PRINTOUT

JOSEPH B. SIDOWSKI

PRODUCTS

Tattoo Machine

The ANCARE Model 500 tattoo machine is designed specifically for use in animal laboratories. Two interchangeable points are provided with the unit: the fine point permits the writing of 10 or more digits on the tail of a mouse or rat. The wide point enables the marking of large animals, such as dogs or primates, with numbers or letters large enough to be seen clearly at a distance. A number of USFDA-certified colors are available. The unit is self-contained, battery operated, and weighs less than 1 lb. Price: \$122.50. Guarantee: 90 days on all parts except points, with a 1-year service warranty.

Ancare Corp.
47 Manhasset Ave.
Manhasset, L.I., N.Y. 11030

Minicounter

The Model 400 series minicounters have LED readout in 4-, 6-, or 8-digit capacity, a movable lighted decimal point, a nonvolatile memory, and BCD output, multiplexed, for remote transmission.

Waugh Controls Corp.
7621 Hayvenhurst Ave.
Van Nuys, Calif. 91406

12-Bit Microprocessor

Fabritek, Inc., is entering the computer market with a 12-bit microprocessor. The \$990 unit has a TTL processor, nonvolatile core memory of 4,096 words by 12 bits, and requires a single 5-V power supply.

High-Speed Tape Reader

The Fly Reader 45 uses an on-the-fly reading technique that results in reading speeds of up to 450 cps. The unit reads 1-in. tapes and advance feed-hole typesetting tapes. The entire reader can be field stripped in 10 min with a screwdriver. Price: \$625.

Teleterminal Corp.
12 Cambridge St.
Burlington, Mass. 01803

Graphics Systems

The 6500 graphic display system features a 512 x 512 point matrix that permits alphanumeric or graphic images. The image is stored in a dedicated portion of a centrally located refresh memory, equivalent to 32K bytes of storage/terminal. The system is available with full color capability, and data can be written dark on a light background, or vice versa. The system is available for Data General computers. Price: \$4,700.

Data Disc, Inc.
686 W. Maude Ave.
Sunnyvale, Calif. 94086

The AS103 is a vector-programmed CRT terminal providing high-speed graphics in up to 64 colors. Plug-in function generators are available for vectors, characters, and circles. The unit can be interfaced to a minicomputer using memory for refresh, or it can be supplied with a list processor that provides local refresh buffer and data formatting capabilities. Interfaces and software are available for popular minis. Basic cost: \$5,120.

Cybernex Corp.
922 Industrial Ave.
Palo Alto, Calif. 94303

Waterproof Miniswitches

Two styles of waterproof miniswitches are offered: one is operated by finger pressure, and the other by a pointed instrument, e.g., a pencil.

Feurer Bros., Inc.
77 Lafayette Ave.
N. White Plains, N.Y. 10603

Microcomputer

MPS-803 is a microcomputer using the 8008 CPU chip. It includes CPU, ROM, RAM, I/O, and DMA controls and interrupt. The micro is on three 4.5 x 6.5 in. cards. The MPS-805 is a five-card version with more ROM, RAM, and I/O capability. Education, test equipment, special interface cards, and other support hardware and software are offered for both product lines. Price: \$920.

Pro-Log Corp.
852 Airport Rd.
Monterey, Calif. 93940

MOS Add-On Memory for PDP-11

These systems have various speeds depending on processor power. For example, PDP-11/45 uses the full speed of the IIS-75 system, running at 450-nsec cycle time and 350-nsec access. A PDP-11/40 may use IIS-85 running at 675-nsec cycle and 450-nsec access time. The system is expandable to 32K.

Interactive Information Systems
Box 37403
Cincinnati, Ohio 45222

A/D Converters

Model 4116 (binary) and 3117 (BCD) provide exceptional differential nonlinearity of ± 0.1 LSB, guaranteed max. The units also have overrange capability and high reliability.

