

# Book reviews

**A Guidebook for Technology Assessment & Impact Analysis.** Porter, Alan L. et al, Elsevier North-Holland, New York, N.Y., 1980, 510 pp., \$24.95

Few public policy innovations have evoked as much self-serving gibberish as has technology assessment. Yet, technology assessment is here to stay, will surely expand, and will eventually become part of the day-to-day thinking of intelligent people.

This book's existence proves that technology assessments and impact analyses can be done. It raises some pertinent questions: How well have they done? By what methods and techniques? What are the transferable lessons to others seeking to learn the craft and to perform better assessments?

The authors attempt to draw together, and to relate and treat between the same covers, technology assessment and environmental impact assessment.

Their relationship may not be obvious since the environmental impact assessment is at a conceptually lower level of generalization than technology assessment. But, never having been mandated in any specific formula, the technology assessment concept has been much more open-ended and in some ways more productive than the environmental one in exploring alternative strategies, techniques, and ethics.

The book's engineering text format should be congenial to the readers of *Spectrum*. The chapters lend themselves well to teaching. An early chapter, where the institutionalization of technology assessment and environmental impact analysis in the United States and elsewhere is discussed, reflects a difficulty more or less throughout the book. In focusing on how-to-do it, the digest of previous experience and the useful lessons for getting on with it, the authors mute if not suppress the discussion of many key elements of technology assessment. Conflict and how conflict comes about, how it may be dealt with, the intrinsic difficulty, and the attempts to resolve conflicts are too scantily covered. The authors attempt to convert many of the basic conflicts into much more tractable problems, that is, matters for which closed solutions are available. The authors do not give enough emphasis to both assessments as art forms.

In spite of its strengths and usefulness, there are more than casual conceptual difficulties with the book:

- Social, institutional, or psychological technologies are not examined on a par with physical and biological technologies;
- The authors falter on the softer, less engineering-oriented, less quantitative problems; for example, the section on higher-order impact offers no discussion about what higher order is, does, or could mean, and is basically limited to some straightforward economic tools and some application of regression analysis;
- Legal and institutional analysis likewise is weak;
- The discussion of policy is about technique and does not engage the fundamental notions of policy which have to do with ac-

tors, issues, options, incentives, and goals;

- The book is basically framed around National Science Foundation sponsored studies; it overlooks the work produced by the Office of Technology Assessment, and the major multimillion dollar assessments done out of the Environmental Protection Agency and the Department of Energy; it is almost oblivious to the vast literature of partial assessments attempted by the various executive agencies;

- The applications to international affairs is inadequate; no discussion relates technology assessment to technology transfer or to the appropriate technology debate, domestically or abroad;

- it is rather curious that one could attempt to write a book dealing with the future of technology and not find an authority like Daniel Bell cited.

For most readers, however, the material presented will be of great illumination and a major step forward. It is good enough that it already demands a sequel.

A paperback edition at an acceptable price should achieve wide use in schools and universities.

Joseph F. Coates  
J. F. Coates Inc.  
Washington, D.C.

**Solar Materials Science.** Murr, Lawrence E., ed., Academic Press Inc., New York, N.Y., 1980, 788 pp., \$35

Rapid development of modern materials science during the last 25 years has provided the materials scientist an opportunity to make solar technology economical for its widespread acceptance.

Solid-state physicists, metallurgists, electrochemists and other specialists are identifying the key problem areas in which the present technology is materials-limited. Since the problems are interdisciplinary, discussions are found spread over numerous journals. A book like *Solar Materials Science* should help considerably in tying the principal efforts together, and stimulate further research.

Lawrence Murr, as the editor, has done an admirable job in selecting and organizing a series of lectures that cover a large portion of the field. The Distinguished Lecture Series held at the University of New Mexico during the months September through December 1979 provided the frame for the book. The university and the Federal Laboratories in the Albuquerque area helped organize the lecture series. Considering the novelty of the field, and the need for quick stimulation of further efforts, the editor and the publisher must be congratulated on bringing out this book only eight months after the completion of the lecture series in a high-quality hard-cover edition.

A series of introductory lectures to which the editor contributed, sets the stage. Following are three sections that deal with key aspects of solar materials science. The first section addresses the problems of thin-film technology. Here, the role of corrosion is addressed in its interference with long-term integrity of the absorbing and reflecting surfaces.

The second section discusses solar-thermal storage materials, and the materials requirements for thermochemical conversion. Here, this reviewer sees a deplorable limitation of the scope of the book. Important materials problems that the solar photo-electrolytic procedure presently faces are not addressed. This fledgling conversion concept is interdisciplinary in that it involves the semiconductor-electrolyte interface which merges solid-state surface physics and electrochemistry. Progress in this field will largely depend on the solid-state physicist to learn the language of the electrochemist, and vice versa. A lecturer who speaks both languages would have covered an area that will be more and more appealing to the solar materials scientist. Restricting this section to thermochemical conversion must be considered unfortunate and unnecessary.

Unlike photothermal conversion, the photovoltaic solar cell is more generally believed to be in need of greater materials research emphasis. The third section on photovoltaic solar cells introduces the corresponding problems, with accent on thin-film cells, heterojunctions, and plasma-deposited amorphous semiconductor alloys.

Almost without exception, the lecturers are experts who are solidly identified with their corresponding areas. Consequently, the treatment of their subjects is competent and comprehensive. The book may be used by the advanced undergraduate and beginning graduate student, as the preface promises.

However, this reviewer would refuse to teach the complete series in one semester, whatever the level—the spread is just too wide, and the interdisciplinary character impressive. Being a specialist, I welcomed the opportunity to judge my specialty in the proper frame with respect to other specialties. Many others will hopefully share this experience.

B. O. Seraphin  
University of Arizona  
Tucson, Ariz.

**The Practical Guide to Structured Systems Design.** Page-Jones, Meilir, Yourdon Press, New York, N.Y., 1980, 354 pp., \$19.50.

Over the past 10 years, numerous methodologies for the design and construction of software have been documented. Some of these are more useful than others. For example, system designers widely agree that structured programming, which relies on single-entry/single-exit control structures, yields an easily understood program code. This theoretical single-entry/single-exit structure allows easy use of techniques which determine the "meaning" of a program. Unfortunately, techniques concerned with the systems analysis and modular software design have not received widespread acceptance. All too often, such techniques are rarely, if ever, contrasted with their predecessors.

This book is a welcome departure. The author has collected complementary methodologies for the design and construction of software in one text. In most cases, he motivates the strategies by citing the principle being exploited—be it

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from psychology such as the limitation of the human mind to cope with more than seven items at a time or from computer science, where the reasoning is behind module cohesion and coupling measures.

The book is divided into six sections. After an introductory section, four sections discuss technical matters, followed by a section on management. One technical section is devoted to methods for specifying a system and its components at various levels of detail. Included are data flow diagrams, decision tables, and structured English for use in writing high-level specifications; data dictionaries for describing files; and pseudo-code and structure charts for describing modules and their interactions.

Another section is devoted to evaluation of designs. The Constantine/Yourdon/Meyers theory of module cohesion and coupling is described. A third section discusses strategies for devising a design. Included are the transform approach developed by M.A. Jackson, and a second technique well suited for large systems, called transaction analysis.

The last technical section describes implementation techniques: top-down, bottom-up, incremental implementation and testing, and when and where optimization should be performed. The text contains numerous short examples, and a non-trivial case study appears as an appendix.

Regrettably, the section on the management aspects of structured design is inaccurate and superficial. For example, it is alleged that in calculating program run-time, men and months are interchangeable, which is known to be false. Also, the introductory section of the text is marred by the author's attempts to convince the reader of the utility of the techniques. In some cases, as on p. 33, the "hype" is just plain offensive and unsubstantiated.

Nevertheless, the text is readable and presents a good collection of tools and strategies for successful software design. It should prove quite valuable to the practicing software architect.

Fred B. Schneider  
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Cornell University  
Ithaca, N.Y.

**Whistle-Blowing! Loyalty and Dissent in the Corporation.** Westin, Alan F., McGraw-Hill Book Co., New York, N.Y. 181 pp., \$12.50.

Whistleblowing, as defined by Alan Westin, involves "employees who believe their organization is engaged in illegal, dangerous, or unethical conduct." Generally, "the person who has the whistle (e.g., a referee in an athletic contest) is the legally invested authority on the spot." But employees who are whistleblowers are protesting what they believe to be corporate wrongdoing and are "therefore not invoking the whistle of authority, but the whistle of desperation." Alleged wrongdoing may be categorized as: clear illegality, potential illegality or danger, or disputed business policies.

Frequently, the observations and perceptions are highly subjective and reflect the viewer's values, premises, goals, and

experiences. The 10 cases authored (for the most part) by real whistleblowers and presented as unanalyzed and unevaluated examples in this book, illustrate that not just those immediately involved, but all of society are affected by whistleblowing in numerous ways. The 10 examples cover a wide range of business and occupations. There is something among them to stimulate thought in any employee, manager, executive, or caring citizen.

The author has presented a balanced description of the whistleblowing process. The book is written in a style that is easy to read, and it contains as much food for thought as the reader chooses to ingest. It has an excellent bibliography, notes, and legal references.

Mr. Westin shares his philosophy and insights in his conclusion. Since there are few "pat" answers in "whistleblowing" situations, the book's use would have been enhanced if each of the 10 examples were analyzed individually by Mr. Westin using the criteria, proposals, and guidelines presented here. Much is left as an "exercise for the student."

Nevertheless, the book deserves careful reading—particularly by engineers and other professionals, managers, and executives. Hopefully, it will stimulate thought about all aspects of the whistleblowing process since in some respects it is like technology: it is not, *per se*, good or bad; rather its benefits or detriments depend on how and when it is used and responded to.

Lindon E. Saline  
General Electric Co.  
Fairfield, Conn.

**Microelectronics: Processing and Device Design.** Colclaser, Roy A., John Wiley & Sons Inc., New York, N.Y., 1980, 333 pp., \$24.95.

This readable and succinct text covers the subject of modern microelectronics completely. The author does a good job of distilling the facts and useful information from many sources. These sources are well identified, and a useful set of references appears at the end of each chapter. Sets of problems are included after most of the chapters. The book can provide an excellent overview of the current status of microelectronic design.

