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This index covers all items—papers, correspondence, reviews, etc.—that appeared in this periodical during 1972, and items from prior years that were commented upon or corrected in 1972. The index is divided into an Author Index and a Subject Index, both arranged alphabetically.

The *Author Index* contains the primary entry for each item; this entry is listed under the name of the first author and includes coauthor names, title, location of the item, and notice of corrections and comments if any. Cross-references are given from each coauthor name to the name of the corresponding first author. The location of the item is specified by the journal name (abbreviated), year, month, inclusive pages, and microfiche code. [The microfiche code, given in parentheses following the inclusive pages, consists of four characters to be interpreted as follows: the first character identifies the microfiche number within the set of fiches for the issue; the second character identifies the row in which the first frame of the particular item is located; and the last two characters designate the position of that frame within the row.]

The *Subject Index* contains several entries for each item, each consisting of a subject heading, modifying phrase(s), first author's name, and location of the item. For information on coauthors, title, comments and corrections if any, etc., it is necessary to refer to the Author Index. Some generic subject headings are used in this index in addition to the usual technical headings, e.g., *Books* (books reviewed in this periodical), *Bibliographies* (both papers that are bibliographies and any other papers which contain more than 50 references), *Conferences* (technical meetings a substantial number of whose abstracts or papers have appeared in this periodical), and *Special Issues* (issues of this periodical devoted primarily to a specific subject). The Subject Index includes subject cross-references as required by the subject matter.

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- Combinational circuits;** iterative arrays of linear circuits; terminal behavior. *Hu, Ming-Kuei, T-C 72 Dec 1394-1399 (3C03)*
- Combinational circuits;** many-valued logic; basic functions that are easy to realize physically. *Sintonen, Leo, T-C 72 Jun 610-612 (2D04)*
- Combinational circuits;** multivalued switching functions; simplification of implementation using functional transformation. *Vranesic, Zvonko G., T-C 72 Jan 102-105 (2E11)*
- Combinational circuits;** negative gate networks; realization of logic function using minimum number of negative gates or minimum number of negative and positive gates. *Nakamura, Keijiro, T-C 72 Jan 5-11 (1B08)*
- Combinational circuits;** optimal circuit design using integer programming. *Muroga, Saburo, T-C 72 Jun 573-582 (1E04)*
- Combinational circuits;** realization using optimum three-input logic modules; realization of three-variable functions in two logic levels with one polarity available for each input variable. *Opsahl, George I., T-C 72 Jan 90-96 (2D11)*
- Combinational circuits;** synthesis by decomposition; computer-aided design. *Kjelkerud, Eskil, T-C 72 Jun 568-573 (1D11)*
- Combinational circuits;** universal logic modules whose terminals may be interconnected. *Preparata, Franco P., T-C 72 Jun 585-588 (2B03)*
- Combinational circuits;** cf. NAND circuits; NOR-OR circuits; TANT networks
- Combinational faults;** fault representation in terms of distinguishable and indistinguishable fault classes. *Schertz, Donald R., T-C 72 Aug 858-866 (1D01)*
- Combinatorial mathematics;** sequential permutation networks that generate all $n!$ permutations without duplication. *Harada, Kazuaki, T-C 72 May 472-479 (1E07)*
- Communication nets;** computer networks with several remote terminals connected to one data processing center; minimum cost network subject to reliability constraints. *Chandy, K. M., T-C 72 Oct 1062-1066 (1C01)*
- Communication systems;** future developments; book (Review, *T-C 72 Oct 1135-1136*). *Martin, J., Prentice-Hall (Englewood Cliffs, NJ) 1971*
- Compilers;** construction of compilers for digital computers; book (Review, *T-C 72 May 517*). *Gries, D., Wiley (New York, NY) 1971*
- Compilers;** translator-writing system based on derivative of PL/1 called XPL; book (Review, *T-C 72 Jan 109*). *McKeeman, William C., Prentice-Hall (Englewood Cliffs, NJ) 1970*
- Computability;** Rado's noncomputable sigma and shift functions for binary Turing machines. *Lynn, Donald S., T-C 72 Aug 894-896 (2B01)*
- Computational work;** measure in terms of information in memory; use for table-lookup implementation of computation. *Hellerman, Leo, T-C 72 May 439-446 (1B10)*
- Computation time;** conditional jump instructions in parallel processing environment; effect on speed of program execution. *Riseman, Edward M., T-C 72 Dec 1405-1411 (3D02)*
- Computation time;** FORTRAN-like programs; number of simultaneously executable operations; resulting speedup. *Kuck, David J., T-C 72 Dec 1293-1310 (1D04)*
- Computation time;** multiplication techniques; comparison of various techniques. *Kamal, Ahmed A., T-C 72 Sep 1017-1021 (2C11)*
- Computation time;** parallel dispatching and execution; increase in execution rate as function of size of instruction dispatch stack with lookahead hardware. *Foster, Caxton C., T-C 72 Dec 1411-1415 (3D08)*
- Computation time;** speedup of certain loops by software, firmware, and hardware. *Pager, David, T-C 72 Jan 97-100 (2E06)*
- Computer-aided analysis;** matrix transposition method for matrices larger than available main storage. *Eklundh, J. O., T-C 72 Jul 801-803 (4C09)*
- Computer-aided analysis;** PL/1 programming in technological applications; book (Review, *T-C 72 May 517*). *Groner, G. F., Wiley (New York, NY) 1971*
- Computer-aided circuit analysis;** introductory textbook (Review, *T-C 72 Oct 1133-1135*). *Comer, D. J., International Textbook (Scranton, PA) 1971*
- Computer-aided circuit design;** combinational circuits; synthesis by decomposition. *Kjelkerud, Eskil, T-C 72 Jun 568-573 (1D11)*
- Computer-aided circuit design;** switching circuits; optimal design using integer programming. *Muroga, Saburo, T-C 72 Jun 573-582 (1E04)*
- Computer-aided control system analysis;** sampled-data systems; parameter tracking using on-line computer method; time-varying linear and nonlinear systems. *Suryanarayanan, K. L., T-C 72 Mar 292-299 (2B11)*
- Computer-aided design;** interactive graphics for computer-aided design; book (Review, *T-C 72 Apr 413*). *Prince, M. D., Addison-Wesley (Reading, MA) 1971*
- Computer-aided image processing;** cf. Digital image processing
- Computer-aided logic design;** combinational circuits; synthesis by decomposition. *Kjelkerud, Eskil, T-C 72 Jun 568-573 (1D11)*
- Computer-aided logic design;** switching circuits; optimal design using integer programming. *Muroga, Saburo, T-C 72 Jun 573-582 (1E04)*
- Computer-aided optimization;** algorithms for mathematical programming and optimal control problems; book (Review, *T-C 72 Mar 322*). *Polak, E., Academic Press (New York, NY) 1971*
- Computer-aided wiring;** connection ordering methods. *Abel, Luther C., T-C 72 Nov 1227-1233 (2C07)*
- Computer applications;** in business; book (Review, *T-C 72 Oct 1136*). *Sanders, D. H., McGraw-Hill (New York, NY) 1972*
- Computer applications;** in the 1970's; markets, needs, and technology; book (Review, *T-C 72 Jan 110*). *Gruenberger, Fred, Ed., Prentice-Hall (Englewood Cliffs, NJ) 1971*
- Computer applications;** introductory book (Review, *T-C 72 Oct 1135*). *Desmonde, W. H., Prentice-Hall (Englewood Cliffs, NJ) 1971*
- Computer architecture;** classic computer organizations; collection of papers describing 40 computer organizations; book (Review, *T-C 72 Jan 109-110*). *Bell, C. Gordon, McGraw-Hill (New York, NY) 1971*
- Computer control;** robot that assembles objects from macro-instructions given as three-view plans. *Ejiri, Masakazu, T-C 72 Feb 161-170 (1D12)*
- Computer diagnosis;** cf. Fault diagnosis
- Computer graphics;** robot that assembles objects from macro-instructions given as three-view plans. *Ejiri, Masakazu, T-C 72 Feb 161-170 (1D12)*
- Computer graphics;** visible surface algorithms for quadric patches. *Mahl, Robert, T-C 72 Jan 1-4 (1B04)*
- Computer graphics;** cf. Interactive graphic systems
- Computer instructions;** conditional jump instructions in parallel processing environment; effect on speed of program execution. *Riseman, Edward M., T-C 72 Dec 1405-1411 (3D02)*
- Computer instructions;** parallel dispatching and execution; increase in execution rate as function of size of instruction dispatch stack with lookahead hardware. *Foster, Caxton C., T-C 72 Dec 1411-1415 (3D08)*
- Computer languages;** cf. Programming languages
- Computer networks;** remote terminals connected to one data processing center; minimum cost network subject to reliability constraints. *Chandy, K. M., T-C 72 Oct 1062-1066 (1C01)*
- Computer operating systems;** basic concepts and survey of operating systems; book (Review, *T-C 72 Oct 1033-1034*). *Sayers, A. P., Ed., Auerbach, New York, NY) 1971*
- Computer operating systems;** IBM System/360 job control language; book (Review, *T-C 72 Jan 108-109*). *Brown, Gary DeWard, Wiley (New York, NY) 1970*
- Computer operating systems;** OS/360 job control language; book (Review, *T-C 72 Jan 108-109*). *Cadow, Harry W., Prentice-Hall (Englewood Cliffs, NJ) 1970*
- Computer organization;** digital networks and computer systems; book (Review, *T-C 72 Jun 618*). *Booth, T. L., Wiley (New York, NY) 1971*
- Computer organization;** IBM System/370; book (Review, *T-C 72 Dec 1458-1459*). *Katzan, H., Jr., Van Nostrand-Reinhold (New York, NY) 1971*
- Computer organization;** types and effectiveness; hierarchical model of organizations based on tree model using request/service resources as nodes. *Flynn, Michael J., T-C 72 Sep 948-960 (1B11)*
- Computer programming;** FORTRAN-like programs; number of simultaneously executable operations; resulting speedup. *Kuck, David J., T-C 72 Dec 1293-1310 (1D04)*
- Computer programming;** IBM System/370; book (Review, *T-C 72 Dec 1458-1459*). *Katzan, H., Jr., Van Nostrand-Reinhold (New York, NY) 1971*
- Computer programming;** parallel task execution in centralized and decentralized systems; execution of parallel-processable segments of sequential program. *Gonzalez, Mario J., Jr., T-C 72 Dec 1310-1322 (1E09)*
- Computer programming;** PL/1 programming in technological applications; book (Review, *T-C 72 May 517*). *Groner, G. F., Wiley (New York, NY) 1971*
- Computer programming;** speedup of certain loops by software, firmware, and hardware. *Pager, David, T-C 72 Jan 97-100 (2E06)*
- Computer programming;** cf. Analog computer methods; Hybrid computer methods; Microprogrammed computers
- Computer programs;** rollback and recovery strategies; optimum points at which state of program should be stored. *Chandy, K. M., T-C 72 Jun 546-556 (1C01)*
- Computer reliability;** cf. Fault tolerance
- Computers;** markets, needs, and technology in the 1970s; book (Review, *T-C 72 Jan 110*). *Gruenberger, Fred, Ed., Prentice-Hall (Englewood Cliffs, NJ) 1971*
- Computers;** recent advances; book (Review, *T-C 72 Apr 414*). *Alt, F. L., Ed., Academic Press (New York, NY) 1971*
- Computers;** cf. Digital computers; Space-vehicle computers
- Computer simulation;** cf. Digital simulation
- Computer Society;** cf. IEEE Computer Society
- Content-addressable memories;** cf. Associative memories
- Context-free languages;** stochastic syntax analysis procedure; application to classification of chromosome images. *Lee, Harry C., T-C 72 Jul 660-666 (1D09)*
- Control computers;** cf. Computer control
- Control Data 6000 system;** transfers between central memory and extended core storage; lost CPU time as function of interrupt rate, transfer length, and transfer initiation overhead. *MacDougall, M. H., T-C 72 Jan 87-90 (2D08)*
- Control system design;** parameter optimization using pattern search algorithm; transient performance specifications. *Lange-Nielsen, Truls, T-C 72 Nov 1222-1227 (2C02)*
- Convolution;** Mersenne transforms; discrete transforms defined in ring of integers with multiplication and addition modulo Mersenne numbers. *Rader, Charles M., T-C 72 Dec 1269-1273 (1B04)*
- Correlation methods;** associative memory based on correlation matrix model. *Kohonen, Teuvo, T-C 72 Apr 353-359 (1C08)*
- Counters;** cf. Binary counters
- Curves;** recognition and reconstruction of plane closed curves using Fourier descriptors. *Zahn, Charles T., T-C 72 Mar 269-281 (1D08)*
- Cylindrical magnetic domains;** cf. Magnetic bubble domains