Teledyne Philbrick
Allied Rd. at Rte. 128
Dedham, Mass. 02025

Storage Scope with Speed

The Model 466 Tektronix direct viewing oscilloscope has a writing rate of 1,350 cm/microsec, which reportedly permits the instrument to display single-shot events or low-rep-rate pulses. The fastest writing speed is attained by a reduced scan feature. Bandwidth is dc to at least 100 MHz at the -3-dB point. Using its X10 magnifier, the 466 achieves a 5-nsec/div sweep rate; vertical deflection sensitivity is 5 mV/div. Price: \$3,850.

Tektronix
Beaverton, Oreg. 97005

Miniservo Recorder

The new Miniservo recorder has 0.5-sec response at prices as low as \$349. The recorder has 100-mV full-scale basic sensitivity (spans of 10 or 1 mV optional), accuracy of $\pm 0.5\%$ span, eight speeds from 1.5 to 300 cm/h. Multirange and multispeed plus full-scale zero adjust are available for \$484. For field work, an optional battery pack and charger are available.

Esterline Angus
P.O. Box 24000
Indianapolis, Ind. 46224

Tally Photoreader

The new Tally photoreader (250 cps) sells for \$275. With complete electronics, the unit is \$375. The Model 2050 has nothing that can get out of sync. Reliability tests "by the company" showed no more than one read error in every 10 million characters.

Tally Corp.
8301 S. 180th St.
Kent, Wash. 98031

Interface Products for NOVA and DCC-166 Minis

MDB Systems advertises a number of interface boards that are claimed to provide everything available on a Data General board of equivalent type. The line printer controllers are claimed compatible with Data General software and are available for most popular line printers, e.g., Centronics (\$750), Odec (\$750), and Printec (\$650). Teletype modification kits are \$75; general-purpose interface boards (equivalent to DG 4040 type board and additional features) cost \$350 for the basic package.

MDB Systems, Inc.
981 N. Main St.
Orange, Calif. 92667

Biomedical Photography

Heat-free lighting for biomedical photography is provided by the new Art Bodkins Bio-Light, No. 80-650H.

Art Bodkins Optics
77 Summer St.
Boston, Mass. 02110

Respiration Rate/Apnea Monitor

The Gill MR-1 respiration monitor monitors respiration of newborn infants, children, or adults. The distance variation between two points on the chest are measured magnetically. Two magnetic coils, less than 1 in. in diam and 1/8 in. thick, are oriented on opposite sides of the chest by adhesive disks. One coil is used to generate a signal at the other coil having a magnitude proportional to the cube of the separation between the two coils. Hence, variations in the separation of the two coils will result in variations of the received signal strength, enabling the detection of respiratory movements as small as 2 mm. An automatic gain control system is employed to automatically adjust the unit for different size patients, eliminating the need for manual sensitivity adjustments. The respiration rate indicated by a large, two-digit LED display is averaged over a 30-sec interval. Every 10 sec, a new respiration rate is computed, representing the average breathing rate for the previous 30 msec. A rear-panel connector is provided for displaying respiratory waveform on an oscilloscope or chart recorder. The unit contains three separate alarm controls. The high-rate alarm (adjustable from 20 to 120 breaths/min) is triggered when three consecutive breaths exceed the alarm setting. A low-rate alarm is triggered when the actual breath-to-breath rate falls below the alarm setting. The low- and high-rate alarms activate separate audio signals and illuminate separate visible rate indicators. The apnea alarm (delay time—10, 20, or 30 sec) occurs with the activation of both the audible and visible apnea indicators after the time interval from the last detected breath exceeds the apnea delay time.

Chemetron Medical Products
1801 Lilly Ave.
St. Louis, Mo. 63110

Bar Graph Display, Digitally Controlled

At normal viewing distances, the display element glow of this electronic self-scan blends into a continuous, but precisely controllable, bar length. The graph eliminates over 90% of the drive electronics and requires only eight connections to control two independent 200-element displays. Operating in a scanning mode and refreshed at 70 Hz or greater, the display is flicker-free.

Burroughs Corp.
Electronic Components Div.
P.O. Box 1226
Plainview, N.J. 07061

BRIEFS

Computer-Based Undergraduate Curriculum Materials Exchange

A mechanism for the discovery, review, and distribution of computer-based educational materials pertaining to undergraduate teaching has been established by a project called CONDUIT. It maintains an advisory committee to coordinate activity in the social sciences. This committee of specialists in the combination of social science and computing serves as a review board: searching for materials, reviewing them, and recommending whether or not they should be disseminated.