The book is apparently intended for use as a text in an introductory course on microelectronics. The first half describes in some detail the techniques used in modern microelectronic fabrication. The discussions of the capabilities and limitations of the processes are complete and up-to-date. Much of the material included, such as that on pattern generation, wire bonding, and modern packaging techniques is not readily available from other texts with which these reviewers are familiar.

The second half of the book covers the design of bipolar, MOS, and hybrid circuits. Emphasis in these chapters is at the device and circuit level. VLSI design is not addressed.

Unfortunately, the author did not make more of an attempt to coordinate the model notation and definitions of BJT and MOS devices with that used in the SPICE analysis software programs. A short ap-

pendix on semiconductor device physics is also included.

J.S. Kilby, Consultant  
Dallas, Texas

P.E. Allen, Texas A&M  
College Station, Texas

## Recent books

**Acoustical Imaging, Vol. 9: Visualization and Characterization.** Wang, Keith Y., ed., Plenum Press, New York, N.Y., 1980, 842 pp., \$75.

**Applications of Adaptive Control.** Narendra, K.S. and Monopoli, Richard V., eds., Academic Press Inc., New York, N.Y., 1980, 554 pp., \$39.50.

**Advances in Drying, Vol. 1.** Mujumdar, Arun S., ed., Hemisphere Publishing Corp., Washington, D.C., 1980, 301 pp., \$55.

**Drying '80, Vol. 1: Developments in Drying; Vol. 2: Drying '80, Proceedings of the Second International Symposium.** Mujumdar, Arun S., ed., Hemisphere Publishing Corp., Washington, D.C., 1980, Vol. I: 518 pp., \$62; Vol. II: 532 pp., \$58; two-vol. set: \$120.

**Multinational Computer Systems: An Introduction to Transnational Data Flow and Data Regulation.** Katzan, Harry S., Jr., Van Nostrand Reinhold Co., Litton Education Publishing Inc., New York, N.Y., 1980, 198 pp., \$16.95.

**The Weider's Bible.** Geary, Don, Tab Books, Blue Ridge Summit, Pa., 1980, 408 pp., \$16.95 hardbound; \$9.95 paperback.

**A General Theory of Optimal Algorithms.** Traub, J.F. and Wozniakowski, H., Academic Press Inc., New York, N.Y., 1980, 341 pp., \$36.

**Basic Drafting.** Clifford, Martin, Tab Books, Blue Ridge Summit, Pa., 1980, 270 pp., \$12.95 hardbound; \$7.95 paperback.

**Electrical Wiring Handbook.** Safford, Edward L., Jr., Tab Books, Blue Ridge Summit, Pa., 1980, 432 pp., \$15.95 hardbound; \$8.95 paperback.

**Handbook of Rectifier Circuits.** Scoles, G.J., John Wiley & Sons Inc., New York, N.Y., 1980, 236 pp., \$69.95.

**Materials Processing Theory and Practices, Vol. 1: Fine Line Lithography.** Newman, R., ed., North-Holland Publishing Co., Amsterdam, The Netherlands, New York, N.Y., 1980, 481 pp., \$78.75; Dfl. 161.50.

**Advances in Distributed Processing Management, Vol. 1.** Rullo, T. A., ed., Heyden & Son Inc., Philadelphia, Pa., 1980, 199 pp., \$32.50.

**Advances in Computer Security Management, Vol. 1.** Rullo, T. A., ed., Heyden & Son Inc., Philadelphia, Pa., 1980, 245 pp., \$29.50.

**Principles of Firmware Engineering in Microprogram Control.** Andrews, M., Computer Science Press Inc., Rockville, Md., 1980, 347 pp., \$21.95.

**The Physics of MOS Insulators. Proceedings of the International Topical Conference, Raleigh, N.C.—June 18-20, 1980.** Lucovsky, G. et al, eds., Pergamon Press Inc., Elmsford, N.Y., 1980, 369 pp., \$50.

**Inverse Scattering Problems in Optics.** Baltes, H. P., ed., Springer-Verlag, Heidelberg, West Germany, New York, N.Y., 1980, 313 pp., \$42; DM 78.

**Sensitivity and Optimization.** Brayton, R. K. and Spence, R., Elsevier Scientific Publishing Co., Amsterdam, The Netherlands, New York, N.Y., 1980, 368 pp., \$63.50, Dfl. 130.

# Classified advertising

## Positions Open

The following positions of interest to IEEE members have been reported as open. Apply in writing, addressing reply to address given or to Box Number, c/o IEEE Spectrum, Advertising Department, 345 East 47th St., New York, N.Y. 10017. Classified Advertising Rates for this column: \$15.00 per line. No advertising agency commission is granted. Copy must be received by the 1st of the month preceding date of issue.

**Graduate Assistantships—Oregon Graduate Center.** Opportunities for graduate study with stipends and tuition paid are offered to qualified students seeking Ph.D. degrees in applied physics and electronic science. Stimulating research environment with small classes and close faculty-student interaction. Study and dissertation topic areas with excellent promise for professional careers include active research in atmospheric optics, electrooptical process control systems, field emission, field ion devices, ion microprobes, ion optics, nonlinear optics and photoemission, laser devices, optical computing, optical data processing, remote sensing, semiconductor and luminescent materials, surface physics and thermionic emission. For details, write J.F. Holmes, Chairman, Department of Applied Physics and Electronic Science, Oregon Graduate Center, 19600 N.W. Walker Road, Beaverton, Oregon 97006.

**Faculty Openings in Electrical and Computer Engineering.** The Department of Electrical and Computer Engineering of the University of South Carolina has faculty openings in the specialties of computer architecture, pattern recognition, robotics, machine intelligence, software engineering, power systems, high voltage, pulsed power, lasers, and EM field theory. A doctorate in electrical or computer engineering is required. Please send resumes to: Ronald D. Bonnell, Professor and Chairman, Electrical and Computer Engineering Department, University of South Carolina, Columbia, S.C. 29208. An equal opportunity/affirmative action employer.

**Faculty Positions.** Applications are invited for faculty positions in Electrical Engineering from qualified individuals who have a strong commitment to teaching and research. Qualifications include an outstanding academic record, significant involvement with a truly contributive research activity and a doctorate in electrical engineering. Areas of research specialization are not restricted. However, computer engineering, solid-state electronics, integrated optics and communications are areas of particular interest. Resumes should be directed to School of Electrical Engineering, Purdue University, West Lafayette, Indiana 47907. Immigration status of non-U.S. citizens should be stated in dossier. Purdue University is an equal opportunity/affirmative action employer.

**Positions Available in the aerospace, military & industrial fields for electronic & electrical engineers.** Require degree + U.S. experience in design, development, QA, QC or reliability of hardware or software. Fee, interview and relocation paid by client companies throughout the U.S. since 1959. U.S. citizens or permanent residents send resume & current salary or call collect (215) 735-4908 for application. Atomic Personnel, Inc. 1518-C Walnut St., Phila., PA 19102.

**Postdoctoral Fellow.** Strong background in mathematical programming, numerical analysis and circuit theory. To contribute to ongoing projects in design centering and tolerancing, analog circuit fault location and tuning, power system analysis and design. Three letters of recommendation must be initiated by the appi-

cant. Resumes, accompanied by reprints, to Dr. J.W. Bandier, Dean of Engineering, McMaster University, Hamilton, Ontario Canada L8S 4L7.

**Department of Electrical Engineering, University of Washington, Teaching and Research Assistantships.** The Department of Electrical Engineering at the University of Washington invites applications for graduate teaching and research assistantships from individuals interested in pursuing the M.S. or Ph.D. degree in electrical engineering. Positions are available in the areas of computer-communication networks and distributed processing, microprocessor applications, computer-aided design, digital signal processing, electric energy systems, data acquisition systems, optics and laser applications, medical electronics, wave propagation and scattering, instrument fault detection in automatic systems, stochastic system analysis, and opto-acoustic techniques in nondestructive testing. These positions are available for the current academic year or for 1991-92. For further information and application materials, write to Graduate Program Adviser, Department of Electrical Engineering FT-10, University of Washington, Seattle, WA 98195. The University of Washington is an affirmative action/equal opportunity employer.

**Drexel University.** The Department of Electrical and Computer Engineering will have a number of tenure track and visiting positions for the 1991/92 academic year. Rank and salary are negotiable. Preference will be given to individuals in the area of Computer Engineering, but we encourage applications from research oriented individuals in other areas such as Communications, Signal Processing, Microwaves, Solid-State and Microstructures, Integrated Electronics, and Electrical Energy Systems. Applicants must have a Ph.D. in Electrical Engineering and have a strong commitment to both teaching and sponsored research. Send Curriculum Vitae including references to Dr. Bruce A. Eisenstein, Head, Department of Electrical and Computer Engineering, Drexel University, Philadelphia, Pa. 19104. Drexel University is an equal opportunity/affirmative action employer.

**Department of Electrical and Computer Engineering, McMaster University.** One tenurable position is open at the Assistant Professor level as of January 1, 1991, or as soon as possible thereafter. Candidates must have a strong interest in both undergraduate and graduate teaching and excellent research potential or record in the area of Communications Systems. The successful applicant will be expected to join the Communications Research Laboratory and to take part in contract research. In addition, it is anticipated that a faculty position will be available at the Assistant Professor level as of July 1, 1991. For this position, preference will be given to candidates with strong research expertise and record in the hardware/software aspects of computer engineering. Resumes, including the names and addresses of three references should be addressed to Dr. D.P. Taylor, Chairman, Department of Electrical and Computer Engineering, McMaster University, Hamilton, Canada, L8S 4L7.

**Rice University.** Applications are invited for a faculty position in the Computer Science Program at Rice University. Applicants should have a Ph.D. degree with a commitment to excellence in teaching and research. Candidates from all areas of Computer Science and Engineering will be considered. However, the program has a special interest in candidates with research experience in the areas of software engineering parallel computing systems. Salary and rank will depend on qualifications. Rice University is an equal opportunity/affirmative action employer. Send resume to T.A. Rabson, Chairman, Electrical Engineering Department, Rice University, Box 1892, Houston, TX 77001.