D

- Data acquisition;** cf. Satellite data acquisition systems
- Data analysis;** multivariate data; nonlinear mapping algorithm. *Sammon, John W., Jr., T-C 69 May 401-409*
- Data processing;** data structures and management; book (Review, *T-C 72 Nov 1250*). *Flores, I., Prentice-Hall (Englewood Cliffs, NJ) 1970*
- Data processing;** hardware and software; intermediate textbook (Review, *T-C 72 Nov 1251-1252*). *Eadie, D., Prentice-Hall (Englewood Cliffs, NJ) 1971*
- Data processing;** smoothing of discrete data by least-squares procedures and by filtering. *Golay, Marcel J. E., T-C 72 Mar 299-301 (2C06)*
- Data processing;** cf. Meteorological data processing; Seismic data processing
- Decision procedures;** character recognition using contextual procedure; error bounds when context is generated by stationary Markov chain. *Chu, John T., T-C 71 Oct 1203-1207 (2C04)*
- Decoding;** cf. Majority-logic decoding

Diagnostic testing; binary identification procedures. *Garey, M. R., T-C 72 Jun 588-590 (2B06)*

Diagnostic testing; cf. Fault diagnosis

Differential equations; analog computer solution; dynamic errors in solution; representation and compensation of errors. *Kamal, Ahmed A., T-C 72 Aug 886-891 (1F05)*

Differential equations; numerical solution of initial value problems; book (Review, *T-C 72 Aug 924*). *Gear, C. W., Prentice-Hall (Englewood Cliffs, NJ) 1971*

Digital-analog conversion; multiplying digital-analog converter; modification of binary-weighted resistor multiplying converter. *Thechanaamoorthy, N., T-C 72 Oct 1113-1116 (2B05)*

Digital arithmetic; error-correcting codes for high-speed arithmetic; arithmetic codes for correction of iterative errors. *Chien, Robert T., T-C 72 May 433-438 (1B04)*

Digital arithmetic; functions of binary numbers; evaluation of $\log_2 N$, 2^N , N , $1/N$, with parabolic interpolation performed in hardware. *Marino, D., T-C 72 Dec 1416-1421 (3E01)*

Digital arithmetic; pipelining of addition and multiplication functions of arithmetic unit. *Hallin, Thomas G., T-C 72 Aug 880-886 (1E11)*

Digital arithmetic; cf. Adders; Addition; Division; Logarithms; Multiplication; Residue arithmetic; Square rooting; Squaring

Digital computers; design; introductory textbook. *Booth, T. L., Wiley (New York, NY) 1971*

Digital computers; fourth generation systems; book (Review, *T-C 72 Dec 1459*). *International Computer, Infotech Ltd. (Maiden Head, Berks., England)*

Digital computers; IBM System/370; organization and programming; book (Review, *T-C 72 Dec 1458-1459*). *Katzan, H., Jr., Van Nostrand-Reinhold (New York, NY) 1971*

Digital computers; recent advances; book (Review, *T-C 72 Apr 414*). *Alt, F. L., Ed., Academic Press (New York, NY) 1971*

Digital computers; cf. Computer ...; Space-vehicle computers

Digital correlators; image processing; change detection using correlation technique. *Lillestrand, Robert L., T-C 72 Jul 654-659 (1D03)*

Digital image processing; change detection; digital correlation technique. *Lillestrand, Robert L., T-C 72 Jul 654-659 (1D03)*

Digital image processing; cloud-motion measurement using precisely aligned digital ATS pictures. *Smith, Eric A., T-C 72 Jul 715-729 (2E03)*

Digital image processing; Hadamard transform of two-dimensional digitized pictures in real time. *Alexandridis, Nikitas A., T-C 72 Mar 288-292 (2B07)*

Digital image processing; optimum set of intervals which can be interpreted as local position-invariant digital operation for image filtering; automatic generation of intervals. *Read, John S., T-C 72 Jul 803-812 (4C11)*

Digital image processing; quantization error introduced by renormalization. *Carter, William H., T-C 72 Dec 1380-1385 (3B01)*

Digital image processing; restoration of deterministically degraded sampled images; transfer function compensation. *Arguello, Roger J., T-C 72 Jul 812-818 (4D08)*

Digital image processing; sectioning technique of filtering; computation time minimization. *Hunt, B. R., T-C 72 Nov 1219-1222 (2B11)*

Digital image processing; silhouettes; concavity measurement for cellular complexes on rectangular mosaic. *Sklansky, Jack, T-C 72 Dec 1355-1364 (2D10)*

Digital image processing; silhouettes; minimum-perimeter polygon for smoothing digitized silhouettes; algorithm for computing minimum-perimeter polygon. *Sklansky, Jack, T-C 72 Mar 260-268 (1C11)*

Digital image processing; similarity detection; sequential similarity detection algorithms; application to translational registration. *Barnea, Daniel I., T-C 72 Feb 179-186 (1F09)*

Digital image processing; special issue. *IEEE S-C, T-C 72 Jul*

Digital image processing; special issue introduction. *Hall, Ernest L., T-C 72 Jul 633-635 (1B06)*

Digital image processing; TV signals; simulation of bandwidth compression techniques. *McCaughern, R. W., T-C 72 Jul 738-740 (3B09)*

Digital image processing; Wiener filtering using various discrete orthogonal transforms; computation techniques. *Pratt, William K., T-C 72 Jul 636-641 (1B09)*

Digital image processing; cf. Image coding; Image processing

Digital signal processing; logarithmic transcoder. *Degryse, Daniel, T-C 72 Nov 1165-1168 (1C05)*

Digital signal processing; special issue on two-dimensional digital signal processing. *IEEE S-C, T-C 72 Jul*

Digital signal processing; special issue on two-dimensional digital signal processing; introduction. *Hall, Ernest L., T-C 72 Jul 633-635 (1B06)*

Digital signal processing; TV signals; simulation of bandwidth compression techniques. *McCaughern, R. W., T-C 72 Jul 738-740 (3B09)*

Digital signal processing; cf. Digital image processing

Digital simulation; faults in logic circuits; deductive method which deduces faults detected by test at the same time that it simulates the behavior of the fault-free logic. *Armstrong, Douglas B., T-C 72 May 464-471 (1D11)*

Digital simulation; multiprocessor performance analysis; job-mix modeling of multiprocessor for space-vehicle guidance computer. *Mallach, Efrim G., T-C 72 May 446-454 (1C05)*

Digital simulation; paged memory replacement algorithm. *Thorington, John M., Jr., T-C 72 Oct 1053-1061 (1B04)*

Digital simulation; three-valued logic simulation systems; applications. *Breuer, Melvin A., T-C 72 Apr 399-402 (2B08)*

Digital simulation; TV signals; simulation of bandwidth compression techniques. *McCaughern, R. W., T-C 72 Jul 738-740 (3B09)*

Discontinuous functions; selection of one particular value in a set according to given selection criteria; selector functions. *Holst, Per A., T-C 72 May 486-488 (2B01)*

Discrete-events algebra; selection of one particular value in a set according to given selection criteria; selector functions. *Holst, Per A., T-C 72 May 486-488 (2B01)*

Discrete Fourier transforms; digital image processing using Wiener filtering; computation techniques using various discrete orthogonal transforms. *Pratt, William K., T-C 72 Jul 636-641 (1B09)*

Discrete Fourier transforms; pattern classification using filtered Fourier and Hadamard transforms. *Carl, Joseph W., T-C 72 Jul 785-790 (3B05)*

Discrete orthogonal transforms; cf. Fast Fourier transforms; Haar transforms; Hadamard transforms; Karhunen-Loeve transforms; Mersenne transforms

Discrete-time systems; cf. Time-varying discrete-time systems

Disk memories; scheduling of processing of records with minimal total amount of rotational latency. *Fuller, Samuel H., T-C 72 Nov 1153-1165 (1B05)*

Distributed-lumped networks; computers; interconnection problems in design of circuit packaging and memory arrays; uniform loading theory. *Hou, Hsieh S., T-C 72 May 454-463 (1D01)*

Distributed networks; cf. Transmission lines

Division; algorithms based on multiplication; convergence improvement. *Shaham, Z., T-C 72 May 513-514 (2D04)*

Division; high-speed parallel binary division; all carry propagations at same time. *Stefanelli, Renato, T-C 72 Jan 42-55 (1E09)*

Division; nonrestoring division; postcorrections. *Chinal, Jean P., T-C 72 Dec 1385-1394 (3B06)*

Drum memories; scheduling of processing of records with minimal total amount of rotational latency. *Fuller, Samuel H., T-C 72 Nov 1153-1165 (1B05)*

Dynamic programming; application to sequential pattern classification; dynamic programming to find optimal stopping rules. *Fu, King-Sun, T-EC 67 790-803*

Dynostat optimization technique; hybrid computer implementation. *Gibson, John A., T-C 72 Aug 872-880 (1E03)*

E

ECG; feature extraction; comparison of seven techniques. *Mucciardi, Anthony N., T-C 71 Sep 1023-1031 (2B02)*

Electrocardiography; cf. ECG

Electroprinting; ink jet printing; intensity-modulated ink jets for printing of alphanumeric characters on untreated paper; 24 lines/s, 50 characters/s. *Ernbo, Arne, T-C 72 Sep 942-947 (1B05)*

Engines; cf. Internal combustion engines

Entropy; feature selection criterion; comparison with other criteria. *Chen, Chi-Hau, T-C 71 Sep 1054-1056 (2D06)*

Error-correcting codes; arithmetic BN modulo A codes; application of arithmetic norms of integers to study of codes. *Chiang, A. C. L., T-C 72 Aug 891-894 (1F10)*

Error-correcting codes; arithmetic codes for error correction in high-speed arithmetic; correction of iterative errors. *Chien, Robert T., T-C 72 May 433-438 (1B04)*

Error-correcting codes; computer applications; class of codes for single-byte-error correction. *Hong, Se June, T-C 72 Dec 1322-1331 (2B01)*

Error-correcting codes; computer applications; error-control technique using Reed-Muller codes. *Pradhan, Dhiraj K., T-C 72 Dec 1331-1336 (2B10)*

Error-correcting codes; fault-tolerant sequential circuits using error-correcting codes; coding redundancy compared with replication as to circuit complexity and reliability improvement. *Larsen, Ronald W., T-C 72 Feb 130-137 (1B12)*

Error-correcting codes; residue number system; multiple-error detection and correction. *Mandelbaum, David, T-C 72 Jun 538-545 (1B05)*

Error-correcting codes; sequential machines; parity check bit generation independent of information bits that form state assignment. *Mandelbaum, David, T-C 72 May 492-495 (2B07)*