The CONDUIT project, funded by the National Science Foundation, emerged in response to a situation where numerous computer-based teaching materials were found to be utilized only in their originating locations. Beginning with five regional computer networks, a consortium was established to experiment with alternative techniques for improving exchange. CONDUIT is now creating a model for a national, self-supporting organization to provide services that will facilitate exchange of computer-based instructional materials.

The Social Sciences Review Board seriously attacked the problems of materials evaluation and developed a CONDUIT review procedure. Only a few curriculum packages have been developed, but those initially identified and placed under review include:

(1) *Laboratory Manual for Introductory Sociology* by R. Sokol. New York: Harper & Row, 1970.

(2) *Population Dynamics* [From E. van de Walle and J. Knodel, "Teaching Population Dynamics with a Simulation Exercise." *Demography*, 7, 4 (November 1970), 433-448].

(3) *Economic Demography* (From David Holmes, "A Simplified Approach to Economic-Demographic

Simulation." *Population Council Bulletin*, December 1972, 297-305).

(4) *ExperSim*--Computer Simulation for Teaching Research Designs in Psychology. (From Professor Dana Main, Department of Psychology, University of Michigan, Ann Arbor.)

(5) *Citizens and Political System* by G. R. Boynton. New York: Harper & Row, 1971.

Members of the CONDUIT Social Sciences Review Board are the following: Ronald E. Anderson (Chairman), University of Minnesota; Edmund D. Meyers, Jr., Dartmouth College; G. R. Boynton, National Science Foundation and University of Iowa; Joseph Denk, University of North Carolina, Greensboro; and N. John Castellan, Indiana University.

The review board seeks additional packages and welcomes any useful leads. *Written materials such as exercise sets, student manuals, and computer program descriptions are desired.* Any available information or materials should be sent to Ronald E. Anderson, c/o CONDUIT, Box 388, Iowa City, Iowa 52240.

Noun Ratings for Verbal Learning Research*

(Submitted by John M. Grossberg, San Diego State University, San Diego, Calif. 92115.)

In the last decade, psychologists have shown increasing interest in human learning and memory processes. Influential books by Neisser (1967) and Paivio (1971) have generated renewed psychological interest in so-called cognitive processes such as associative imagery, presumed to be involved in learning. The rapid expansion of verbal learning research has created a need for a pool of normative data consisting of words with known positions on important parameters (e.g., concreteness).

Brown and Ure (1969) and Paivio, Yuille, and Madigan (1968) have published widely used sets of word norms. Paivio et al had Canadian college students rate 925 nouns on a 1-7-point scale, the rated attributes being noun imagery (I), concreteness (C), meaningfulness (m), and the Thorndike-Lorge frequency (F) for each word. Brown and Ure, using a similar rating procedure, had Scottish university students rate 650 nouns on a 1-7-point scale, the rated attributes being goodness (G), pleasantness (P), emotionality (E), concreteness (C), and associative difficulty (AD). There were 126 nouns common to both sets of norms, and ratings of these nouns correlated +.95 on the concreteness attribute.

It is a laborious task for researchers to go through such long lists of words trying to select, for example, two groups of five letter nouns, one with mean I ratings above 6.00 and the other with ratings below 3.00, but with the two equated for m. In order to simplify such

*Fred Hornbeck provided essential information about the computer requirements for this project. Susan Farrish provided valuable clerical assistance.

essential research preparation tasks, we have converted the Brown and Ure and the Paivio et al norms to IBM card format, and are making this data base available upon request. Interested investigators should send a 600-ft reel of magnetic tape, and specify either 7- or 9-track. The 7-track tapes may be prepared with densities of 200, 556, or 800 BPI, and with either odd or even parity at each density. The 9-track tapes may be prepared only at 800 BPI and only with odd parity. Data may be blocked or unblocked. Tapes may be prepared with standard IBM labels or with no label at all. Hence, all requests should indicate: 7- or 9-track, density, parity, blocking, and labeling desired.