**Assistant Professor Level and Higher—**The Department of Electrical Engineering, SUNY at Stony Brook, invites applications for anticipated openings at the Assistant Professor level and higher. These positions will be

tenure-track with salary negotiable. The Department has expanding undergraduate and graduate programs and extensive research activities. The areas of prime interest are computer engineering, digital systems, communications and computer networking, VLSI design and fabrication, experimental device fabrication, microwave acoustics and microwave magnetics and robotics. Applicants in other areas will be considered. The Department has close relations with local high-technology industry including a major cooperative effort in the VLSI area. Stony Brook combines the attraction of a semi-rural location with proximity to the resources of the New York City area. Please submit resume to: Dr. Stephen D. Shapiro, Chairperson, Department of Electrical Engineering, SUNY at Stony Brook, Long Island, N.Y. 11794. Equal Opportunity/Affirmative Action Employer.

**Texas A&M University.** The Electrical Engineering Department at Texas A&M has open faculty positions beginning September 1, 1991. Areas of specialization sought include microelectronics, computers, power systems, communications, solid-state, digital signal processing, and controls. A Ph.D. degree and interest in both teaching and research are required. U.S. citizenship or a permanent visa is required for a tenure-track position. The Department has 1300 students and a faculty of 54, with good facilities and good resources to support further growth. Texas A&M is a major state-supported University with 1980 enrollment of 33,500 students. It is located in central Texas in a community of 100,000. Send resume to W.B. Jones, Head, Electrical Engineering Department, Texas A&M University, College Station, Texas 77843. Texas A&M is an equal opportunity/affirmative action employer.

**Mexico.** Faculty openings in Electronics. The Department of Electronics of the National Institute for Astrophysics, Optics and Electronics (INAOE) has faculty openings (research and development oriented) in the specialties of integrated circuits: design and fabrication, semiconductor devices, electronics circuits, digital systems, and instrumentation. Applicants should hold a Ph.D. in EE, Physics or equivalent. Interested candidates should submit a complete resume along with three references to E. Sanchez-Sinencio, Head of the Department of Electronics, INAOE, P. O. Box 51, Puebla, Pue., Mexico. Also, applicants on sabbatical leave are welcomed.

**Engineers/Scientists—**Seeking exceptional professionals for high technology environments. Our nationwide clients requirements include Power/Energy, Instrumentation & Control, Chemical Processing, and Biomedical engineers. Send resume and salary history in confidence to: Charles A. Blinswanger Associates, Inc., P.O. Box 5325, Baltimore, Maryland 21209. (301)-433-6610.

**Faculty Positions—Lehigh University. Solid-State Devices.** The Department of Electrical Engineering has faculty tenure-track positions available in its expanding teaching and research program in solid-state devices. Strong interactions with the Departments of Chemistry, Materials Engineering and Physics and the recently completed Sherman Fairchild Solid-State Laboratory provide an unusually fine environment for professional growth. Excellent opportunity for consulting with nearby industrial research centers is available. Post doctoral and/or industrial experience is deemed desirable but not essential. Responsibilities include research and teaching at the graduate and undergraduate level. Rank and salary will be set according to qualifications and experience. Send resume and the names of referees to: Donald M. Bolle, Chairman, Department of Electrical Engineering, Packard Laboratory #19, Lehigh University, Bethlehem, Pennsylvania 18015. Lehigh University is an Affirmative Action/Equal Opportunity employer.

**Electrical Engineering Faculty.** The Department of Electrical Engineering of the College of Engineering, University of Missouri-Columbia, invites applications for two tenure-track positions at the assistant or associate professor level beginning September 1, 1991. Responsibilities include teaching undergraduate and graduate level courses, student advising, developing and conducting sponsored

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## Classified advertising

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research, and developing and directing undergraduate laboratories. Candidates must be registered or have the ability to be registered as a Professional Engineer. Candidates with teaching and research experience in Communications and signal processing are preferred. For one position we seek candidates with teaching and research experience in computer engineering and signal processing. For the other we desire a candidate with experience in circuit theory and/or electronics. Applicants should send a resume, a statement of teaching and research interests, and a list of three references to: John W. Rouse, Jr., Chairman, Department of Electrical Engineering, University of Missouri-Columbia, MO 65211 before March 27, 1981. The University is an equal opportunity institution.

**The Electrical Engineering Department at the University of Maryland, College Park,** is seeking a Director for the Fairchild Scholars Program who would also serve as a member of the Electrical Engineering Faculty. This is a new program organized jointly by the University and Fairchild Industries which involves a graduate program in communications systems and computer software leading to a MS degree. The director will administer the program, including the advising of students, directing the research program, and assisting in the identification and recruitment of students. About thirty students will be involved. The Director will be assisted by a staff person in these activities. Candidates should possess expertise in the areas of stochastic processes, detection and estimation, digital signal processing, and computer based communications. Administrative experience is also desired. The associated academic appointment will be at the Associate Professor or Professor level, depending on experience and qualifications. Position available immediately. Send resume with references to Professor Gilmer Blankenship, Chairman, Fairchild Director Search Committee, Electrical Engineering Department, University of Maryland, College Park, MD 20742. Applications are due by March 15, 1981. The University of Maryland is an equal opportunity/affirmative action employer. Female and minority candidates are encouraged to apply for the position.

**Engineers-Electronic.** Antennas, circuits, nuclear instruments, control, aerospace, microwave, communications, ultrasonics, solid-state devices & systems, etc. Fee paid by client companies nationwide. Send resume to Frontier Agency, 1333 Rand Building, Buffalo, NY 14203.

**Basic Engineering Department at Colorado School of Mines** requires: Visiting Electrical Engineering Assistant or Associate Professor for January to May 1981 with possibility of full-time beginning Fall Semester 1981. To teach introductory electrical engineering courses and associated laboratories in Circuits and Machines and/or Electronics. Could develop undergraduate courses in Communications (voice and Digital) in the Mining and Petroleum industries. Summer work available in teaching. Send detailed resume and names of at least three references to: Basic Engineering Department, Colorado School of Mines, Golden, CO 80401. Tel. (303) 279-0300, Ext. 2679. CSM is an Equal Opportunity/Affirmative Action employer.

**NRRFSS, National Research and Resource Facility for Submicron Structures.** Proposals are now being accepted for research to be carried out at NRRFSS, the National Research and Resource Facility at Cornell University, Ithaca, New York. This facility has been established to promote research in submicron fabrication, to provide a resource for the fabrication of advanced devices and research structures requiring submicron dimensions, and to stimulate innovative research in areas of science outside the electronic device field by providing access to advanced submicron technology. Research at the facility is expected to explore advanced areas which go beyond current integrated circuit practice and which depend intimately on submicrometer dimensions. To be appropriate, proposed projects should substantially further

the art of submicron technology or its applications to science and engineering. Proposed projects should not be of a service nature where such services are commercially available and should be of a nature that centrally depends on the specialized equipment and expertise of the facility. Most approved projects will be expected to begin after the completion of the new laboratory, summer 1981. Some projects can, however, be initiated earlier. For a copy of a users manual which contains information on available instruments and proposal submission forms write or call NRRFSS, Phillips Hall, Cornell University, Ithaca, New York, 14853, 607-256-2329.

**Rice University**—Applications are invited for two faculty positions in the Electrical Engineering Department at Rice University. Applicants should have a Ph.D. degree with a commitment to excellence in teaching and research. Candidates from all areas of Electrical Engineering will be considered. However, the department has a special interest in candidates with research experience in the areas of bioengineering, systems, energy conversion and computer science. Rice University is an equal opportunity/affirmative action employer. Deadline for application is June 30, 1981. Send resume to T.A. Rabson, Chairman, Electrical Engineering Department, Rice University, Box 1892, Houston, Texas 77001.

**The Department of Electrical Engineering, The University of Toledo** has a tenure track and visiting vacancies. State University in an attractive residential area with 20,000+ students including 2200 in B.S., M.S., and Ph.D. engineering programs. Applications are invited in the areas of Automatic Controls, Electronics and Digital Systems. Rank and salary are open. Send applications with resume to Dr. Adel H. Eltimsahy, Chairman of Electrical Engineering, The University of Toledo, Toledo, Ohio 43606. Affirmative Action/Equal Opportunity Employer.

**Electrical Engineering Faculty Positions.** The Electrical Engineering Dept., University of Michigan-Dearborn is seeking qualified candidates for faculty positions at the Assistant Professor level. Positions available in September and specialties sought are: computers and digital systems with applications to communications and control, power electronics and energy conversion, digital electronics and instrumentation, physical systems modelling and industrial process control. Send resume to Prof. Dwight S. Heim, Chairman, E.E. Search Committee, Electrical Engineering, University of Michigan-Dearborn, 4901 Evergreen Road, Dearborn, Michigan, 48129. An equal opportunity/affirmative action employer.

**Lehigh University, Department of Electrical Engineering** has a number of positions available for visiting faculty, scientists and engineers as well as postdoctoral fellowships, for the spring semester of the current academic year and for the academic year 1981-82. Applications are invited in all areas of electrical and computer engineering, but primary fields of interest are solid-state devices, digital systems, signal processing, communications and computer engineering. Appointees will be expected to participate in research and to offer one undergraduate or graduate course each semester in residence. Expressions of interest should be directed to: Donald M. Sells, Chairman, Department of Electrical Engineering, Packard Laboratory #19, Lehigh University, Bethlehem, PA 18015. Tel. (215) 861-4061 or 4070. Lehigh University is an Affirmative Action/Equal Opportunity employer.

**Oklahoma State University/School of Electrical Engineering:** Applications are invited for a tenure-track faculty position expected to be available on or after July 1, 1981. Preference will be given to a recent Ph.D. with experience in microelectronic systems design and an interest in curriculum development in the areas of electronics, computers or communications systems. The School is rapidly developing its instructional and research facilities in these areas and seeks a person who wishes to pursue a career in teaching and research at a top quality institution. Salary and faculty rank commensurate with qualifications. OSU offers excellent fringe benefits and life in a small sunbelt city in an energy-rich state. Applicants should send a resume to Dr. C.M. Bacon, Head, School of Electrical Engineering, Oklahoma

State University, Stillwater, Oklahoma 74078. An equal opportunity/affirmative action employer.