Error-correcting codes; systematic subcodes for error correction in adders; subcodes derived from nonsystematic AN codes. *Rao, Thammavarapu R. N., T-C 72 Mar 254-259 (1C05)*

Estimation; seismic data processing; estimation of impulse response of earth from seismic data. *Davis, James M., T-C 72 Jul 730-734 (3B01)*

Estimation; cf. Filtering; Recursive estimation

F

Fast Fourier transform processors; multiplier generation from values of multipliers used in previous pass. *Cyre, W. R., T-C 72 Jan 83-87 (2D04)*

Fast Fourier transforms; parallel algorithm that segments FFT into groups of identical parallel operations. *Bergland, G. D., T-C 72 Apr 366-370 (1D09)*

Fast transforms; matrix transposition method for matrices larger than available main storage. *Eklundh, J. O., T-C 72 Jul 801-803 (4C09)*

Fault detection, combinational circuits; multiple faults in combination circuits with no internal fan-out. *Gault, James W., T-C 72 Jan 31-36 (1D10)*

Fault detection, combinational circuits; multiple fault tests. *Kohavi, Igal, T-C 72 Jun 556-568 (1C11)*

Fault detection, combinational circuits; testing aspects incorporated into logic circuit design. *Reddy, Sudhakar M., T-C 72 Nov 1183-1188 (1D11)*

Fault detection, logic arrays; four-phase MOS logic arrays; models characterizing faulty load and sampling transistors. *Diriltan, Huda, T-C 72 Mar 301-305 (2C08)*

Fault detection, logic circuits; terminal stuck-fault tests; bounds on length of test. *Weiss, C. Dennis, T-C 72 Mar 305-309 (2C12)*

Fault detection, logic circuits; test generation for linear logic circuits. *Breuer, Melvin A., T-C 72 Jan 79-83 (2C12)*

Fault detection, logic circuits; use of three-valued logic simulation systems. *Breuer, Melvin A., T-C 72 Apr 399-402 (2B08)*

Fault diagnosis; binary identification procedures. *Garey, M. R., T-C 72 Jun 588-590 (2B06)*

Fault diagnosis; cf. Fault detection; Fault location

Fault diagnosis, combinational circuits; covering problem; lower bound for size of minimal solution. *Du, Min-Wen, T-C 72 Mar 317-318 (2D12)*

Fault diagnosis, combinational circuits; diagnostic resolution calculation using generalized fault table. *Bassett, James C., T-C 72 Apr 385-388 (1F04)*

Fault diagnosis, combinational circuits; distinguishable and indistinguishable fault classes; representation of fault classes. *Schertz, Donald R., T-C 72 Aug 858-866 (1D01)*

Fault diagnosis, combinational circuits; path sensitization by partial Boolean difference analysis; information theory approach. *Chiang, A. C. L., T-C 72 Feb 189-195 (2B04)*

Fault diagnosis, computers; Illiac IV; automatic test generation system for logic boards. *Agrawal, Vishwani D., T-C 72 Sep 1015-1017 (2C09)*

Fault diagnosis, computers; microprogrammed computers; computer design and test procedures. *Ramamoorthy, Chittoor V., T-C 72 Nov 1169-1183 (1C09)*

Fault diagnosis, engines; waveform classification of waveforms with classification information concentrated in short time intervals; method for locating these intervals. *Pavlidis, Theodosios, T-C 72 Aug 901-904 (2B08)*

Fault diagnosis, logic arrays; iterative logic arrays; array design for easy diagnosis. *Landgraff, R. W., T-C 71 Aug 867-877 (1E04)*

- Fault diagnosis, logic circuits;** simulation of faults; deductive method which deduces faults detected by test at the same time that it simulates the behavior of the fault-free logic. *Armstrong, Douglas B., T-C 72 May 464-471 (1D11)*
- Fault diagnosis, sequential machines;** checking experiments for machines with counter cycles; bound on length of checking experiment. *Holborow, C. E., T-C 72 Jun 597-598 (2C03)*
- Fault diagnosis; sequential machines;** error-correcting codes; parity check bit generation-independent of information bits that form state assignment. *Mandelbaum, David, T-C 72 May 492-495 (2B07)*
- Fault location, combinational circuits;** design of fault-locatable circuits such that any single permanent struck-at-zero or struck-at-one fault is locatable. *Reddy, Sudhakar M., T-C 72 Dec 1421-1426 (3E06)*
- Fault location, combinational circuits;** single fault; approach that does not require fault tables. *Su, Stephen Y. H., T-C 72 Jan 21-30 (1C12)*
- Fault tolerance, computers;** dotted logic redundancy technique; elimination of critical input errors by joining outputs of NAND and NOR gates, correction of subcritical errors by redundant inputs to logic elements. *Freeman, Harvey A., T-C 72 Aug 867-871 (1D10)*
- Fault tolerance, computers;** error-control technique using Reed-Muller codes. *Pradhan, Dhiraj K., T-C 72 Dec 1331-1336 (2B10)*
- Fault tolerance, computers;** error-correcting codes for high-speed arithmetic; arithmetic codes for correction of iterative errors. *Chien, Robert T., T-C 72 May 433-438 (1B04)*
- Fault tolerance, computers;** error-correcting codes; class of codes for single-byte-error correction. *Hong, Se June, T-C 72 Dec 1322-1331 (2B01)*
- Fault tolerance, computers;** recovery of error-free information when error is detected during processing; optimum points at which state of program should be stored. *Chandy, K. M., T-C 72 Jun 546-556 (1C01)*
- Fault tolerance, sequential circuits;** error-correcting coding; coding redundancy compared with replication as to circuit complexity and reliability improvement. *Larsen, Ronald W., T-C 72 Feb 130-137 (1B12)*
- Fault tolerance, sequential machines;** N-fail-safe machines; realization by binary sequential circuit composed of binary logic components and delay elements. *Takaoka, Tadao, T-C 72 Nov 1189-1196 (1E05)*
- Feature extraction;** biological cell analysis using digitized pictures. *Ledley, Robert S., T-C 72 Jul 740-753 (3B11)*
- Feature extraction;** comparison of seven techniques; application to ECG data. *Mucciardi, Anthony N., T-C 71 Sep 1023-1031 (2B02)*
- Feature extraction;** filtered Fourier and Hadamard transform application to general classification problem. *Carl, Joseph W., T-C 72 Jul 785-790 (3B05)*
- Feature extraction;** Golay marking transformations; evaluation of all possible transformations by exhaustive search technique. *Preston, Kendall, Jr., T-C 72 Dec 1430-1433 (3F03)*
- Feature extraction;** hand-print character recognition; preprocessing operation and feature extraction. *Hussain, A. B. Shahidul, T-C 72 Feb 201-205 (2C04)*
- Feature extraction;** hand-print characters; extraction using Fourier transforms. *Granlund, G. H., T-C 72 Feb 195-201 (2B01)*
- Feature extraction;** handwritten character recognition using topological feature extraction and multilevel categorization. *Tou, J. T., T-C 72 Jul 776-785 (3E11)*
- Feature extraction;** knee radiographs; extraction of edge information; computer algorithm. *Ausherman, Dale A., T-C 72 Jul 753-758 (3C12)*
- Feature extraction;** nonlinear mapping using distance transformation; scalar distance function production using one-dimensional function approximation. *Koontz, Warren L. G., T-C 72 Jan 56-63 (2B01)*
- Feature extraction;** plane closed curves; use of Fourier descriptors. *Zahn, Charles T., T-C 72 Mar 269-281 (1D08)*
- Feature selection;** dependence between features and classes; Kolmogorov measure. *Vilmanen, Toomas R., T-C 72 Oct 1029-1031 (2D11)*
- Feature selection;** distance measures and information functions; comparison of various criteria. *Chen, Chi-Hau, T-C 71 Sep 1054-1056 (2D06)*
- Feature selection;** distance measures for feature evaluation; inequalities between certain distance measures. *Toussaint, Godfried T., T-C 72 Apr 409-410 (2C06)*
- Feature selection;** imperfectly labeled patterns; use of Bhattacharyya coefficient for feature selection. *Chitti Babu, C., T-C 72 Apr 410-411 (2C07)*
- Feature selection;** linear dependence measure; application to speaker identification. *Das, Subrata K., T-C 71 Sep 1106-1109 (3D01)*
- Feedback systems;** parameter optimization using pattern search algorithm; transient performance specifications. *Lange-Nielsen, Truls, T-C 72 Nov 1222-1227 (2C02)*
- File organization;** tree structures for files with data partitioned into blocks or pages; doubly chained trees with minimal average search length. *Patt, Yale N., T-C 72 Sep 961-967 (1C12)*
- Filtering;** discrete data smoothing by least-squares procedures and by filtering. *Golay, Marcel J. E., T-C 72 Mar 299-301 (2C06)*
- Filtering;** cf. Estimation; Kalman filtering; Wiener filtering
- Finite automata;** relation to complete systems; characterization of automata as recognition devices in terms of a set of rewriting rules. *Pu, Arthur T., T-C 72 Oct 1109-1113 (2B01)*
- Finite automata;** cf. Finite-state machines
- Finite Fourier transforms;** spherical harmonic expansions; calculation of coefficients using finite Fourier transform and recurrence technique. *Ricardi, Leon J., T-C 72 Jun 583-585 (2B01)*
- Finite-state machines;** execution of fuzzy programs using finite-state machines. *Chang, Shi-Kuo, T-C 72 Mar 241-253 (1B04)*
- Finite-state machines;** finite memory machines; upper and lower bounds on memory. *Vairavan, K., T-C 72 Jun 598-602 (2C04)*
- Finite-state machines;** number of low-weight sequences that can be produced by machine; relation to number of output symbols that must be observed to determine initial state. *Miczko, A., T-C 72 Aug 911-913 (2C06)*
- Finite-state machines;** Rado's noncomputable sigma and shift functions for binary Turing machines. *Lynn, Donald S., T-C 72 Aug 894-896 (2B01)*
- Finite-state machines;** single-channel into multichannel transformations and converse. *Gill, Arthur, T-C 70 Nov 1073-1078 (2B11)*
- Finite-state machines;** synthesis from finite subsets of their input-output behavior. *Biermann, A. W., T-C 72 Jun 592-597 (2B10)*
- Finite-state machines;** cf. Finite automata; Sequential machines
- Flip-flop memories;** sequential machines; feedback implementation with trigger or set-reset flip-flop memories. *Harlow, Charles A., T-C 72 Apr 371-381 (1E02)*
- FORTRAN IV;** introductory textbook (Review, *T-C 72 Nov 1251*). *Vickers, Frank D., Holt, Rinehart and Winston (New York, NY) 1970*
- FORTRAN IV;** parallel processing; number of simultaneously executable operations in FORTRAN-like programs; resulting speedup. *Kuck, David J., T-C 72 Dec 1293-1310 (1D04)*
- Fourier series;** application to recognition and reconstruction of plane closed curves; Fourier descriptors. *Zahn, Charles T., T-C 72 Mar 269-281 (1D08)*
- Fourier transforms;** application to hand-print character recognition; feature extraction using Fourier transforms. *Granlund, G. H., T-C 72 Feb 195-201 (2B01)*
- Fourier transforms;** cf. Discrete Fourier transforms; Fast Fourier transforms; Finite Fourier transforms
- Fuzzy set theory;** finite-state machine execution of fuzzy programs. *Chang, Shi-Kuo, T-C 72 Mar 241-253 (1B04)*
- Fuzzy set theory;** minimum canonical sum-of-products form of given fuzzy functions. *Siy, Pepe, T-C 72 Jan 100-102 (2E09)*

