied Mechanics at Iowa State University. Joined IBM Research in San Jose, 1959, where he he worked on an investigation of air film lubrication of flexible strips. He is now concerned with the design of visual business systems at the Los Gatos Laboratory. Assoc. Member, ASME; Member, Society of Engineering Science, New York Academy of Science, and Tau Beta Pi.

Philip C. Murley

Components Division, East Fishkill, New York

B.A. in Mathematics, 1956, Northwestern University; M.S. in Mathematics, 1957, University of Illinois. Joined IBM in 1957 as a programmer in the Scientific Computation Department of the Data Systems Division, Poughkeepsie. Transferred in 1961 to the Components Division to do mathematical analysis and programming relating to semiconductor device theory.

Robert A. Rahenkamp

Office Products Division, Lexington, Kentucky

B.S.E.E., 1950, University of Pittsburgh. Joined IBM in 1950 at Pittsburgh. Subsequently assigned to programs in the Data Processing and Office Products Divisions and is now Manager of Advanced Planning in Lexington. Member, IEEE.

Contents of previous two issues

May 1968

Vol. 12, No. 3

● Papers:

Computation of Molecular Properties
and Structure

by *A. D. McLean and M. Yoshimine* 206

Redundant Alphabets with Desirable
Frequency Spectrum Properties

by *E. Gorog* 234

A Two-dimensional Mathematical Analysis
of the Diffused Semiconductor Resistor

by *D. P. Kennedy and P. C. Murley* 242

High-resolution Positive Resists for
Electron-beam Exposure

by *I. Haller, M. Hatzakis and R. Srinivasan* 251

Effects of Lasers on the Human Eye*

by *W. L. Makous and J. D. Gould* 257

● Communication:

Room Temperature Delay Times in Diffused
Junction GaAs Injection Lasers

by *J. C. Marinace and K. L. Konnerth* 272

*Erratum: Effects of Lasers on the Human Eye by Makous and Gould, page 261, first paragraph, second column. The power level difference between acoustic waves with pressures of 1 dyne/cm² and 1000 atmospheres is 180 dB, not 90 dB as stated. Because of this fact, the discussion which follows in this paragraph is no longer relevant.

• *Papers:*

- Automatic Dynamic Response Analyzer
by P. E. Stuckert and G. F. Bland 286
- An Application of the Automatic Dynamic
Response Analyzer
by K. Maling and H. D. Schnurmann 300
- A Balanced Capacitor Read-Only Storage
by S. A. Abbas, J. K. Ayling, C. E. Gifford,
R. G. Gladu, T. C. Kwei and W. J. Taren 307
- A New Technique for Wide-Band Video Recording
by W. T. Frost and C. T. Masters 318
- Pressurized High-Speed Development of
Diazo Films
by J. W. Boone and R. B. Mulvany 323

• *Communications:*

- An Application of the Cooley-Tukey
Algorithm to Equalization
by B. Meister 331
- Implicit Implementation of the Weighted
Backward-Euler Formula . .
by H. H. El-Sherif 335

IBM

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, and American Documentation Institute. Reproductions of the magazine by years are available on positive microfilm from University Microfilms, 313 N. First Street, Ann Arbor, Michigan.