**The Electrical Engineering Department at The University of Tulsa** has two new faculty positions. One of these is a joint appointment with the Department of Geosciences at the University of Tulsa. Candidates should have an earned doctorate with an excellent background in either signal processing, computers, or systems. Candidates with geophysical background are of particular interest. Responsibilities include undergraduate and graduate teaching and strong participation in sponsored research. Rank and salary are commensurate with qualifications. Send resume with three references to Professor Edgar C. Tacker, Chairman, Department of Electrical Engineering, College of Engineering and Physical Sciences, The University of Tulsa, Tulsa, Oklahoma, 74104 (918/592-6000, extension 2584). The University of Tulsa has an Equal Opportunity/Affirmative Action Program for students and employees.

**Research Associate, University of Colorado at Boulder.** The Department of Electrical Engineering at the University of Colorado invites applications for a research associate position in the area of energy conversion and power systems. Candidates should have a doctorate in Electrical Engineering with specialization in electromagnetics as applied to rotating machines. Studies include electromagnetic design and optimization of three- and single-phase induction machines with respect to efficiency. Send application, relevant publications and names of references to: Professor David C. Chang, Chairman, University of Colorado, Department of Electrical Engineering, Campus Box 425, Boulder, Colorado 80309. The University of Colorado is an Affirmative Action/Equal Opportunity Employer and encourages applications from women and members of minority groups.

**The Electrical Engineering Department at San Jose State University** invites applications from qualified individuals for 2 tenure-track faculty positions at the rank of Assistant or Associate Professor starting 24 August 1981. Candidates should expect to teach both undergraduate and graduate courses in one or more of the following areas: Electronics; Digital Circuits and Systems; Electric Power, Machines, and Controls; Basic Circuits and E.E. for non-majors. Normal teaching load is 12 units. Applicants must have received a Ph.D. in E.E. by June 1981. Preference will be given to those with teaching experience. Industrial and/or research experience are highly desirable. Rank and salary will be commensurate with qualifications and experience. Current 9-month starting salary range is \$17,964-27,252. U.S. Citizenship or Permanent Resident status is required. Send resume, names and addresses of three references, and detailed description of teaching and research interests to Prof. Evan Moustakas, Chairman of Search Committee, Department of Electrical Engineering, San Jose State University, San Jose, CA 95192. Closing date for applications is 15 March 1981. SJSU is an equal opportunity, affirmative action employer.

**Polytechnic Institute of New York.** The Department of Electrical Engineering and Computer Science invites applications for tenure track positions in Electrical Engineering starting September 1, 1981. A Ph.D. degree and strong credentials are required. Candidates are expected to participate in both teaching and research activities. Excellence of academic and professional background is more significant than the particular area of specialization. However, the following technical areas are of special interest: Electro-optics, solid-state devices, LSI chip technology, electronics. Rank and salary will be commensurate with qualifications. Send resume and statement of career objectives to: Professor E.J. Smith, Department of Electrical Engineering and Computer Science, Polytechnic Institute of New York, 333 Jay Street, Brooklyn, New York 11201. Equal Opportunity Employer M/F/V/H.

**Biomedical Engineering**—The Biomedical Engineering and Science Institute has an immediate opening for a tenure track or visiting faculty member. Responsibilities include teaching undergraduate and graduate courses in Biomedical Engineering and/or Electrical

Engineering. Candidate must have strong training in engineering and experience in computer software and hardware. He or she must have research interests related to the cardiovascular system. Candidate will be expected to take an active role in ongoing team research in the area of control and optimization of cardiac assist devices and to develop independent research interests. Send curriculum vitae and names of three references to: Dov Jaron, Ph.D., Director, Biomedical Engineering & Science Institute, Drexel University, Philadelphia, PA 19104. Equal opportunity/affirmative action employer.

**Electrical Engineering, Chairman, University of Wisconsin-Platteville.** The Electrical Engineering Department at the University of Wisconsin-Platteville is seeking a Chairman starting in the fall of 1981. A tenure track position at Associate or full Professor is available. Aggressive leadership in developing a new practically oriented undergraduate program is desired. The position requires a Ph.D. in Electrical Engineering, a distinguished teaching record, industrial experience and demonstrated leadership ability. A strong interest in good teaching at the undergraduate level and in professional activities is more important than a research and publication record. The University is committed to provide the resources for a quality program with the first graduates anticipated in 1983-84. Send resume to Arthur J. Cooke, Acting Chairman, Electrical Engineering Department, University of Wisconsin-Platteville, Platteville, Wisconsin 53818. The University is an equal opportunity/affirmative action employer.

**EE to consult on design and troubleshooting of AC/DC equipment.** Also, light travel and computer work. Electrical Apparatus Service Association, 1331 Baur, St. Louis, MO 63132.

**Faculty Positions:** Applications are invited for tenure-track faculty positions in the areas of computer engineering, power systems, circuits, digital signal processing and solid-state electronics. Positions involve teaching at the graduate and undergraduate level and participation in research. Applicants must have Ph.D. or equivalent. The Electrical Engineering Department has recently received more than \$4 million as an endowment for its programs. The department has more than \$700,000 per year sponsored research and a Ph.D. program. To establish their research programs, new faculty will be given special consideration in terms of equipment budget and summer support for the first two years. Send resume to Dr. G.V.S. Raju, Chairman, Electrical Engineering Department, Clipping Research Labs., Ohio University, Athens, Ohio 45701. An equal opportunity and affirmative action employer.

**Graduate Studies Fellowships:** Five Fellowships which allow full-time pursuit of either M.S. or Ph.D. degree in electrical engineering and provide a renewable nine month stipend of \$7500 plus tuition waiver are available. Applicants should be U.S. citizens, possess a BS or MS in electrical engineering, and have demonstrated in their previous academic work a capability for graduate studies. For consideration send brief resume to: Dr. Raymond Luebbers, Assistant Professor, Department of Electrical Engineering, Ohio University, Athens, Ohio 45701.

**Stocks, Visiting Distinguished Chair Professorship:** The Electrical Engineering Department at Ohio University has recently received more than \$4 million as an endowment for distinguished chair-professors, advanced research and equipment. The Electrical Engineering Department is seeking applications or nominations for this distinguished chair. Each recipient of this endowed chair position would be appointed for a period of time, normally not to exceed two calendar years. Applications or nominations should be sent to Dr. G.V.S. Raju, Chairman, Electrical Engineering Dept., Clipping Research Labs., Ohio University, Athens, Ohio 45701.

**Graduate Fellowships in Biomedical Engineering and Science—Drexel University** announces competition for Ernest N. Calhoun Graduate Research Fellowships. Supported by the Calhoun endowment to Drexel University, each fellowship provides a minimum of \$6,000, tax free, stipend plus waiver of all tuition and fees for 12 month appointments. Exceptional first year graduate students are eligible for awards beginning fall term, 1981. Deadline for completed application is March 20, 1981. For applications,

please write: Dr. Dov Jaron, Ph.D., Director, Biomedical Engineering and Science Institute, Drexel University, Philadelphia, Pennsylvania 19104.

**Faculty Positions—Western New England College.** The Electrical Engineering Department seeks tenure track faculty with motivation for excellence in teaching. Rank and salary depends on qualifications. Backgrounds most desired include but are not exclusive to: electric power, computer engineering/computer science, bio-electrical/biomedical. Responsibilities include undergraduate and graduate teaching, laboratory development, and research. Ph.D. required but will consider Ph.D. candidate in final stages of dissertation or M.S. willing to work toward Ph.D. at a nearby university. Available September 1981. Applications with resume to: Dean, School of Engineering, Western New England College, Springfield, MA 01119.

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**Engineers, Electrical & Electronic.** All disciplines. Entry to executive. Locations throughout U.S. All fees company paid. Send resume to F-O-R-T-U-N-E Personnel, 3005 S. Michigan, South Bend, IN 46614.

**Editors, free lance:** Electronic engineers or physicists with some knowledge of Japanese to correct Japanese-to-English translations in various areas of electronics. Please write to Scripta Publishing Co., 7961 Eastern Avenue, Silver Spring, MD 20910.

**Electrical Engineering Faculty** The Department of Electrical Engineering, Southern Methodist University invites applications for a tenure-track position at the Assistant Professor level beginning September 1, 1981. Responsibilities include teaching undergraduate and graduate level courses and developing sponsored research activities. Candidates must have Ph.D. or equivalent in Electrical Engineering. Areas of specialization include but are not restricted to digital systems, microprocessors, communications and integrated electronic circuit design. Candidates should send a resume including names of three references to M.D. Srinath, Interim Chairman, Department of Electrical Engineering, Southern Methodist University, Dallas, Texas 75275. An equal opportunity/affirmative action employer.

**Florida Atlantic University** invites applications for anticipated faculty positions in the Electrical Engineering Department. Rank and salary commensurate with individual qualifications. Ph.D. required for tenure earning positions. Assignment will include teaching of undergraduate and graduate courses, research and public service consistent with departmental needs and candidate interest. Specialty areas preferred, but not limited to computers, electronics and energy conservation. The College of Engineering at Florida Atlantic University is located on Florida's southeast coast, a rapidly

developing center of the electronics industry. A new engineering building is scheduled for occupancy in early 1982. Send resume to Dr. Roger Messenger, Chairman, Electrical Engineering, Florida Atlantic University, Boca Raton, FL 33431. Florida Atlantic University is an equal opportunity/affirmative action employer.

**Faculty Position, The George Washington University.** The Department of Electrical Engineering & Computer Science expects to have openings for faculty positions starting in 1981. The areas of interest include Computer Science and Data Communications. Persons with an earned doctorate degree and research experience, with an interest in both teaching and research, should send CV, lists of publications and references, to Professor A. D. Friedman, Chairman, Department of Electrical Engineering and Computer Science, School of Engineering & Applied Science, The George Washington University, Washington, D.C. 20052. In addition to U.S. citizens, persons with permanent residence will be considered. The University is an affirmative action and equal opportunity employer.