G

- Gates;** cf. Logic gates
- Geophysical data processing;** cf. Seismic data processing
- Graphic data;** visible surface algorithms for quadric patches. *Mahl, Robert, T-C 72 Jan 1-4 (1B04)*
- Graphic data;** cf. Computer graphics
- Graphic interactive systems;** cf. Interactive graphic systems
- Graph theory;** application to asynchronous sequential machines; state assignment. *Saucier, Gabrièle, T-C 72 Mar 282-288 (2B01)*
- Graph theory;** application to automata theory; periodic analog of fixed-structure connected automaton. *Reischer, C., T-C 72 Feb 208-211 (2C11)*
- Graph theory;** application to fault detection in logic circuits; terminal stuck-fault tests; bounds on length of test. *Weiss, C. Dennis, T-C 72 Mar 305-309 (2C12)*
- Graph theory;** application to scheduling in multiprocessing systems. *Ramamoorthy, Chittoor V., T-C 72 Feb 137-140 (1B12)*
- Graph theory;** computer program graph models for determining rollback and recovery strategies; optimum points at which state of program should be stored. *Chandy, K. M., T-C 72 Jun 546-556 (1C01)*
- Graph theory;** drum memories; scheduling of processing of records with minimal total amount of rotational latency. *Fuller, Samuel H., T-C 72 Nov 1153-1165 (1B05)*
- Graph theory;** pattern classification; interpretation of grouping of features in a line drawing as clustering in graph-structured space. *Rosenfeld, Aziel, T-C 72 Aug 904-911 (2B11)*
- Graph theory;** transition graphs; proof that minimal congruences on transition graph are one of four types and can be obtainable by inspection. *Reusch, Bernd, T-C 72 Jan 96-97 (2E05)*
- Graph theory;** cf. Trees
- Group theory;** group function decomposition; synthesis of multivalued cellular cascades. *Kolp, Otto, T-C 72 May 489-492 (2B04)*

H

- Haar transforms;** signal flow graph and Fortran program for Haar-Fourier transform. *Rejchrt, Vladimir J., T-C 72 Sep 1026-1027 (2D08)*
- Hadamard transforms;** digital image processing using Wiener filtering; computation techniques using various discrete orthogonal transforms. *Pratt, William K., T-C 72 Jul 636-641 (1B09)*
- Hadamard transforms;** image processing; transform of two-dimensional digitized picture in real time. *Alexandridis, Nikitas A., T-C 72 Mar 288-292 (2B07)*
- Hadamard transforms;** pattern classification using filtered Fourier and Hadamard transforms. *Carl, Joseph W., T-C 72 Jul 785-790 (3B05)*
- Hadamard transforms;** upper bounds on transform. *Yuen, Chung-Kwong, T-C 72 Dec 1273-1280 (1B08)*
- Hazards and races;** detection using three-valued logic simulation systems. *Breuer, Melvin A., T-C 72 Apr 399-402 (2B08)*
- Hybrid computer methods;** optimal resource allocation problems; implementation of Dynostat algorithm. *Gibson, John A., T-C 72 Aug 872-880 (1E03)*
- Hybrid computer methods;** programming; book (Review, *T-C 72 Aug 924*). *Hausner, A., Prentice-Hall (Englewood Cliffs, NJ)*

I

- IBM System/360;** job control language; book (Review, *T-C 72 Jan 108-109*). *Brown, Gary DeWard, Wiley (New York, NY) 1970*
- IBM System/360;** OS/360 job control language; book (Review, *T-C 72 Jan 108-109*). *Cadow, Harry W., Prentice-Hall (Englewood Cliffs, NJ) 1970*
- IBM System/370;** organization and programming; book (Review, *T-C 72 Dec 1458-1459*). *Katzan, H., Jr., Van Nostrand-Reinhold (New York, NY) 1971*
- Identification;** cf. System identification
- IEEE Computer Society;** appointment of Associate Editor. *Short, Robert A., T-C 72 Feb 129 (1B04)*
- IEEE Computer Society;** appointment of Associate Editor for Sequential Machines and Automata. *Short, Robert A., T-C 72 Jun 537 (1B04)*
- IEEE Computer Society;** appointment of Associate Editor. *Short, Robert A., T-C 72 Sep 941 (1B04)*
- Illiac IV;** fault diagnosis for logic boards; automatic test generation system. *Agrawal, Vishwani D., T-C 72 Sep 1015-1017 (2C09)*
- Image coding;** binary encoding of pictures consisting of regions of differing contrast; property encoding method. *Sidhu, Gursharan S., T-C 72 Nov 1206-1216 (1F10)*
- Image coding;** color information; encoding and decoding using two-dimensional spatial filtering. *Schaefer, Louis F., T-C 72 Jul 642-647 (1C03)*
- Image coding;** cf. Digital image processing
- Image processing;** edge and curve detection. *Rosenfeld, Aziel, T-C 72 Jul 677-715 (2B01)*
- Image processing;** recursive image estimation; Kalman filtering. *Nahi, N. E., T-C 72 Jul 734-738 (3B05)*
- Image processing;** cf. Digital image processing; Pattern recognition
- Impedance matching;** digital circuit transmission lines; nonlinear terminations for line matching. *Horna, Otakar A., T-C 72 Sep 1011-1015 (2C05)*
- Impulse response identification;** cf. System identification
- Information retrieval;** tree structures for files with data partitioned into blocks or pages; doubly chained trees with minimal average search length. *Patt, Yale N., T-C 72 Sep 961-967 (1C12)*

Information theory; application to fault diagnosis in logic circuits; path sensitization by partial Boolean difference analysis. *Chiang, A. C. L., T-C 72 Feb 189-195 (2B04)*

Ink jet printing; intensity-modulated ink jets for printing of alphanumeric characters on untreated paper; 24 lines/s, 50 characters/s. *Ernbo, Arne, T-C 72 Sep 942-947 (1B05)*

Instructions; cf. Computer instructions

Integer programming; application to design of NOR-OR circuits for functions of three variables. *Baugh, Charles R., T-C 72 Feb 153-160 (1D04)*

Integer programming; computer network optimization for several remote terminals connected to one data processing center; minimum cost network subject to reliability constraints. *Chandy, K. M., T-C 72 Oct 1062-1066 (1C01)*

Integer programming; switching circuit design; optimal circuits. *Muroga, Saburo, T-C 72 Jun 573-582 (1E04)*

Integrated-circuit fabrication; interconnections; batch-fabricated three-dimensional planar coaxial interconnections. *Parks, Howard L., T-C 71 May 504-511 (1C04)*

Integrated-circuit interconnections; computers; application of uniform loading theory to interconnection problems in design of circuit packaging and memory arrays. *Hou, Hsieh S., T-C 72 May 454-463 (1D01)*

Integrated-circuit interconnections; three-dimensional planar coaxial interconnections; batch fabrication. *Parks, Howard L., T-C 71 May 504-511 (1C04)*

Integrated-circuit interconnections; wire-routing programs; connection ordering methods. *Abel, Luther C., T-C 72 Nov 1227-1233 (2C07)*

Integrated-circuit memories; interconnection problems in design of memory arrays; uniform loading theory. *Hou, Hsieh S., T-C 72 May 454-463 (1D01)*

Integrated circuits; cf. LSI; MOS circuits

Interactive graphic systems; computer-aided design applications; book (Review, *T-C 72 Apr 413*). *Prince, M. D., Addison-Wesley (Reading, MA) 1971*

Interconnections; cf. Integrated-circuit interconnections

Interleaved memories; bandwidth and interference with queuing of multiple requests. *Ravi, C. V., T-C 72 Aug 899-901 (2B06)*

Internal combustion engines; waveform classification for fault diagnosis; waveforms with classification information concentrated in short time intervals; method for locating these intervals. *Pavlidis, Theodosios, T-C 72 Aug 901-904 (2B08)*

Interpolation; functions of binary numbers; evaluation of $\log_2 N$, 2^N , N , $1/N$, with parabolic interpolation performed in hardware. *Marino, D., T-C 72 Dec 1416-1421 (3E01)*

Iterative arrays; autonomous one-dimensional unidirectional single-output iterative arrays with one intercell lead and cell structure of linear sequential machine. *Iosupovicz, Alexander, T-C 72 Oct 1073-1086 (1C12)*

Iterative arrays; fault diagnosis; array design for easy diagnosis. *Landgraff, R. W., T-C 71 Aug 867-877 (1E04)*

Iterative arrays; multidimensional linear iterative arrays; state-space model; general response formula. *Givone, Donald D., T-C 72 Oct 1067-1073 (1C06)*

Iterative arrays; multiplication of signed binary numbers using iterative array. *Bandyopadhyay, S., T-C 72 Aug 921-922 (2D04)*

Iterative arrays; signed number multiplication using positive-number full multipliers; cellular iterative arrays as input- and output-correcting networks. *DeMori, R., T-C 72 Dec 1453-1454 (4C09)*

Iterative arrays; terminal behavior of iterative arrays of linear machines; cell structure as arbitrary combinational circuit or arbitrary sequential circuit. *Hu, Ming-Kuei, T-C 72 Dec 1394-1399 (3C03)*

Iterative methods; computation time; speedup of certain loops by software, firmware, and hardware. *Pager, David, T-C 72 Jan 97-100 (2E06)*

J

Job control languages; IBM System/360; book (Review, *T-C 72 Jan 108-109*). *Brown, Gary DeWard, Wiley (New York, NY) 1970*

Job control languages; OS/360 job control language; book (Review, *T-C 72 Jan 108-109*). *Cadow, Harry W., Prentice-Hall (Englewood Cliffs, NJ) 1970*

K

Kalman filtering; image estimation. *Nahi, N. E., T-C 72 Jul 734-738 (3B05)*

Karhunen-Loeve transforms; digital image processing using Wiener filtering; computation techniques using various discrete orthogonal transforms. *Pratt, William K., T-C 72 Jul 636-641 (1B09)*

Knees; radiography; extraction of edge information. *Ausherman, Dale A., T-C 72 Jul 753-758 (3C12)*

L

Languages; cf. Context-free languages; Programming languages; Stochastic languages

Large-scale integration; cf. LSI

Learning procedures; pattern recognition; use of training set of a recognition class to facilitate recognition of patterns belonging to different recognition class; application to character recognition. *Ullmann, J. R., T-C 72 Feb 219-220 (2D10)*

Learning systems; adaptation and learning in automatic systems; book (Review, *T-C 72 Nov 1252*). *Tsyppin, Ya. Z., Academic Press (New York, NY) 1971*

Learning systems; execution of fuzzy programs using finite-state machines. *Chang, Shi-Kuo, T-C 72 Mar 241-253 (1B04)*

Learning systems; self-organizing nets of threshold elements; learning of patterns and pattern sequences. *Amari, Shun-ichi, T-C 72 Nov 1197-1206 (1F01)*

Legendre expansions; coefficient calculation; recurrence technique. *Ricardi, Leon J., T-C 72 Jun 583-585 (2B01)*

Linear programming; computation time; speedup of certain loops by software, firmware, and hardware. *Pager, David, T-C 72 Jan 97-100 (2E06)*

Linear programming; pattern recognition method; sequential linear programming method using stage by stage analysis of higher and higher dimensions of feature space. *Som, A., T-C 72 Dec 1433-1440 (4B01)*

Linguistics; pattern recognition; data base for syntax-directed pattern analysis and recognition. *Chien, Yi-Tzuu, T-C 72 Jul 790-801 (4B10)*

Linguistics; stochastic syntax analysis procedure; application to pattern classification. *Lee, Harry C., T-C 72 Jul 660-666 (1D09)*

List processing; tracing during garbage collection; storage needs of trace phase. *Wegbreit, Ben, T-C 72 Sep 1009-1010 (2C03)*