With information available in this form, an investigator can construct his own computer algorithm to extract all entries from the lexicon meeting his particular requirements for any of the listed noun attributes.

REFERENCES

- Brown, W. P., & Ure, M. J. Five rated characteristics of 650 word association stimuli. *British Journal of Psychology*, 1969, 60, 233-249.
- Neisser, U. *Cognitive psychology*. New York: Appleton-Century, 1967.
- Paivio, A. *Imagery and verbal processes*. New York: Holt, Rinehart, & Winston, 1971.
- Paivio, A., Yuille, J., & Madigan, S. Concreteness, imagery and meaningfulness values for 925 nouns. *Journal of Experimental Psychology*, 1968, 76 (Monograph Supplement).

Minicomputer Instruction System

Mitre Corp. is installing prototype minicomputer instruction systems in two community colleges (Northern Virginia Community College at Alexandria and Phoenix College, Phoenix, Ariz.) with development supported by a \$5.5 million NSF grant. The system is called TICCIT for time-shared interactive, computer-controlled, information television. Two Data General Nova 840 minicomputers backed by disk drives feed 128 keyboard terminals, equipped with Sony 12-in. Trinitron color TV sets.

Zener Diodes

Because of their high junction capacitance, Zener diodes are not the choice for protection device applications involving fast pulses. A Zener's capacitance can be reduced and its response improved with a signal diode in series. The junction of the signal diode should be oriented opposite to that of the Zener. The diode's small capacitance in series with the Zener reduces total capacitance by about two orders of magnitude.

Intersil CMOS Microprocessor Chip

Intersil will produce a CMOS microprocessor chip that is advertised as having all of the logic and hardware functions of the DEC PDP-8/A. It is predicted that the 12-bit microprocessor will have a speed within a factor of 2 or 3 of the 8/A. A static device, the CMOS processor will interface directly, without buffers or clocks, to Intersil's static memories, such as the 5508 bipolar, 6523 CMOS, and 7552 NMOS RAMs. Like the PDP-8/A, the chip will support up to 4K of memory.

Extra memory requires interface decoding of an additional I/O transfer command. While DEC has three separate 12-wire lines for memory, data I/O, memory address, and peripheral data, the Intersil chip will have a single 12-wire interface for these three functions that will have to be demultiplexed externally.

Minicomputer Storage

The Remex Div. of EX-CELL-O Corp. (Santa Ana, Calif.) recently displayed the RFS7400, one of the first floppy disk systems that appears all ready to attach to some of the more popular minicomputers, including the DEC PDP-11 and the Data General Nova series. The disk system is available as a single- or dual-drive IBM-compatible unit. Prices, including power supply, start at \$2,995.

Self-Protect Power "Transistor"

The National Semiconductor Corp. (2900 Semiconductor Dr., Santa Clara, Calif.) recently introduced a power "transistor" that protects itself and anything connected to it from short circuits and overload conditions. The LM195 is a three-terminal bipolar monolithic IC that simulates a 40-W transistor with a high switching speed. The unit contains some 50 components in a circuit that drives and protects a large multi-emitter npn power transistor. It is virtually "blowout" proof, and at input and output levels of 40 V. If excessive voltage is applied, the LM195 becomes an open circuit disconnecting the load.

Microdata User's Group

A Microdata User's Group has been chartered to exchange information concerning development of high-level languages and compilers, emulations of other computers, data communications, and other areas of user interest in software and hardware. For information, write to Ted Lewis, Associate Professor, Computer Science Department, University of Southwestern Louisiana, Lafayette, La. 70501.

NOVA Networking

A pc-board interface allows Data General Nova computers to communicate with each other at 16-bit word rates approaching 62,500/sec. The minis can be separated by as much as 50 ft of cable, and up to 16 minis can be tied into the circuit. Price: \$3,800 per computer to be interfaced.

ELYSYTEC Inc.

Syosset, N.Y. 11791

Stereotaxic Instruments

Effective July 1, 1974, TRENTWELLS' prices on stereotaxic instruments were changed. For the new price list, write: TRENTWELLS, Inc., 8120 Otis St., Southgate, Calif. 90280.