**Tenure-track and Tenured faculty positions in Computer Science.** Applications are invited for faculty positions at the assistant, associate, or full professor level available September 1981. Candidates should have a Ph.D. in computer science or in a closely related field, ability to teach a broad range of basic computer science courses, and demonstrated potential for research. The Department offers a B.A. program in Mathematics, M.S. and Ph.D. programs in Applied Mathematics. Current graduate course offerings are grouped into the following areas: Applied Analysis, Computer Science, Control Systems Science, Numerical Analysis, Operations Research, and Statistics. Send a curriculum vitae including names of three references to: Y. M. Lynn, Chairman, Department of Mathematics, University of Maryland Baltimore County, Catonsville, Maryland 21228. Equal opportunity/affirmative action employer.

**Faculty Position in Electrical and Computer Engineering.** The Department of Electrical and Computer Engineering at Clemson University invites applications for a tenure-track position, preferably at the assistant or associate professor level, starting in the fall of 1981. The position involves teaching and research in the area of instrumentation, measurement, and control. Emphasis should be on methods of measurement and translation of signals into electrical information. The teaching assignments would be at both the undergraduate and graduate level. Candidates will be expected to be able to develop a research program in instrumentation, measurement and control in electrical engineering. Candidates with industrial experience are preferred. Send resumes to Dr. David J. Dumin, Acting Head, Department of Electrical and Computer Engineering, Clemson University, Clemson, South Carolina 29631. Clemson University is an equal opportunity/affirmative action employer.

**Teaching Position, University of Connecticut.** The Computer Science Division of the Electrical Engineering and Computer Science Department invites applications for a tenure-track faculty position at the rank of Lecturer, Instructor, Assistant, Associate or Full Professor beginning September 1, 1981. The duties associated with this position center on teaching rather than research. Promotion and tenure considerations will be based on teaching excellence, curriculum innovations and administrative service contributions. The successful candidate will be expected to teach introductory courses in Computer Science and to coordinate, administer, and develop the service course offerings of the Computer Science program. In addition the position offers the opportunity to assist with Departmental administration. Applicants should have at least an MS degree in Computer Science (or closely related area emphasizing computer usage), a demonstrated ability to teach introductory computer science courses, and experience in one or more areas of computer applications and/or software development. Administrative experience in academics, industry, or government is also desirable. Rank and salary will be dependent on background and experience. Qualified applicants should send a detailed resume and the name of three references to Professor John

(Continued on p. 59)

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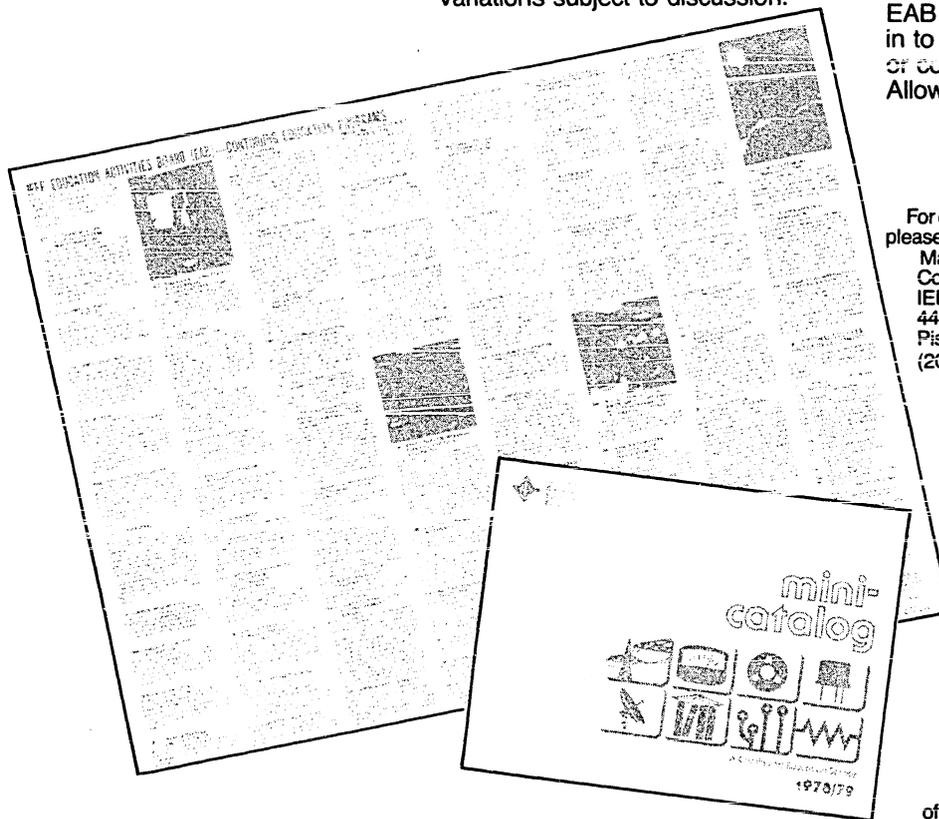
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# Classified advertising

(Continued from p. 97)

R. White, Chairman Computer Science Group, EECS Department U-157, The University of Connecticut, Storrs, CT 06268. The University of Connecticut is an equal opportunity/affirmative action employer.

**Australia, Tenured Full Professorship, La Trobe University, Melbourne, Chair in Electronic and Communication Science.** Applications are invited for the Tad Szentali chair in electronic and communications science. This chair, which is located in the department of electronic and communication science in the school of physical sciences, was first held by Professor D.E. Hooper. Applicants should have a distinguished research and teaching record primarily in the fields of electronics and communication. Industrial experience is highly desirable. Preference may given to applicants with a proven reputation in digital electronics and circuit design. The holder of the chair will initially be chairman of the department and will be expected to provide academic and research leadership in the department. With the cooperation of the Department of Computer Science, innovative courses in electronics and computer science are available in the first, second and third years of the B.S. degree. The department also accepts research candidates for the degrees of M.S. and Ph.D. and conducts active research programs largely in the application of advanced electronic devices and circuits to road traffic measurement and control. This research has attracted substantial outside funding. Salary \$A38,637. Applications marked 'Confidential' quoting reference number 150/53/7 and including a curriculum vitae and names of three referees to be forwarded to staff officer, La Trobe University, Bundoora, 3083, Victoria, Australia. Closing date 31st March, 1981. An equal opportunity employer M/F.

**Faculty Position:** Tenure Track appointment as Assistant Professor of Electrical Engineering. Applicants must have Ph.D. or equivalent. Research in Avionics, and related fields required. Background in computers, micro processors and communications desired. Position involves teaching at the undergraduate and graduate level with strong emphasis on Avionics and conducting research in avionics. Opportunities for summer support in avionics research are available. Send resume and names of references to: Dr. G.V.S. Raju, Chairman, Department of Electrical Engineering, Clippinger Laboratories, Ohio University, Athens, Ohio, 45701. An equal opportunity and affirmative action employer.

**Faculty Openings in Department of Electrical Engineering, General Motors Institute, Flint, Michigan.** The Department of Electrical Engineering at General Motors Institute invites applications for faculty positions in Electrical Engineering in the areas of computer engineering, electronics, power systems, or communication theory. Applicants must have an earned doctorate in Electrical Engineering and be interested in combining undergraduate teaching in a five-year undergraduate program with research and development, consulting, and continuing education work in industry. Positions are presently available. Rank and salary will depend on qualifications. Send applications to Dr. Jack G. Olin, Chairman, Electrical Engineering Department, General Motors Institute, 1700 W. Third Avenue, Flint, Michigan 48502. Phone (313) 762-7900. An Equal Opportunity/Affirmative Action Employer.

**Technical Staff Member.** A member of the technical staff is required in the area of microwave and millimeter-wave solid-state devices and circuits which are to be applied in the development of monolithic GaAs components for radar applications. This work will involve the design and construction of microstrip microwave circuits based on device characterization and mathematical modeling with computer-aided design techniques. Specifically, the staff member will work on the development of monolithic GaAs circuits for the generation of RF power for a solid-state millimeter-wave phased array radar applications. This work will be coordinated with the efforts of other staff members on

the development of a monolithic GaAs radar transceiver. A Ph.D. in Electrical Engineering with specialization in solid-state microwave electronics is required. Practical experience in microstrip circuit design involving solid-state devices is required and experience with GaAs devices is required. Also experience in solid-state device modeling and characterization for microwave application is required. Forty-hour week. Salary range is \$29,000-\$31,000 per year. Interested applicants should send resume and letters of reference to Personnel Office, MIT Lincoln Laboratory, Box 81-S, Lexington, MA 02173. An Equal Opportunity Employer.

**Postdoctoral Research Associate Position.** This position is in a major university to carry out research on acoustic imaging systems. A strong background is required in acoustic imaging techniques and concepts and preferably some acquaintance with the field of non-destructive testing, to which these imaging systems will be applied. The applicant will be expected to spend part of his time helping to administrate a large interdisciplinary program in nondestructive testing. Salary range is \$21,000 to \$24,000 per annum. Applicants should send their curriculum vitae and bibliography to James Peters, California Employment Development Department, 297 W. Hedding Street, San Jose, CA 95110. Advertisement paid for by employer.

**Senior Electrical Designer.** Engineering Department of major eastern Rail Transportation firm seeks Engineer with BSEE degree and at least 10 years experience in industrial power distribution and application. Duties include development of electrical plans and estimates; conducting field surveys and related engineering services for modifications and alterations of new and existing electrical facilities. Salary for this Huntington, West Virginia based position is in the \$27,000 range with excellent growth potential, plus many liberal company benefits. Submit complete resume to: Mr. J. J. Dekker, Dir. Structural Design, Chessie System, 801 Madison Avenue, Huntington, West Virginia 25718. An Equal Opportunity Employer.

**Pulse Power Engineer/Physicist.** Maxwell Laboratories, Inc., a world leader in Pulse Power research and development, has an immediate requirement for an Electrical Engineer/Physicist for our Albuquerque operations. Your initial assignment will be working with advanced state-of-the-art pulse power energy storage and delivery system development projects at Kirtland AFB. You must be a self starter capable of working with a minimum of direction. Advanced degree required, a Masters or PhD in electrical engineering or physics with several years experience. For immediate consideration, please forward your resume including salary requirements to: Professional Employment, Maxwell Laboratories, 8835 Balboa Ave., San Diego, CA 92123. Equal Opportunity Employer, m/f.