Logarithmic transcoders; linear digital transcoder. *Degryse, Daniel, T-C 72 Nov 1165-1168 (1C05)*

Logarithms; base 2 logarithm of binary numbers, with parabolic interpolation performed in hardware. *Marino, D., T-C 72 Dec 1416-1421 (3E01)*

Logic arrays; cf. Cellular logic arrays; Iterative arrays; MOS logic arrays

Logic circuits; digital networks and computer systems; book (Review, *T-C 72 Jun 618*). *Booth, T. L., Wiley (New York, NY) 1971*

Logic circuits; fault detection; terminal stuck-fault tests; bounds on length of test. *Weiss, C. Dennis, T-C 72 Mar 305-309 (2C12)*

Logic circuits; fault simulation; deductive method which deduces faults detected by test at the same time that it simulates the behavior of the fault-free logic. *Armstrong, Douglas B., T-C 72 May 464-471 (1D11)*

Logic circuits; fault test generation for linear logic circuits. *Breuer, Melvin A., T-C 72 Jan 79-83 (2C12)*

Logic circuits; interconnection problems in design of high-speed circuit packaging and memory arrays; uniform loading theory. *Hou, Hsieh S., T-C 72 May 454-463 (1D01)*

Logic circuits; cf. Combinational circuits; Magnetic bubble logic circuits; Sequential circuits; Switching circuits; Threshold logic networks

Logic design; many-valued logic functions; orthogonal expansions; realization of many-valued functions using single-threshold element. *Kitahashi, Tadahiro, T-C 72 Feb 211-218 (2D02)*

Logic design; negative gate networks; realization of logic function using minimum number of negative gates or minimum number of negative and positive gates. *Nakamura, Keijiro, T-C 72 Jan 5-11 (1B08)*

Logic design; cf. Logic modules; Logic partitioning

Logic functions; cf. Boolean functions; Many-valued logic functions; Switching functions; Threshold functions

Logic gates; negative gates; realization of logic function using minimum number of negative gates or minimum number of negative and positive gates. *Nakamura, Keijiro, T-C 72 Jan 5-11 (1B08)*

Logic gates; cf. Combinational circuits; NOR-OR gates; Threshold gates

Logic modules; optimum three-input modules for realization of three-variable functions in two logic levels with one polarity available for each input variable. *Opsahl, George I., T-C 72 Jan 90-96 (2D11)*

Logic modules; register-transfer modules; description and use. *Bell, C. Gordon, T-C 72 May 495-500 (2B10)*

Logic modules; sequential circuits; universal modules for realization of single input-single output synchronous machines; bounded fan-out of signals. *Newborn, Monroe M., T-C 72 Jan 63-79 (2B08)*

Logic modules; sequential machine synthesis using modules; application of nondeterministic sequential machine theory. *Ullman, Jeffrey D., T-C 72 Oct 1124-1129 (2C04)*

Logic modules; universal base modules with limited fan-in. *Osman, Mohamed Y., T-C 72 Sep 985-995 (1E12)*

Logic modules; universal logic modules whose terminals may be interconnected. *Preparata, Franco P., T-C 72 Jun 585-588 (2B03)*

Logic partitioning; LSI circuits; partitioning for high circuit-to-pin ratios. *Russo, Roy L., T-C 72 Feb 147-153 (1C10)*

LSI; interconnections; batch-fabricated three-dimensional planar coaxial interconnections. *Parks, Howard L., T-C 71 May 504-511 (1C04)*

LSI; logic circuits; logic partitioning for high circuit-to-pin ratio. *Russo, Roy L., T-C 72 Feb 147-153 (1C10)*

Lungs; radiography; pattern recognition techniques for normal-abnormal classification of lung disease processes. *Sutton, Richard N., T-C 72 Jul 667-676 (1E04)*

M

Magnetic bubble logic circuits; design of magnetic bubble cells for use in realization of complex logic nets. *Carey, M. R., T-C 72 Apr 392-396 (2B01)*

Magnetic memories; cf. Drum memories

Majority-logic decoding; fault-tolerant sequential circuits using error-correcting codes; coding redundancy compared with replication as to circuit complexity and reliability improvement. *Larsen, Ronald W., T-C 72 Feb 130-137 (1B12)*

Management information systems; computers in business; book (Review, *T-C 72 Oct 1136*). *Sanders, D. H., McGraw-Hill (New York, NY) 1972*

Manipulators; cf. Teleoperators

Many-valued logic; group function decomposition; synthesis of multivalued cellular cascades. *Kolp, Otto, T-C 72 May 489-492 (2B04)*

Many-valued logic; multivalued switching algebra and Boolean algebra; relationship under different definitions of complement; minimization of multivalued switching function. *Su, Stephen Y. H., T-C 72 May 479-485 (1F02)*

Many-valued logic; switching function implementation; simplification of implementation using functional transformation. *Vranesic, Zvonko G., T-C 72 Jan 102-105 (2E11)*

Many-valued logic; three-valued logic simulation systems; applications. *Breuer, Melvin A., T-C 72 Apr 399-402 (2B08)*

Many-valued logic functions; basic functions; system of three basic functions that are easy to realize physically. *Sintonen, Leo, T-C 72 Jun 610-612 (2D04)*

Many-valued logic functions; cubical representation; use in minimization of multivalued functions. *Su, Stephen Y. H., T-C 72 Sep 995-1003 (2B01)*

Many-valued logic functions; orthogonal expansions; realization of many-valued functions using single-threshold element. *Kitahashi, Tadahiro, T-C 72 Feb 211-218 (2D02)*

Many-valued logic functions; symmetric switching functions; identification using parallel processing. *Lee, Samuel C., T-C 72 Mar 312-317 (2D07)*

Many-valued logic functions; ternary threshold functions of three variables; enumeration; characterizing parameters of canonical ternary threshold functions of two and three variables. *Aibara, Tsunehiro, T-C 72 Apr 402-407 (2B11)*

Markov processes; character recognition using contextual procedure; error bounds when context is generated by stationary Markov chain. *Chu, John T., T-C 71 Oct 1203-1207 (2C04)*

Matching; cf. Impedance matching

Mathematical programming; computational algorithms; book (Review, *T-C 72 Mar 322*). *Polak, E., Academic Press (New York, NY) 1971*

Mathematical programming; cf. Dynamic programming; Integer programming; Linear programming

Matrix methods; computation time; speedup of certain loops by software, firmware, and hardware. *Pager, David, T-C 72 Jan 97-100 (2E06)*

Matrix methods; iterative logic arrays of multidimensional linear type. *Givone, Donald D., T-C 72 Oct 1067-1073 (1C06)*

Matrix methods; simply invertible matrices; properties and construction. *Sankar, P. V., T-C 72 May 512-513 (2D03)*

Matrix transposition; fast computer method for matrices larger than available main storage. *Eklundh, J. O., T-C 72 Jul 801-803 (4C09)*

Memories; dynamic memories in which there is a continuous circulation of data; minimum access time. *Stone, Harold S., T-C 72 Apr 359-366 (1D02)*

Memories; cf. Associative memories; Integrated-circuit memories; Interleaved memories; List processing; Paged memories; Shift-register memories

Memory access; dynamic memories in which there is a continuous circulation of data; minimum access time. *Stone, Harold S., T-C 72 Apr 359-366 (1D02)*

Memory scheduling; drum memories; scheduling of processing of records with minimal total amount of rotational latency. *Fuller, Samuel H., T-C 72 Nov 1153-1165 (1B05)*

Memory transfers; Control Data 6000 system; extended core storage; transfers between central memory and extended core storage; lost CPU time. *MacDougall, M. H., T-C 72 Jan 87-90 (2D08)*

Mersenne transforms; discrete transforms defined in the ring of integers with multiplication and addition modulo Mersenne numbers. *Rader, Charles M., T-C 72 Dec 1269-1273 (1B04)*

Meteorological data processing; cloud-motion measurement using precisely aligned digital ATS pictures. *Smith, Eric A., T-C 72 Jul 715-729 (2E03)*

Meteorological data processing; cloud-motion measurement using satellite data. *Hall, David J., T-C 72 Jul 768-776 (3E03)*

Meteorological data processing; image processing of data from ITOS-1 satellites; sequential similarity detection algorithms; application to translational registration. *Barnea, Daniel I., T-C 72 Feb 179-186 (1F09)*

Microdiagnostics; microprogrammed computers; computer design and test procedures. *Ramamoorthy, Chittoor V., T-C 72 Nov 1169-1183 (1C09)*

Microprogrammed arrays; cellular arrays; logical organization and programming to realize digital subsystems. *Jump, J. Robert, T-C 72 Sep 974-984 (1E01)*

Microprogrammed computers; fault diagnosis; computer design and test procedures. *Ramamoorthy, Chittoor V., T-C 72 Nov 1169-1183 (1C09)*

Microprogramming; speedup of inner loop calculation time. *Pager, David, T-C 72 Jan 97-100 (2E06)*

Models; cf. System models

MOS logic arrays; fault detection in four-phase arrays; models characterizing faulty load and sampling transistors. *Dirilten, Hudai, T-C 72 Mar 301-305 (2C08)*

Multiplexing; analog-digital converters; combination of multiplexing and A/D function to eliminate multiplexing switches. *Little, W. D., T-C 72 Aug 920 (2D03)*

Multiplication; binary rate-multiplier circuit with uniform pulse distribution outputs. *Oberman, R. M. M., T-C 72 Aug 896-899 (2B03)*

Multiplication; computation time of various multiplication techniques. *Kamal, Ahmed A., T-C 72 Sep 1017-1021 (2C11)*

Multiplication; error-correcting codes for high-speed multiplication; arithmetic codes for correction of iterative errors. *Chien, Robert T., T-C 72 May 433-438 (1B04)*

Multiplication; fast Fourier transform processors; generation of multipliers from values of multipliers used in previous pass. *Cyre, W. R., T-C 72 Jan 83-87 (2D04)*

Multiplication; pipelining of addition and multiplication functions of arithmetic unit. *Hallin, Thomas G., T-C 72 Aug 880-886 (1E11)*

Multiplication; signed binary numbers; implementation of Booth's algorithm. *Bandyopadhyay, S., T-C 72 Aug 921-922 (2D04)*

Multiplication; signed number multiplication using positive-number full multipliers; cellular iterative arrays as input- and output-correcting networks. *DeMori, R., T-C 72 Dec 1453-1454 (4C09)*

Multiprocessing systems; computer organization types and effectiveness; hierarchical model of organizations based on tree model using request/service resources as nodes. *Flynn, Michael J., T-C 72 Sep 948-960 (1B11)*

Multiprocessing systems; functional unit allocation; asynchronous arbiters. *Plummer, William W., T-C 72 Jan 37-42 (1E04)*

Multiprocessing systems; scheduling techniques that use minimum number of processors to execute program in least time. *Ramamoorthy, Chittoor V., T-C 72 Feb 137-140 (1B12)*

Multiprocessing systems; space-vehicle guidance computer consisting of multiprocessors and memory units attached to central time-multiplexed data bus; job-mix modeling and system analysis. *Mallach, Efreim G., T-C 72 May 446-454 (1C05)*

Multiprocessing systems; cf. Parallel processing

Multivalued logic; cf. Many-valued logic

N

NAND circuits; design using interactive algorithmic approach; transform that operates on interconnection topology. *Lee, Hsiao-Peng, T-C 72 Jan 12-20 (1C03)*

NAND circuits; minimal gate realization of Boolean function TANT networks. *Koh, Kyung Shik, T-C 71 Jan 105-107 (2F09)*