DEC's Microprocessor and PDP-8/A

DEC (Digital Equipment Corp., of Maynard, Mass.) has developed two new low-cost processors, an 8-bit LSI microprocessor and a 12-bit MSI version of its PDP-8, called the PDP-8/A. The microprocessor (MPS) sells basic with CPU plus 1K of read-write memory (RAM) for \$745. The PDP-8/A is \$895.

The microprocessor series consists of an 8-bit CPU that can address up to 16K of memory, a semiconductor read-write memory module expandable from 1K to 4K 8-bit words, a PROM module expandable from 256 to 4K 8-bit words, an external event detection module to monitor low voltage or to implement priority-interrupt schemes, and a monitor/control panel for diagnostic check-out and program entry. The CPU has an 8-bit data and memory bus and contains an 8-bit parallel arithmetic unit, seven 8-bit data registers, and eight 14-bit address registers.

The PDP-8/A is a two-module configuration with CPU and addressing capability up to 32K. Memory options include random access read/write, read-only, or programmable read-only memory. PDP-8/A can be expanded to 32K words and has a cycle time of 1.5 microsec.

LSI PDP-11

Western Digital is developing a microcoded processor chip set for an LSI version of the PDP-11.

Dual Nova

Data General has developed a new line of computer systems (the Dual Nova), consisting of two computers sharing one or more disks. The Dual Nova can be built around any of three Data General computers, one of three standard fixed-head disks, and a real-time operating system. The three computers are the Nova 1200 (1200-nsec cycle time), the Nova 2 (1,000-nsec), and the Nova 840 (800-nsec). The system includes 65,536 bytes of memory in each computer, an interprocessor bus for intercomputer communication, a disk, and a full complement of software. Range of prices: \$44,930 for Dual Nova system built around Nova 2 computers and a 524,888-byte fixed-head Nova disk, to \$83,172 for two Nova 840s sharing a 24,944-million-byte disk pack drive.

Data General Corp.
Route 9
Southboro, Mass. 01772

New Decoder/Memory Module

The Coulbourn Instruments, Inc., S34-04 decoder has been changed to include a memory feature. All former functions remain, and the price is unchanged. The memory feature is advertised as a programming tool, especially in complex discrimination tasks such as match

to sample. The memory makes it possible for a paper-tape reader to sequentially "set" each of the multiple decoder units from sequential lines on the paper tape to any one of 16 codes. The decoders can hold the information, with no external memory, until commanded to reset by a program unit. The units are compatible with LVE and other 12-V solid state control systems.

Coulbourn Instruments, Inc.
Box 2551
Lehigh Valley, Pa. 18100

Optical Sensor for Vest-Pocket TV Camera

General Electric (Optoelectronic Systems Operation, 21 Gardiner Lane, Louisville, Ky. 40205) has developed a miniature thumb-nail-size optical sensor for use in hand-held or vest-pocket TV camera systems. The solid state sensor converts optical images to electrical video signals. The 100 x 100 image sensor is ¼ in. long x 3/8 in. wide, and consists of a two-dimensional array of 10,000 charged storage image sites. The dynamic range of the CID module (500:1) provides broad gray shade or tonal rendition said to exceed the performance of conventional image tube cameras.

Texas Instruments Minicomputer Software

A version of Dartmouth BASIC is available to users of TI Model 980A minicomputers. Developed primarily for time-sharing applications, the package may be used with as little as 8K words of memory and a single data terminal. For expanded system requirements, BASIC supports up to 65K of memory and 8 terminals (any combination of TI's Silent 700 electronic data or Model 912 video display, or Teletype Model ASR-33). Priced at \$250, the package is supplied on punched tape or cards, or on magnetic tape cassettes for machine loading.

Texas Instruments, Inc.
Computer Marketing
P.O. Box 2902
Austin, Tex. 78767

On-Line Computer Conference

The fourth annual meeting of the National Conference on the Use of On-Line Computers in Psychology will be held on November 20, 1974, in Boston, Mass. (The meeting is held a day earlier than the Psychonomic Society meetings in the same city.) Information concerning the meeting, call for papers or symposia, or membership application may be obtained from N. John Castellan, Jr., Department of Psychology, Indiana University, Bloomington, Ind. 47401.