**EE-Design, Development, Systems, Project Engineers/Managers \$18-45K + . Fee Paid.** Nationwide openings. Hal Brown, Best Personnel, 605 E. 9 Mile Rd., H.S. (Richmond), Va. 23075.

**Faculty Position, Electronic Engineering Technology** four-year baccalaureate program, ABET-accredited. Tenure-track position for assistant/associate professor starts August, 1981. The individual assuming this position will be teaching undergraduate courses in Electronic Engineering technology. Qualifications should include recent industrial experience and a M.S. or Ph.D. in Electronic/Electrical Engineering or Electronic/Electrical Engineering Technology. However, applicants with a B.S. and extensive industrial experience will be considered. Candidates with a B.S. in Electrical Engineering desiring to work for an advanced degree will also be considered. Send resume and name and address of three references by May 1, 1981, to J.C. Lindholm, Head, Department of Engineering Technology, Kansas State University, Manhattan, Kansas 66506. K.S.U. is an equal opportunity/affirmative action employer.

**The Electrical Engineering Department at the University of Arizona** is seeking qualified persons to fill tenure track faculty positions in the following areas: communications, power systems, microelectronics, signal processing, and controls. Salary and rank dependent upon qual-

ifications. Interested individuals may send their resumes to: Dr. Roy H. Mattson, Head, Electrical Engineering Department, University of Arizona, Tucson, Arizona 85721, (602) 626-1100. The University of Arizona is an Equal Opportunity/Affirmative Action Employer.

**Process Engineer/Hybrid Microcircuits.** Requires BS in Chemistry/Physics/Metallurgy. Exp. in thick/thin film processes for hybrid integrated circuits desirable. Excellent opportunity. Send resume/salary history to: Linda K. Scheffler, c/o Q-Bit Corporation, 311 Pacific Ave., Palm Bay, Florida 32909.

**Electrical Engineering, Cleveland State University.** Candidates sought for research and teaching in B.S., M.S., and Doctoral programs. A tenure track faculty position will be available in Fall 1981. Doctorate in Electrical Engineering or related area required. Preferred areas are digital systems and power engineering. Salary and rank dependent upon qualifications. Send resume to Professor James H. Burghart, Chairperson, Electrical Engineering, Cleveland State University, 1963 E. 24th St., Cleveland, Ohio 44115. Equal Opportunity Employer M/F/H.

**Tenure Track Faculty Positions, Carnegie-Mellon University.** The Electrical Engineering Department is seeking candidates to fill faculty positions in the areas of Computer Engineering/Digital Systems Design including computer-aided design and VLSI computer architecture; Solid-State Electronics/Microelectronics Circuit and device design and fabrication; and Communications, Signal Processing and Pattern Recognition as it relates to biomedical applications. Individuals who have obtained an Electrical Engineering degree in this or an associated area are encouraged to apply. Previous industrial and/or academic experience is desirable, however, not mandatory since openings exist at all academic levels. The selected candidate will be expected to do research and to perform academic duties associated with our B.S., M.S. and Ph.D. degree program. Salary and academic positions will be commensurate with the applicant's background and experience. Carnegie-Mellon University is an equal opportunity/affirmative action employer. Address inquiries or send resumes to Professor F. B. Humphrey, Head, Department of Electrical Engineering, Carnegie-Mellon University, Pittsburgh, PA 15213.

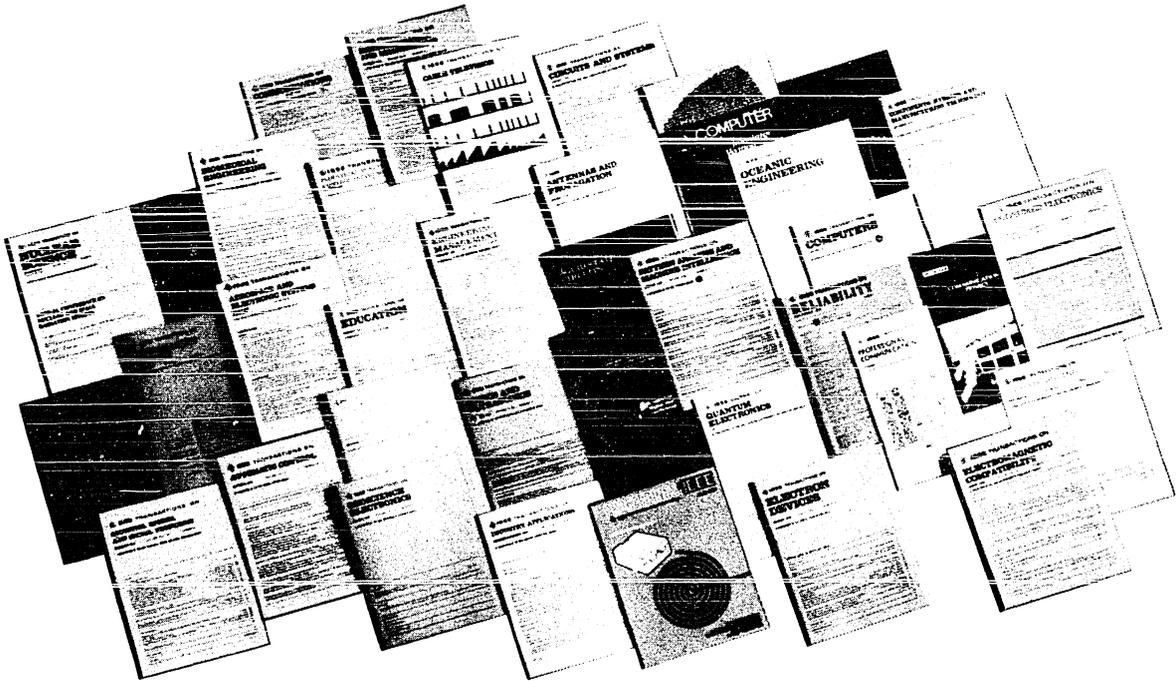
**Four Tenure-Track Positions** in the areas of computers, digital systems, robotics, power, electronic design, communications, and bioengineering. An earned doctorate is required by the time of appointment. Industrial experience and demonstrated potential for funded research are highly desirable. Rank open. Group or other unique applications will be considered. Send resume with copies of recent publications to: Dr. Mao S. Lin, Chair, Department of Electrical and Computer Engineering, or Dr. Jay Harris, Dean, College of Engineering, San Diego State University, San Diego, CA 92182. Position available start of Fall 1981 semester. Deadline for applications for highest consideration: March 31, 1981. San Diego State University is an Equal Opportunity/Affirmative Action/Title IX Employer and does not discriminate against handicapped persons.

**Imaging Scientist:** The department of Radiology, UCSF, seeks a software oriented PhD level physicist or engineer with a broad background in CT and US instrumentation and medical imaging processing to provide computer-related support to several advanced imaging projects. The appointment will be at the adjunct assistant professor level and will be coterminous with grant funding. Respond by April 1, 1981 to: Douglas P. Boyd, PhD, Department of Radiology, M-396, San Francisco, CA 94143. UCSF is an Equal Opportunity/Affirmative Action Employer. Women and Minorities are encouraged to apply.

**Electrical and Computer Engineering:** The Department of Electrical and Computer Engineering at the University of the Pacific invites applications for a tenured faculty position available in Electrical and Computer engineering. Candidates should possess a broad background and interest in both Electrical and Computer Engineering, and be able and willing to teach undergraduate courses in both areas. Computer

(Continued on p. 101)

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(Continued from p. 99)

**Engineering at UOP is a new fast-growing program and the appointed faculty member will be asked to help provide leadership with the program. The 11-month appointment, available September 1, 1981, will be made at the Assistant/Associate/Full Professor or Lecturer Rank. A Ph.D. or equivalent academic/industrial experience is preferred, but an M.S. with significant experience will be considered. Salary is competitive and commensurate with experience and qualifications. Applicants must have a strong commitment to undergraduate teaching, to the cooperative education program required of all students, and a willingness to teach core courses as well as major subject areas. A resume with three references should be submitted to Dr. Robert L. Heyborne, Dean, School of Engineering, University of the Pacific, Stockton, CA 95211. An equal opportunity/affirmative action employer.**

**Department of Information Engineering, University of Illinois at Chicago Circle.** Tenure-track and tenured faculty positions are available effective January 1981 or as soon as possible thereafter. Duties include undergraduate/graduate teaching and research. Rank and salary depend on qualifications. An earned doctorate in Electrical Engineering or in a closely related area is required. Demonstrated teaching and research abilities are highly desirable. Preferred areas of specialization are: communications, computer hardware, electric power, electronic circuits, and solid-state. Send resume, list of publications and the names of at least three references by March 31, 1981 to: Professor P.L.E. Uslenghi, Chairman of Faculty Search Committee, Department of Information Engineering, University of Illinois at Chicago Circle, P.O. Box 4348, Chicago, IL 60680. The University of Illinois is an Affirmative Action/Equal Opportunity Employer.

**Bucknell University, Department of Electrical Engineering** invites applications for a tenure-track position available September, 1981. Duties include undergraduate and graduate teaching, advising and research. We are looking for an individual that is interested in working with high quality undergraduate students in course work, project work and research. Preference given to candidates with competence in areas of digital logic and microprocessors. Rank and salary dependent upon qualifications. Bucknell is a highly selective, coeducational university of 3,200 students with a strong, 650 student, Engineering College offering the BS and MS degrees. Send applications, including three references, to Dr. E.J. Mastascusa, Chairman, Department of Electrical Engineering, Bucknell University, Lewisburg, PA 17837. Review of applications begins immediately. Applications from women and members of minority groups are encouraged.

**Electrical/Computer Engineering faculty positions at the University of Portland.** Specializations in computers (hardware, software), electronics, or power. Ph.D. required. Tenure track positions, senior rank possible. Available September, 1981. The University emphasizes quality instruction and professional involvement. Consulting with local industry is encouraged. Send resume to: Dr. Robert J. Albright, Chairman of EE Department, School of Engineering, University of Portland, Portland, Oregon 97203. An affirmative action/equal opportunity employer.