NAND circuits; TANT networks; synthesis of minimal TANT networks having no static hazard. *Frackowiak, Jerzy, T-C 72 Oct 1099-1108 (1F02)*

Network analysis; cf. Computer-aided circuit analysis

Networks; cf. Computer networks; Nonlinear networks

Noise generators; cf. Pseudonoise generators

Nonlinear networks; transmission line matching in digital circuits; use of nonlinear terminations. *Horna, Otakar A., T-C 72 Sep 1011-1015 (2C05)*

Nonlinear systems; identification of systems containing zero-memory nonlinearities. *Govindan, G. N., T-C 72 Nov 1216-1219 (2B08)*

NOR-OR circuits; optimal networks of NOR-OR gates for functions of three variables; minimum number of gates and minimum number of interconnections. *Baugh, Charles R., T-C 72 Feb 153-160 (1D04)*

Numerical methods; initial value problems; book (Review, T-C 72 Aug 924). *Gear, C. W., Prentice-Hall (Englewood Cliffs, NJ) 1971*

Numerical methods; introductory textbook (Review, T-C 72 Oct 1033). *Hamming, R. W., McGraw-Hill (New York, NY) 1971*

Numerical methods; spherical harmonic expansions; recurrence technique for obtaining coefficients. *Ricardi, Leon J., T-C 72 Jun 583-585 (2B01)*

Numerical methods; cf. Digital arithmetic; Discrete orthogonal transforms; Optimization techniques

O

Optimal control; computational algorithms; book (Review, T-C 72 Mar 322). *Polak, E., Academic Press (New York, NY) 1971*

Optimization techniques; computational algorithms for mathematical programming and optimal control problems; book (Review, T-C 72 Mar 322). *Polak, E., Academic Press (New York, NY) 1971*

Optimization techniques; drum memories; scheduling of processing of records with minimal total amount of rotational latency. *Fuller, Samuel H., T-C 72 Nov 1153-1165 (1B05)*

Optimization techniques; feedback control systems; parameter optimization using pattern search algorithm; transient performance specifications. *Lange-Nielsen, Truls, T-C 72 Nov 1222-1227 (2C02)*

Optimization techniques; random search algorithm for constrained minimization; adaptive step size. *Beltrami, E. J., T-C 72 Sep 1004-1008 (2B10)*

Optimization techniques; random search technique for function minimization; incorporates step-size and direction adaptivity of Hooke and Jeeves' pattern search. *Lawrence, J. P., III, T-C 72 Apr 382-385 (1F01)*

Optimization techniques; resource allocation; hybrid computer implementation of Dynostat algorithm. *Gibson, John A., T-C 72 Aug 872-880 (1E03)*

Optimization techniques; scheduling in multiprocessing systems. *Ramamoorthy, Chittoor V., T-C 72 Feb 137-140 (1B12)*

Optimization techniques; switching functions; minimization of multivalued functions. *Su, Stephen Y. H., T-C 72 Sep 995-1003 (2B01)*

Optimization techniques; tree structures for file organization; doubly chained trees with minimal average search length for files with data partitioned into blocks or pages. *Patt, Yale N., T-C 72 Sep 961-967 (1C12)*

Optimization techniques; cf. Integer programming; Mathematical programming

OR gates; cf. NOR-OR gates

Orthogonal expansions; many-valued logic functions; realization using single-threshold element. *Kitahashi, Tadahiro, T-C 72 Feb 211-218 (2D02)*

Orthogonal functions; cf. Spherical wave functions; Walsh functions

Orthogonal transforms; cf. Discrete orthogonal transforms

P

Paged memories; adaptive replacement algorithm; comparison with non-look-ahead algorithms. *Thorington, John M., Jr., T-C 72 Oct 1053-1061 (1B04)*

Parallel processing; computer organization types and effectiveness; hierarchical model of organizations based on tree model using request/service resources as nodes. *Flynn, Michael J., T-C 72 Sep 948-960 (1B11)*

Parallel processing; conditional jump instructions in parallel processing environment; effect on speed of program execution. *Riseman, Edward M., T-C 72 Dec 1405-1411 (3D02)*

Parallel processing; fast Fourier transform; parallel algorithm that segments FFT algorithm into groups of identical parallel operations. *Bergland, G. D., T-C 72 Apr 366-370 (1D09)*

Parallel processing; FORTRAN-like programs; number of simultaneously executable operations; resulting speedup. *Kuck, David J., T-C 72 Dec 1293-1310 (1D04)*

Parallel processing; functional unit allocation; asynchronous arbiters. *Plummer, William W., T-C 72 Jan 37-42 (1E04)*

Parallel processing; instruction dispatching and execution; increase in execution rate as function of size of instruction dispatch stack with lookahead hardware. *Foster, Caxton C., T-C 72 Dec 1411-1415 (3D08)*

Parallel processing; many-valued symmetric switching functions; identification using parallel processing. *Lee, Samuel C., T-C 72 Mar 312-317 (2D07)*

Parallel processing; scheduling techniques that use minimum number of processors to execute program in least time. *Ramamoorthy, Chittoor V., T-C 72 Feb 137-140 (1B12)*

Parallel processing; sequentially organized programs; execution of parallel-processable segments. *Gonzalez, Mario J., Jr., T-C 72 Dec 1310-1322 (1E09)*

Parallel processing; cf. Multiprocessing

Parameter identification; sampled-data systems; parameter tracking using on-line computer method; time-varying linear and nonlinear systems. *Suryanarayanan, K. L., T-C 72 Mar 292-299 (2B11)*

Pattern classification; dependence between features and classes; Kolmogorov measure. *Vilmansen, Toomas R., T-C 72 Oct 1029-1031 (2D11)*

Pattern classification; distribution-free pattern verification using statistically equivalent blocks. *Beakley, Guy W., T-C 72 Dec 1337-1347 (2C04)*

Pattern classification; filtered Fourier and Hadamard transform application to general classification problem. *Carl, Joseph W., T-C 72 Jul 785-790 (3B05)*

Pattern classification; handwritten character recognition using topological feature extraction and multilevel categorization. *Tou, J. T., T-C 72 Jul 776-785 (3E11)*

Pattern classification; parallel nonadaptive binary classifier; random-pulse computing elements for realization of multimodal of nonlinear discriminant functions. *Goke, Louis R., T-C 72 Dec 1347-1354 (2D02)*

Pattern classification; representation of classifiers for n -valued conditionally independent features as $(n-1)$ -degree polynomial discriminant function. *Toussaint, Godfried T., T-C 72 Feb 205-208 (2C08)*

Pattern classification; sequential classifier; dynamic programming approach for finding optimal stopping rules. *Fu, King-Sun, T-EC 67 790-803*

Pattern classification; stochastic context-free language for classification of chromosome images. *Lee, Harry C., T-C 72 Jul 660-666 (1D09)*

Pattern classification; texture feature detection; generation of optimum interval covers. *Read, John S., T-C 72 Jul 803-812 (4C11)*

Pattern classification; waveforms with classification information concentrated in short time intervals; method for locating these intervals. *Pavlidis, Theodosios, T-C 72 Aug 901-904 (2B08)*

Pattern classification; cf. Pattern clustering techniques

Pattern clustering techniques; criteria; optimum classification with respect to given clustering criterion. *Koontz, Warren L. G., T-C 72 Feb 171-178 (1E10)*

Pattern clustering techniques; line drawings; interpretation of grouping of features as clustering in graph-structured space. *Rosenfeld, Azriel, T-C 72 Aug 904-911 (2B11)*

Pattern clustering techniques; multivariate data; nonlinear mapping algorithm for analysis of data. *Sammon, John W., Jr., T-C 69 May 401-409*

Pattern clustering techniques; nonparametric criterion that prescribes classification such that boundaries between classes lie in regions of low vector density; asymptotic analysis. *Koontz, Warren L. G., T-C 72 Sep 967-974 (1D06)*

Pattern recognition; binary-valued feature vectors; model of recognition system. *Brown, W. G. S., T-C 72 Feb 219 (2D10)*

Pattern recognition; biological cell analysis using digitized pictures. *Ledley, Robert S., T-C 72 Jul 740-753 (3B11)*

Pattern recognition; chest radiographs; normal-abnormal classification of lung disease processes. *Sutton, Richard N., T-C 72 Jul 667-676 (1E04)*

Pattern recognition; cloud-motion measurement using precisely aligned digital ATS pictures. *Smith, Eric A., T-C 72 Jul 715-729 (2E03)*

Pattern recognition; cloud-motion measurement using satellite data. *Hall, David J., T-C 72 Jul 768-776 (3E03)*

Pattern recognition; layered 'recognition cone' networks that preprocess, classify, and describe. *Uhr, Leonard, T-C 72 Jul 758-768 (3D05)*

Pattern recognition; plane closed curves; use of Fourier descriptors. *Zahn, Charles T., T-C 72 Mar 269-281 (1D08)*

Pattern recognition; robot that assembles objects from macro-instructions given as three-view plans. *Ejiri, Masakazu, T-C 72 Feb 161-170 (1D12)*

Pattern recognition; self-organizing nets of threshold elements; learning of patterns and pattern sequences. *Amari, Shun-Ichi, T-C 72 Nov 1197-1206 (1F01)*

Pattern recognition; sequential linear programming method; stage by stage analysis of higher and higher dimensions of feature space. *Som, A., T-C 72 Dec 1433-1440 (4B01)*

Pattern recognition; silhouettes; concavity measurement for cellular complexes on rectangular mosaic. *Sklansky, Jack, T-C 72 Dec 1355-1364 (2D10)*

Pattern recognition; silhouettes; minimum-perimeter polygon for recognizing convex silhouettes; algorithm for computing minimum-perimeter polygon. *Sklansky, Jack, T-C 72 Mar 260-268 (1C11)*

Pattern recognition; silhouettes; parallel mechanism that computes density of slopes of silhouette boundary. *Sklansky, Jack, T-C 72 Nov 1233-1239 (2D01)*

Pattern recognition; similarity detection; sequential similarity detection algorithms; application to translational registration. *Barnea, Daniel I., T-C 72 Feb 179-186 (1F09)*

Pattern recognition; special issue on two-dimensional digital signal processing. *IEEE S-C, T-C 72 Jul*

Pattern recognition; special issue on two-dimensional digital signal processing; introduction. *Hall, Ernest L., T-C 72 Jul 633-635 (1B06)*

Pattern recognition; syntax-directed pattern analysis and recognition; development of appropriate data base. *Chien, Yi-Tzuu, T-C 72 Jul 790-801 (4B10)*

Pattern recognition; training procedure for linear threshold dichotomous pattern recognition. *Das, Subrata K., T-C 72 Apr 396-397 (2B05)*

Pattern recognition; use of training set of a recognition class to facilitate recognition of patterns belonging to different recognition class; application to character recognition. *Ullmann, J. R., T-C 72 Feb 219-220 (2D10)*

Pattern recognition; cf. Character recognition; Feature extraction; Feature selection; Image processing; Pattern classification; Pattern clustering techniques; Speaker identification

Pattern reconstruction; plane closed curves; use of Fourier descriptors. *Zahn, Charles T., T-C 72 Mar 269-281 (1D08)*

Peak detection; selection of one particular value in a set according to given selection criteria; selector functions. *Holst, Per A., T-C 72 May 486-488 (2B01)*

Permutation networks; array for sequential selection of output variables; cellular realization. *Bandyopadhyay, S., T-C 72 Oct 1116-1119 (2B08)*

Permutation networks; sequential permutation networks that generate all $n!$ permutations without duplication. *Harada, Kazuaki, T-C 72 May 472-479 (1E07)*

Picture processing; cf. Image processing

PL/1; derivative language called XPL; compiler generator; book (Review, T-C 72 Jan 109). *McKeeman, William C., Prentice-Hall (Englewood Cliffs, NJ) 1970*