**Teaching position:** One or two positions open in the Department of Physics, Engineering, and Computer Science, starting with the Fall of 1981. Doctorate preferred but Master's acceptable in Computer Science or Electrical Engineering. Expertise should include some of the following: digital system design, language theory, compiler construction, interfacing techniques, operating systems, microcomputer systems. Experience in industry would be a definite advantage. Duties would include teaching in the undergraduate and graduate programs and thesis research direction on the master's level. Loyola is a predominantly undergraduate institution in the Jesuit and Mercy tradition consisting of a liberal arts col-

lege and a school of business within Baltimore City but in a suburban environment. Applicants should write to Rev. Frank R. Haig, S.J., Department Chair, Physics, Engineering, and Computer Science, Loyola College, 4501 North Charles Street, Baltimore, MD 21210. EOE.

**Electrical Engineering:** Visiting assistant professor of engineering available Sept. 1 for the 1981-82 academic year. Open to recent Ph.D. in electrical engineering, engineering-physics, or applied physics with postdoctoral, industrial, or teaching experience in materials science, integrated circuits, and networks. Strong motivation and enthusiasm in working with a full spectrum of undergraduate students is imperative. Important in the evaluation of candidates will be their promise and commitment in quality undergraduate teaching in a joint physics and engineering department. Candidates wishing to apply for this position should send a curriculum vitae along with three references together with a statement as to how their services and aspirations specifically may benefit the department's growth to Dr. Robert G. Heeren, Chair, Dept. of Physics & Engineering, Pacific Lutheran University, Tacoma, WA 98447. PLU is an EEO/AA employer. Closing date May 1, 1981.

**Faculty Position, Rutgers University.** Applications are invited for a faculty tenure track position at the Assistant Professor level in the Department of Electrical Engineering in the area of Solid-State Electronics. Preference will be given to applicants with research experience in growth and characterization of III-V compound devices, electrooptical and microwave devices and integrated circuits. Responsibilities of the position include teaching of both undergraduate and graduate level courses and pursuing a strong research program. Send resume with the names of three references to Professor B. Lalevic, Department of Electrical Engineering, College of Engineering, Rutgers University, P.O. Box 909, Piscataway, NJ 08854. Rutgers University is an equal opportunity, affirmative action employer.

**One Asst./Assoc. and three Assistant Professors of Electrical Engineering.** Positions require teaching undergraduate and graduate courses, including laboratories, and aggressive pursuit of research. Applicants with qualifications and interest in one or more of the following areas will be considered: communications and digital systems, circuits and systems, electronics and large scale circuits, integrated optics, microwave CAD, microprocessors, and power. Prior teaching and industrial experience desired; earned doctorate required. Additional positions are anticipated: Two Visiting Assistant Professors, and four Visiting Lecturers in same areas as above. Positions are for September 1981. The University of South Florida is an affirmative action/equal opportunity employer. Contact: Secretary Search Committee, Electrical Engineering Department, College of Engineering, University of South Florida, Tampa, FL 33620.

**Faculty Positions in Solid-State Electronics, Computer Science, Electrical Engineering.** The Department of Electrical Engineering and Computer Science at Marquette University has full-time, tenure track and visiting faculty positions at the Assistant Professor level available beginning August 15, 1981. Responsibilities will include research and teaching (B.Sc., M.Sc. and Ph.D. curricula) in an on-going Electronics program (Silicon Device Designs Fabrication, SAW Devices, Circuit Design) or in programs in computer science or energy. Background must include Ph.D. Marquette University is an equal opportunity, affirmative action employer. Send vitae and three reference letters to: Dr. S. V. Jaskolski, Chairman — Department of Electrical Engineering and Computer Science — Marquette University — 1515 West Wisconsin Avenue — Milwaukee, WI 53233.

**College of Engineering, University of Riyadh, Riyadh, Saudi Arabia, Department of Electrical Engineering.** The Department of Electrical Engineering, College of Engineering, University of Riyadh, Riyadh, Saudi Arabia, will have faculty positions open for the academic year 1981-82 starting September 01, 1981. Candidates with Ph.D. in Electrical Engineering are invited. Preferred areas of specialization are: (1) Electric Machines (2) Power Systems (3)

Solid-State Electronics (4) Communication (5) Computer Engineering. Duties will include undergraduate and graduate teaching and research. Generous grants for research are available. Salary and rank commensurate with qualifications. Free air transportation to and from Riyadh each year. Ten months duty and two months paid vacation. Educational assistance to school age children. Initial contract for a minimum of one year, renewable and extendable to five year contract. Interested applicants should send their resume (including references, list of publications, research work) to: Dean, College of Engineering, P.O. Box 800, Riyadh, Saudi Arabia.

**Postdoctoral Fellow in the area of data communications.** Research projects will address the area of digital communications, active filters, microprocessors, digital and analog electronics. To contribute to an ongoing project on the design of microprocessor-based modems. Send resume and three reference letters to Dr. H.T. Mouftah, E. E. Dept., Queen's University, Kingston, Ontario, Canada, K7L 3N6.

**RF Design Engineers.** Minimum of 2 years in the design of circuits operating in HF, VHF, and UHF frequencies (2-400 MHz). Magnavox Philadelphia offers professional setting and amenities of a small, technically oriented facility. Inquiries invited by contacting Mel Alter, Magnavox, 1200 E. Mermaid Lane, Phila. PA 19116 (215/233-4100).

**Southern Opportunities.** Many Design/Test openings in analog, digital, micro-computer electronics, and in power distribution. Outstanding salaries/benefits. Fees/relocation paid. Mail your resume to Bob Carney, Atlantic States Personnel, P.O. Box 9928, Savannah, Ga. 31412.

**University of Pennsylvania, Department of Systems Engineering, Faculty Position September 1981.** A tenure track assistant professorship is available. We seek to expand strong programs in signal processing and communications and in systems methodology (control, optimization, decision theory, etc.). Applicants with interest and expertise in theory and hardware implementation of digital signal processing techniques are particularly encouraged. We have a large graduate program, an innovative undergraduate program, and an extensive sponsored research activity. We encourage development of new courses, labs, new research directions, and interdepartmental research to complement our undergraduate and graduate programs. Applicants must have a Ph.D., outstanding academic credentials, potential for self-initiated research, and the ability to interact productively with students and colleagues. Send a resume, names of three references and pertinent supporting material to: Dr. C. Nelson Dorn, Chairman, Department of Systems Engineering, University of Pennsylvania, Moore School of Electrical Engineering/D2, Philadelphia, PA 19104. The University of Pennsylvania is an Equal Opportunity/Affirmative Action Employer.

**Career Opportunities: Engineering/Management.** Weekly, nationwide listings via "Job Transmission Line" of American Public Power Association. Call Executive Referral Service recording 202/965-6ERS.

**Queen's University at Kingston, Department of Electrical Engineering.** Applications are invited for an Assistant Professorship in one or more of the following areas: digital computers and logic design, electronics, microprocessors and applications to control or communications, digital control. Background in teaching and research desirable. Industrial experience and Professional Engineering status advantageous. Basic duties will include undergraduate and graduate teaching, research compatible with the departmental program, and participation with other academic staff in the academic and administrative affairs of the department. Salary dependent upon qualifications. Candidates of both sexes are equally encouraged to apply. Submit detailed curriculum vitae, with letter and names of three referees, to be received no later than March 31, 1981 to P.H. Wittke, Head, Department of Electrical Engineering, Queen's University, Kingston, Ontario, K7L 3N6.

(Continued on p. 102)

# Classified advertising

(Continued from p. 101)

**Career Opportunity in Mississippi**—Education, B.S. or M.S. in E.E., top 25%, experience utility or manufacturing, salary based on education and experience. Howard Industries, Inc., P.O. Box 1588, Laurel, Miss. 39440. Telephone: (601) 425-3151. W.T. Blackledge.

**Research Associate.** The Electrical Engineering Dept. in a prominent university seeks candidates with a Ph.D. for a Research Associate staff position to coordinate research activities in system and estimation theory for Distributed Sensor Networks. The applicant should have a strong background in system and estimation theory, digital signal processing, source location techniques, exact least square estimation procedures, ladder form recursive algorithms, and speech processing or adaptive filtering. Responsibilities include software development in "C", system support on a VAX 11/780 running UNIX and formulation of grant proposals. Experience in university teaching and industrial research preferred. The salary range is \$22,000 to \$25,000 per year. Applicants send resumes by April 1, 1981 to Jim Peters, California Employment Development Dept., 297 West Hedding St., San Jose, CA 95110.

**Tired of large universities with their large problems?** Why not consider a small engineering college with only small problems? Rose-Hulman with 1200 students (85 percent engineering) is looking for a faculty member in Electrical Engineering starting in September 1981. This is a full-time tenure-track position with rank and salary commensurate with experience and qualifications. Department seeks applicants with Ph.D. or equivalent and a strong commitment to undergraduate education — research is important but has a secondary role at Rose. Teaching ability is most important since applicant will be expected to teach undergraduate courses to highly motivated, intelligent undergraduates. (1 out of every 11 students at Rose is a National Merit Scholar.) Send resume and references to: Professor Buck F. Brown, Head, Division of Electrical Engineering and Computer Science, Rose-Hulman Institute of Technology, 5500 Wabash Avenue, Terre Haute, IN 47803. R-HIT is an equal opportunity employer.

**The University of Iowa Institute of Hydraulic Research** seeks applicants for the position of Research Scientist. Candidates should have a B.S. degree in Electrical and Computer Engineering and an M.S. degree in Fluid Mechanics with experience in computer-based instrumentation systems for real-time acquisition and analysis of data in experimental fluid mechanics research. Responsibilities will include: 1) Design of electronic instruments for collecting, processing and interfacing fluid mechanics studies to minicomputer systems; 2) maintaining instrumentation systems of this type; 3) Programming minicomputers; and 4) conducting research closely related to and using sophisticated computer-based instrumentation systems. Experience with laser anemometry, minicomputers, and research activities in a hydraulics laboratory is desirable. The salary range will be \$25,000-\$29,000/year. Applications should be mailed to Job Service of Iowa, 1810 Lower Muscatine Road, Iowa City, Iowa 52240. The University of Iowa is an equal opportunity/affirmative action employer.