PL/1 programming; in technological applications; book (Review, T-C 72 May 517). *Groner, G. F., Wiley (New York, NY) 1971*

Printed circuits; wire-routing programs; connection ordering methods. *Abel, Luther C., T-C 72 Nov 1227-1233 (2C07)*

Printing; cf. Ink jet printing

Probabilistic automata; cf. Stochastic automata

Probability functions; distance measures between two density functions; inequalities between certain distance measures. *Toussaint, Godfried T., T-C 72 Apr 409-410 (2C06)*

Probability functions; sampling of probability distributions by conditional bit sampling method; application to pseudorandom number or pseudonoise generation. *Sobolewski, John S., T-C 72 Apr 337-345 (1B04)*

Probability functions; sampling of probability distributions by conditional bit sampling method; hardware implementation for pseudorandom number or pseudonoise generation. *Sobolewski, John S., T-C 72 Apr 346-352 (1C01)*

Programming; cf. Computer programming

Programming languages; cf. FORTRAN; Job control languages; PL/1; SNOBLA language; XPL language

Pseudonoise generators; sampling of probability distributions by conditional bit sampling method; application to pseudorandom number or pseudonoise generation. *Sobolewski, John S., T-C 72 Apr 337-345 (1B04)*

Pseudonoise generators; sampling of probability distributions by conditional bit sampling method; hardware implementation for pseudorandom number or pseudonoise generation. *Sobolewski, John S., T-C 72 Apr 346-352 (1C01)*

Pulse propagation; computers; interconnection problems in design of high-speed circuit packaging and memory arrays; uniform loading theory. *Hou, Hsieh S., T-C 72 May 454-463 (1D01)*

Q

Quantization errors; image processing; error introduced by renormalization. *Carter, William H., T-C 72 Dec 1380-1385 (3B01)*

Queueing theory; multiprocessor performance analysis; job-mix modeling of multiprocessor for space-vehicle guidance computer. *Mallach, Efreim G., T-C 72 May 446-454 (1C05)*

R

Races; cf. Hazards and races

Radiography; extraction of edge information from knee radiographs; computer algorithm. *Ausherman, Dale A., T-C 72 Jul 753-758 (3C12)*

Radiography; pattern recognition for chest radiography; normal-abnormal classification of lung disease processes. *Sutton, Richard N., T-C 72 Jul 667-676 (1E04)*

Radix conversion; residue number systems; conversion of fixed-base numbers to residue or modular representation. *Banerji, Dilip K., T-C 72 Dec 1281-1285 (1C04)*

Random number generation; binary digit generation by sampling clipped band-limited white noise; optimum passband cutoff frequencies for specified sampling rate. *Sokal, Nathan O., T-C 72 Jun 614-615 (2D08)*

Random number generation; sampling of probability distributions by conditional bit sampling method; application to pseudorandom number or pseudonoise generation. *Sobolewski, John S., T-C 72 Apr 337-345 (1B04)*

Random number generation; sampling of probability distributions by conditional bit sampling method; hardware implementation for pseudorandom number or pseudonoise generation. *Sobolewski, John S., T-C 72 Apr 346-352 (1C01)*

Random variables; recursive estimation of mean; improved algorithm. *White, R. C., T-C 70 Sep 847-849 (2C06)*

Rate multipliers; binary rate-multiplier circuit with uniform pulse distribution outputs. *Oberman, R. M. M., T-C 72 Aug 896-899 (2B03)*

Recursive estimation; image estimation using Kalman filtering. *Nahi, N. E., T-C 72 Jul 734-738 (3B05)*

Recursive estimation; mean of random variable; improved algorithm. *White, R. C., T-C 70 Sep 847-849 (2C06)*

Redundant systems; fault-tolerant sequential circuits using error-correcting codes; coding redundancy compared with replication as to circuit complexity and reliability improvement. *Larsen, Ronald W., T-C 72 Feb 130-137 (1B12)*

Reed-Muller codes; computer applications; error-control technique using Reed-Muller codes. *Pradhan, Dhiraj K., T-C 72 Dec 1331-1336 (2B10)*

Register-transfer modules; description; use in digital system design. *Bell, C. Gordon, T-C 72 May 495-500 (2B10)*

Reliability; cf. Fault tolerance; System reliability

Reliability models; sequential machines; reliability analysis using stochastic sequential machine model. *Parhami, Behrooz, T-C 72 Apr 388-391 (1F07)*

Remote manipulators; cf. Teleoperators

Residue arithmetic; error detection and correction. *Mandelbaum, David, T-C 72 Jun 538-545 (1B05)*

Residue arithmetic; translation algorithms for converting fixed-base numbers to residue or modular representation. *Banerji, Dilip K., T-C 72 Dec 1281-1285 (1C04)*

Resource allocation; optimization; hybrid computer implementation of Dynostat algorithm. *Gibson, John A., T-C 72 Aug 872-880 (1E03)*

Robots; prototype that assembles objects from macro-instructions given as three-view plans. *Ejiri, Masakazu, T-C 72 Feb 161-170 (1D12)*

S

Sampled-data systems; parameter tracking using on-line computer method; time-varying linear and nonlinear systems. *Suryanarayanan, K. L., T-C 72 Mar 292-299 (2B11)*

Sampling techniques; probability function sampling by conditional bit sampling method; application to pseudorandom number or pseudonoise generation. *Sobolewski, John S., T-C 72 Apr 337-345 (1B04)*

Sampling techniques; probability function sampling by conditional bit sampling method; hardware implementation for pseudorandom number or pseudonoise generation. *Sobolewski, John S., T-C 72 Apr 346-352 (1C01)*

Satellite data acquisition systems; cloud-motion measurement using precisely aligned digital ATS pictures. *Smith, Eric A., T-C 72 Jul 715-729 (2E03)*

Satellite data acquisition systems; cloud-motion measurement using satellite data. *Hall, David J., T-C 72 Jul 768-776 (3E03)*

Satellites; cf. ATS

Search methods; random search algorithm for constrained minimization; adaptive step size. *Beltrami, E. J., T-C 72 Sep 1004-1008 (2B10)*

Search methods; random search technique for function minimization; incorporates step-size and direction adaptivity of Hooke and Jeeves' pattern search. *Lawrence, J. P., III, T-C 72 Apr 382-385 (1F01)*

Seismic data processing; optimal velocity filters; Wiener filters. *Sengbush, R. L., T-C 72 Jul 648-654 (1C09)*

Seismic data processing; velocity analysis; estimation of impulse response of earth from seismic data. *Davis, James M., T-C 72 Jul 730-734 (3B01)*

Selector functions; selection of one particular value in a set according to given selection criteria. *Holst, Per A., T-C 72 May 486-488 (2B01)*

Self-organizing systems; threshold logic networks; learning of patterns and pattern sequences. *Amari, Shun-Ichi, T-C 72 Nov 1197-1206 (1F01)*

Sequential circuits; fault-tolerant circuits using error-correcting codes; coding redundancy compared with replication as to circuit complexity and reliability improvement. *Larsen, Ronald W., T-C 72 Feb 130-137 (1B12)*

Sequential circuits; iterative arrays of linear circuits; terminal behavior. *Hu, Ming-Kuei, T-C 72 Dec 1394-1399 (3C03)*

Sequential circuits; optimal circuit design using integer programming. *Muroga, Saburo, T-C 72 Jun 573-582 (1E04)*

Sequential circuits; permutation networks that generate all $n!$ permutations without duplication. *Harada, Kazuaki, T-C 72 May 472-479 (1E07)*

Sequential circuits; state assignment; encoding of internal states of synchronous sequential circuit so as to minimize combinational network cost. *Story, James R., T-C 72 Dec 1365-1373 (2E08)*

Sequential circuits; stochastic automata; additive Bernoulli noise linear sequential circuits. *El-Ghoroury, Hassan N., T-C 72 Oct 1119-1124 (2B11)*

Sequential circuits; universal modules for realization of single input-single output synchronous machines; bounded fan-out of signals. *Newborn, Monroe M., T-C 72 Jan 63-79 (2B08)*

Sequential circuits; cf. Asynchronous sequential circuits; Sequential machines

Sequential detection; image processing; similarity detection algorithms; application to translational registration. *Barnea, Daniel I., T-C 72 Feb 179-186 (1F09)*