**University of Maine at Orono** invites applications for a tenure track position at the Assistant or Associate Professor Level in the Department of Electrical Engineering, available September 1981. Applicants should have a Ph.D. in Electrical or Computer Engineering, teaching experience, and interest in pursuing research. Preference will be given to candidates in the area of experimental solid-state engineering. Applicants should send a current resume and three references to W. H. Peake, Department of Electrical Engineering, 111 Barrows Hall, Orono, Maine 04469.

**Chairperson, Computer Science Department.** Professor or Associate Professor, Ph.D. in Computer Science or closely related discipline, with strong research credentials, mini-

um of five years academic or industrial experience, sought to lead established and expanding computer science department with faculty of 10, 40% undergraduate and 60% graduate majors, active research projects, strong ties to other components of the University. Salary commensurate with qualifications. Opportunity to participate in selection of replacement and new staff appointments. Apply by April 1, 1981 or until suitable applicant is found thereafter to: Dr. A. J. Surkan, Chairman, Search Committee, The University of Nebraska, Ferguson Hall, Lincoln, Nebraska 68588. Affirmative Action/Equal Opportunity Employer.

**Faculty Position, Electrical Engineering Department, University of Nevada-Reno.** A tenure track academic-year faculty position is anticipated beginning August 24, 1981. Minimum qualification for the position is the Ph.D. degree or equivalent. Industrial experience is highly desirable. Duties include teaching undergraduate and graduate courses, engaging in and seeking support for research and serving on academic committees. The specific appointment level will depend on the qualifications of the individual selected. Preference will be given to applicants with background and experience in computer systems or digital electronics; however, the department will consider expertise in other areas of electrical engineering. To apply, send resume by April 30 to: Chairman, Electrical Engineering Department, University of Nevada-Reno, Reno, Nevada 89557. The position is subject to legislative funding in the 1981 legislative session. UNR is an AA/EEO employer.

**Nevada-Bet on It!** Opening: Elec Eng-State Public Works Board \$32,168 now, \$36,671 proposed. Exclt benefits Tech/admin resp relating to bldg construction. Requires PE, EE deg, 6 yrs explncl 2 supvy. Location: Carson City. State capitol, pop 32,000, located at foothills of Sierra Nev Mtns. Half hr drive to Lake Tahoe & Reno. Exclt hunting, fishing, boating & skiing. Historic towns nearby. Low taxes, no state income tax. Send resumes/inquiries to Pauline Vandenberg, Nev State Personnel Div, Capitol Complex, Carson City, Nev 89710 or call 702-885-4045. EOE.

**Naval Postgraduate School, Monterey, California.** Electrical Engineering Department seeks faculty candidates at rank of Assistant Professor in communications, control, electro-optical signal processing and radar/electronic warfare. A strong background in digital techniques is required and interest in applied research involving hardware is desirable. Highly qualified candidates in closely related specialties will be considered if committed to making the transition to one of the above areas. Other qualifications include a Ph.D., dedication to high quality teaching and a strong interest in performing sponsored research, primarily with students in M.S. programs. Send resume, publications list, and names of three references to: Professor Donald E. Kirk, Chairman, Dept. of Electrical Engineering, Naval Postgraduate School, Monterey, CA 93940. An equal opportunity/affirmative action employer.

**Cornell University—Faculty Positions.** Cornell University's School of Electrical Engineering is interested in receiving applications for tenure track faculty positions, primarily at, but not limited to the level of Assistant Professor, in the areas of communications, information theory, decision theory, control theory, power systems control, integrated circuits and sub-micron technology, microwave circuits and devices, and radiophysics and geophysical plasmas. Applicants should be interested in and be capable of vigorously conducting and directing research in the above-mentioned areas and teaching at both the undergraduate and graduate levels in these and related areas. Doctorate required. Please send resume by April 1, 1981 to: Professor J.M. Ballantyne, Director of the School of Electrical Engineering, Phillips Hall, Ithaca, NY 14853. Cornell University is an Equal Opportunity, Affirmative Action Employer.

**Faculty position in Electrical/Electronic Engineering Technology at Vermont Technical College,** located in rural central Vermont. We are now accepting applications for a tenure track position beginning August 1981. Applicants should possess a BSEE and have either a MSEE or MSET or be a registered pro-

fessional engineer. Industrial experience preferred but not required. Salary and rank commensurate with background, liberal fringe benefits. Send resume and professional references to Bernard Carniggett, Acting Director, Engineering Technology Div., Vermont Technical College, Randolph Center, Vt. 05061. Closing date 15 April 1981.

**Chairman, Department of Electrical Engineering, Old Dominion University.** Nominations and applications are invited for this key position which will be opened in August 1981. The department has a productive young faculty with technical interests in digital/computer systems, communication/signal processing, control/mathematical system theory, electromagnetics/optics and pulsed power/physical electronics. Substantial growth over the past 4 years have resulted in strong bachelors, masters, and doctoral programs supported by rapidly expanding and diversified funded research. Candidates should have an earned doctorate in electrical engineering, a productive research record, academic administration ability, and a key interest in the full spectrum of electrical engineering education. Nominations, or applications including resume and the names of 3 references should be sent by April 13, 1981 to Doctor Griffith J. Mcree, Chairman, Search Committee, Department of Electrical Engineering, Old Dominion University, Norfolk, Virginia 23508. An affirmative action/equal opportunity employer.

**Assistant/Associate Professor.** The Department of Electrical Engineering at Tennessee State University is seeking 2 new faculty members for tenure-track positions starting in August 1981. Desired areas of specialization are Computer Hardware and Information Science, Digital Electronics and/or Micro Electronics, and Communication Theory and Signal Processing. Applicants should possess a Ph.D. degree and a potential for excellence in undergraduate and graduate teaching and research. Salaries are regionally competitive, from \$21,000 to \$25,000 depending upon experience. Applications containing a recent resume and a description of teaching and research experience should be sent to Dr. S.S. Devgan, Head, Department of Electrical Engineering, Tennessee State University, Nashville, TN 37203 by April 3, 1981. Late applications will be considered only if vacancies still exist. TSU is an Equal Opportunity/Affirmative Action Employer.

**Engineers, Microwave—Instrumentation—Material.** Help design, operate and manage a microwave materials sample and measurements laboratory. Measure materials properties using swept frequency, time domain and other methods in waveguide, coaxial line and special test fixtures. Experience with network analyzer and S-parameter techniques is required. Or, make ferrite, dielectric, plastic laminate and ceramic materials samples and models. N.J. Damaskos, Inc., Electromagnetic System Design and Development. To learn about salary/benefits/opportunities—submit resume and write to P.O. Box 469, Concordville, PA 19331, if you are a U.S. citizen experienced in the field. EOE M/F/V/H.

**California State University, Chico.** Electrical/Electronic Engineering has full-time tenure track opening, beginning August 24, 1981, teaching undergraduate electrical engineering courses including electromagnetics. Background in laser communications helpful. Earned doctorate or equivalent experience desired. Rank open, salary range \$19,692-\$34,476. Non-urban university located at base of beautiful Cascade-Sierra Nevada Mountains. Engineering curricula are ABET accredited. Send resume and references to Dr. Theodore O. Reyhner, Division of Engineering, California State University, Chico, CA., 95929. EO/AA/H/X employer. Closing date April 15, 1981.

**Faculty Position, Computer and Electronics Engineering.** George Mason University invites applications for an assistant professor position commencing in September 1981. Responsibilities include undergraduate and graduate teaching, active participation in research and program development. A Ph.D. is expected with expertise in an area such as computer engineering, digital communications systems, microelectronics, microcomputer systems, microprocessing, and digital signal processing. George Mason University, the State Univer-

sity of Northern Virginia, is located in the Washington, D.C. area which contains many high technology companies and consulting firms. The University has a rapidly growing student body of over 12,000 students and is expanding its undergraduate and graduate level offerings. Applicants should send a resume plus the names of three references by April 15, 1991 to Professor W.M. Black, Chairman of the Engineering Search Committee, Department of Physics, George Mason University, Fairfax, VA 22030. Equal Opportunity/Affirmative Action Employer.

**Faculty Position at the University of Central Florida.** The Electrical Engineering Department is seeking applicants for a tenure-track faculty position at the Assistant/Associate Professor level. Applicants should have a Ph.D. in Electrical Engineering or related discipline with specialization in Digital Systems or Solid-State Electronic Devices and Micro-Electronics. Appointee will be expected to teach undergraduate and graduate courses in electrical engineering and to participate in a strong ongoing research program. The University of Central Florida, located in Orlando Florida, is in the midst of, and interacts with, a high technology community. In addition, three major D.O.D. agencies in the area as well as NASA's Kennedy Space Center provide a major funding base and support for the Department's research and graduate program. The industrial community and the federal agencies also provide ample opportunity for consulting. Send resume to Dr. Brian Petresko, Chairman, EECS Department, University of Central Florida, Orlando, Florida, 32816. The University of Central Florida is an AA/EEO employer.

### Positions Wanted

Classified Advertising Rates for "Positions Wanted" column: \$15.00 per line. 50% discount for members of IEEE (please supply membership number with copy; 50% discount applies only in "Positions Wanted" column, not in "Positions Open"). Copy must be received by the 1st of the month preceding date of issue. Address replies to Box Number given, c/o IEEE Spectrum Advertising Department, 345 East 47th St., New York, N.Y. 10017.

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**25 Years Broad Experience.** MSEE. Manager microprocessor group — HW&SW design, manufacture, installation, service etc. Children grown — wife and I wish travel and challenges. Suggestions, please. Box 8595.

**Ph.D. Computer Software Engineer,** IEEE leader, 14 yrs. successful R&D manager, exceptional planner and producer, seeks broader information systems career. Reply Box 8596.

**Electronics Engineer—Mature** professionally oriented BSEE, PE with FCC 2nd Class Phone and Adv. Class Radio Operator's Licenses, 20 yrs. of diversified engineering experience in industry and some part-time in teaching Electronics. Seeks Electronics Technology Faculty Position (Spring-Fall 91) with private or public Technical Institution located near or in the Metropolitan NY/NJ/CT area. Box 8597.

Engineering

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