- Sequential machines;** cellular synthesis of synchronous machines. *Hu, Sung C., T-C 72 Dec 1399-1405 (3C08)*
- Sequential machines;** compatible states of incomplete sequential machines; matrix algorithm for determining all pairs of compatible states. *Tomescu, Ioan, T-C 72 May 502-503 (2C05)*
- Sequential machines;** error control; independent counter to check state of sequential machine. *Mandelbaum, David, T-C 72 May 492-495 (2B07)*
- Sequential machines;** fault diagnosis for machines with counter cycles; bound on length of checking experiment. *Holborow, C. E., T-C 72 Jun 597-598 (2C03)*
- Sequential machines;** feedback implementation with trigger or set-reset flip-flop memories. *Harlow, Charles A., T-C 72 Apr 371-381 (1E02)*
- Sequential machines;** flow table simplification when certain input sequences cannot occur. *Kim, Joonki, T-C 72 Dec 1440-1443 (4B08)*
- Sequential machines;** identification; state merging method. *Kella, Jehuda, T-C 71 Mar 332-338 (2C11)*
- Sequential machines;** iterative arrays; autonomous one-dimensional single-output arrays with cell structure of linear sequential machine. *Iosupovicz, Alexander, T-C 72 Oct 1073-1086 (1C12)*
- Sequential machines;** maximum compatibility sets of incompletely specified flow table; direct method. *Sinha Roy, P. K., T-C 72 Mar 309-312 (2D04)*
- Sequential machines;** modular decomposition; use of nondeterministic sequential machine theory. *Ullman, Jeffrey D., T-C 72 Oct 1124-1129 (2C04)*
- Sequential machines;** *N*-fail-safe machines; realization by binary sequential circuit composed of binary logic components and delay elements. *Takaoka, Tadao, T-C 72 Nov 1189-1196 (1E05)*
- Sequential machines;** reliability analysis using stochastic sequential machine model. *Parhami, Behrooz, T-C 72 Apr 388-391 (1F07)*
- Sequential machines;** state assignment; number of nonequivalent and nondegenerate state assignments. *Parchmann, Rainer, T-C 72 Jun 613-614 (2D07)*
- Sequential machines;** state minimization of incomplete sequential machines; necessary and sufficient condition for flow table such that every cover composed of maximal compatibles is closed. *Ehrich, Hans-Dieter, T-C 72 May 500-502 (2C03)*
- Sequential machines;** transition graphs; proof that minimal congruences on transition graph are one of four types and can be obtained by inspection. *Reusch, Bernd, T-C 72 Jan 96-97 (2E05)*
- Sequential machines;** cf. Asynchronous sequential machines; Automata; Finite-state machines; Sequential circuits
- Set theory;** Boolean set extraction; application to covering-closure tables. *Dollhoff, Terry L., T-C 72 Jun 603-606 (2C09)*
- Set theory;** cf. Fuzzy set theory
- Shift-register memories;** access time minimization in memories in which there is a continuous circulation of data. *Stone, Harold S., T-C 72 Apr 359-366 (1D02)*
- Signal estimation;** cf. Filtering
- Signal processing;** cf. Digital signal processing; Filtering; Image processing
- Simulation;** cf. Digital simulation
- Smoothing;** discrete data smoothing by least-squares procedures and by filtering. *Golay, Marcel J. E., T-C 72 Mar 299-301 (2C06)*
- SNOBOL4 language;** comprehensive presentation of latest form of language; book (Review, *T-C 72 Feb 224*). *Griswold, R. E., Prentice-Hall (Englewood Cliffs, NJ) 1971*
- Sorting;** *N*-input sorting networks; lower bound on number of comparators required. *Van Voorhis, David C., T-C 72 Jun 612-613 (2D06)*
- Space-vehicle computers;** guidance computer consisting of multiprocessors and memory units attached to central time-multiplexed data bus; job-mix modeling and system analysis. *Mallach, Efrem G., T-C 72 May 446-454 (1C05)*
- Spatial filtering;** color information; encoding and decoding using two-dimensional spatial filtering. *Schaefer, Louis F., T-C 72 Jul 642-647 (1C03)*
- Speaker identification;** distribution-free pattern verification using statistically equivalent blocks. *Beakley, Guy W., T-C 72 Dec 1337-1347 (2C04)*
- Speaker identification;** feature selection using linear dependence measure. *Das, Subrata K., T-C 71 Sep 1106-1109 (3D01)*
- Special issues;** two-dimensional digital signal processing. *IEEE S-C, T-C 72 Jul*
- Special-purpose computers;** cf. Fast Fourier transform processors
- Spherical wave functions;** Legendre expansions; recurrence technique for calculating coefficients. *Ricardi, Leon J., T-C 72 Jun 583-585 (2B01)*
- Square rooting;** binary numbers; parabolic interpolation performed in hardware. *Marino, D., T-C 72 Dec 1416-1421 (3E01)*
- Square rooting;** cellular array for computation of squares and square roots of binary numbers. *Majithia, J. C., T-C 72 Sep 1023-1024 (2D05)*
- Square rooting;** iterative procedures using multiplication and no division. *Ramamoorthy, Chitoor V., T-C 72 Aug 837-847 (1B14)*
- Squaring;** cellular array for computation of squares and square roots of binary numbers. *Majithia, J. C., T-C 72 Sep 1023-1024 (2D05)*
- State assignment;** asynchronous sequential machines; graph-theoretic approach. *Saucier, Gabrièle, T-C 72 Mar 282-288 (2B01)*
- State assignment;** asynchronous sequential machines. *Saucier, Gabrièle, T-C 72 Apr 397-399 (2B06)*
- State assignment;** asynchronous sequential circuits; state assignment selection tests. *Maki, Gary K., T-C 72 Dec 1443-1449 (4B11)*
- State assignment;** sequential circuits; encoding of internal states of synchronous circuit so as to minimize combinational network cost. *Story, James R., T-C 72 Dec 1365-1373 (2E08)*
- State assignment;** sequential machines; number of nonequivalent and nondegenerate state assignments. *Parchmann, Rainer, T-C 72 Jun 613-614 (2D07)*
- State minimization;** compatible states of incomplete sequential machines; matrix algorithm for determining all pairs of compatible states. *Tomescu, Ioan, T-C 72 May 502-503 (2C05)*
- State minimization;** incomplete sequential machines; necessary and sufficient condition for flow table such that every cover composed of maximum compatibles is closed. *Ehrich, Hans-Dieter, T-C 72 May 500-502 (2C03)*
- State minimization;** sequential machines; maximum compatibility sets of incompletely specified flow table; direct method. *Sinha Roy, P. K., T-C 72 Mar 309-312 (2D04)*
- State reduction;** sequential machines; flow table simplification when certain input sequences cannot occur. *Kim, Joonki, T-C 72 Dec 1440-1443 (4B08)*
- State-space methods;** iterative logic arrays of multidimensional linear type. *Givone, Donald D., T-C 72 Oct 1067-1073 (1C06)*
- Stochastic automata;** sequential circuits fed with Bernoulli noise. *El-Ghoroury, Hassan N., T-C 72 Oct 1119-1124 (2B11)*
- Stochastic automata;** sequential machine reliability; analysis using stochastic sequential machine model. *Parhami, Behrooz, T-C 72 Apr 388-391 (1F07)*
- Stochastic languages;** context-free language for classification of chromosome images; stochastic syntax analysis procedure. *Lee, Harry C., T-C 72 Jul 660-666 (1D09)*
- Storage;** cf. Memories
- Surfaces;** visible surface algorithms for quadric patches. *Mahl, Robert, T-C 72 Jan 1-4 (1B04)*
- Switching algebra;** multivalued switching algebra and Boolean algebra; relationship under different definitions of complement; minimization of multivalued switching function. *Su, Stephen Y. H., T-C 72 May 479-485 (1F02)*
- Switching circuits;** complexity of arbitrary switching function realizers. *Hansalik, William E., T-C 72 May 507-510 (2C10)*
- Switching circuits;** design; introductory textbook (Review, *T-C 72 May 518*). *Marcovitz, A. B., Wiley (New York, NY) 1971*
- Switching circuits;** cf. Asynchronous sequential circuits; Asynchronous switching circuits; Combinational circuits; Logic circuits; Permutation networks; Sequential circuits
- Switching functions;** cubical representation of multivalued functions; minimization of multivalued functions. *Su, Stephen Y. H., T-C 72 Sep 995-1003 (2B01)*
- Switching functions;** fuzzy functions; minimum canonical sum-of-products form of given fuzzy function. *Siy, Pepe, T-C 72 Jan 100-102 (2E09)*
- Switching functions;** group function decomposition; synthesis of multivalued cellular cascades. *Kolp, Otto, T-C 72 May 489-492 (2B04)*
- Switching functions;** many-valued symmetric functions; identification using parallel processing. *Lee, Samuel C., T-C 72 Mar 312-317 (2D07)*
- Switching functions;** multivalued functions; simplification of implementation using functional transformation. *Vranesic, Zvonko G., T-C 72 Jan 102-105 (2E11)*
- Switching functions;** prime implicant generation; clause-column table. *Das, S. R., T-C 72 Nov 1239-1246 (2D07)*
- Switching functions;** prime implicants; determination of irredundant set of prime implicants. *Bubenik, Vladislav, T-C 72 Dec 1449-1451 (4C05)*
- Switching functions;** realization using universal base modules with limited fan-in. *Osman, Mohamed Y., T-C 72 Sep 985-995 (1E12)*
- Switching functions;** realizers; complexity of arbitrary switching function realizers. *Hansalik, William E., T-C 72 May 507-510 (2C10)*
- Switching functions;** Reed-Muller expansions; generation of generalized expansions. *Swamy, Sowmitri, T-C 72 Sep 1008-1009 (2C02)*
- Switching functions;** symmetric realizations that have minimum number of variables. *Born, Richard C., T-C 72 Oct 1129-1131 (2C09)*
- Switching functions;** threshold gate realizations; minimum number of gates for two-level realization. *Carroll, B. D., T-C 72 Oct 1086-1098 (1E01)*
- Switching functions;** cf. Boolean functions; Logic functions; Many-valued logic functions; Threshold functions
- Switching systems;** design; introductory textbook (Review, *T-C 72 May 518*). *Marcovitz, A. B., Wiley (New York, NY) 1971*
- Switching theory;** covering problem; lower bound for size of minimal solution. *Du, Min-Wen, T-C 72 Mar 317-318 (2D12)*
- System identification;** nonlinear systems containing zero-memory nonlinearities. *Govindan, G. N., T-C 72 Nov 1216-1219 (2B08)*
- System identification;** sampled-data systems; parameter tracking using on-line computer method; time-varying linear and nonlinear systems. *Suryanarayanan, K. L., T-C 72 Mar 292-299 (2B11)*
- System identification;** seismology; estimation of impulse response of earth from seismic data. *Davis, James M., T-C 72 Jul 730-734 (3B01)*
- System identification;** sequential machines; state merging method. *Kella, Jehuda, T-C 71 Mar 332-338 (2C11)*
- System models;** multiprocessor space-vehicle guidance computer; job-mix modeling. *Mallach, Efrem G., T-C 72 May 446-454 (1C05)*
- System reliability;** sequential machines; reliability analysis using stochastic sequential machine model. *Parhami, Behrooz, T-C 72 Apr 388-391 (1F07)*
- System reliability;** cf. Fault tolerance

T

- TANT networks;** minimal gate realization of Boolean function TANT networks. *Koh, Kyung Shik, T-C 71 Jan 105-107 (2F09)*
- TANT networks;** synthesis of minimal TANT networks having no static hazard. *Frackowiak, Jerzy, T-C 72 Oct 1099-1108 (1F02)*
- Teleoperators;** robot that assembles objects from macro-instructions given as three-view plans. *Ejiri, Masakazu, T-C 72 Feb 161-170 (1D12)*
- Ternary logic;** cf. Many-valued logic
- Threshold decoding;** cf. Majority-logic decoding
- Threshold functions;** isobaricity testing using mutual 2-summability concept. *Ghosh, Sukumar, T-C 72 May 503-507 (2C06)*
- Threshold functions;** orthogonal expansions of many-valued functions; realization using single-threshold element. *Kitahashi, Tadashi, T-C 72 Feb 211-218 (2D02)*
- Threshold functions;** ternary threshold functions of three variables; enumeration; characterizing parameters of canonical ternary threshold functions of two and three variables. *Aibara, Tsunehiro, T-C 72 Apr 402-407 (2B11)*
- Threshold functions;** vertex weight method for discriminating two non-empty disjoint sets of vertices. *Hwa, H. R., T-C 72 Jun 606-610 (2C12)*
- Threshold gates;** multithreshold threshold elements; synthesis procedure. *Sheng, Ching Lai, T-C 72 Aug 913-920 (2C08)*
- Threshold logic networks;** pattern learning by self-organizing nets of threshold elements. *Amari, Shun-ichi, T-C 72 Nov 1197-1206 (1F01)*
- Threshold logic networks;** two-level threshold gate realizations of nonlinearly separable switching functions; minimum number of threshold gates. *Carroll, B. D., T-C 72 Oct 1086-1098 (1E01)*
- Time-domain synthesis;** cf. Transient design
- Time-varying discrete-time systems;** parameter tracking of sampled-data systems; on-line computer method. *Suryanarayanan, K. L., T-C 72 Mar 292-299 (2B11)*

Transcoders; linear digital logarithmic transcoder. *Degryse, Daniel, T-C 72 Nov 1165-1168 (1C05)*

Transforms; cf. Discrete orthogonal transforms; Fourier transforms; Haar transforms; Hadamard transforms; Mersenne transforms

Transient design; feedback control systems; parameter optimization using pattern search algorithm; transient performance specifications. *Lange-Nielsen, Truls, T-C 72 Nov 1222-1227 (2C02)*

Transmission lines; digital circuits; nonlinear terminations for line matching. *Horna, Otakar A., T-C 72 Sep 1011-1015 (2C05)*

Transmission lines; cf. Distributed networks

Trees; file organization; doubly chained trees for files with data partitioned into blocks or pages; minimal average search length. *Patt, Yale N., T-C 72 Sep 961-967 (1C12)*

Turing machines; cf. Finite-state machines

TV signals; simulation of bandwidth compression techniques. *McCaughern, R. W., T-C 72 Jul 738-740 (3B09)*

V

Velocity filters; seismic data processing using Wiener filtering; optimal velocity filters. *Sengbush, R. L., T-C 72 Jul 648-654 (1C09)*

Vibration analysis; waveform classification of waveforms with classification information concentrated in short time intervals; method for locating these intervals. *Pavlidis, Theodosios, T-C 72 Aug 901-904 (2B08)*

W

Walsh functions; arithmetical shift formula relating cal and sal functions. *Tam, Le Din C., T-C 72 Dec 1451-1452 (4C07)*

Walsh functions; definition in terms of products of Rademacher functions. *Lackey, Robert B., T-C 71 Feb 211-213 (2C10)*

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