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Institute of Electrical and Electronics Engineers, Inc.*

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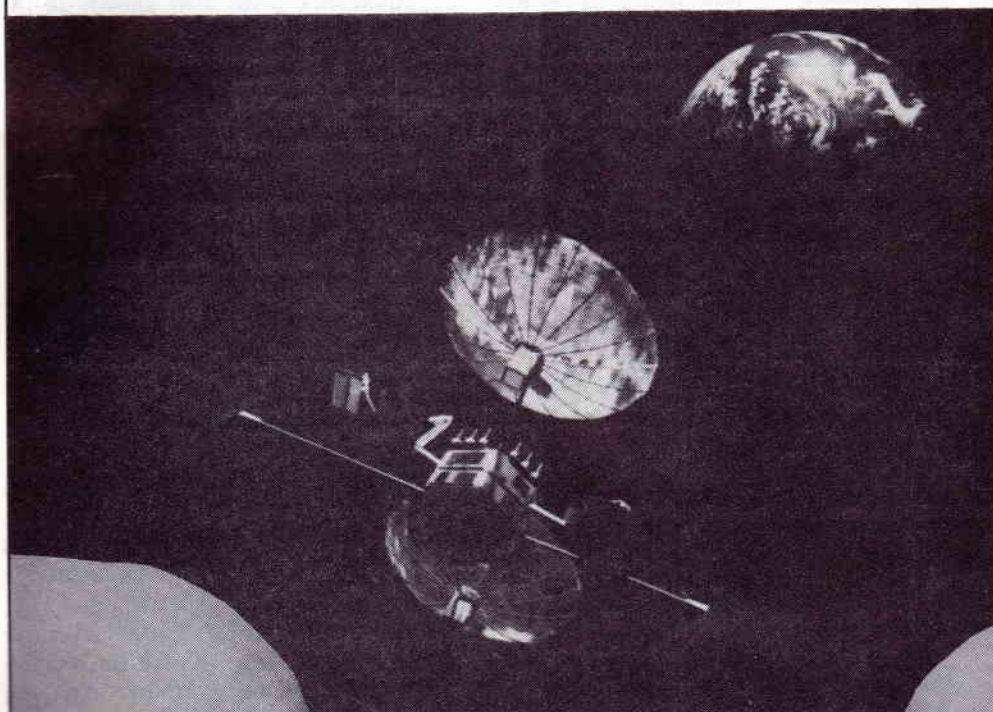
VOLUME 45

NOVEMBER 1983

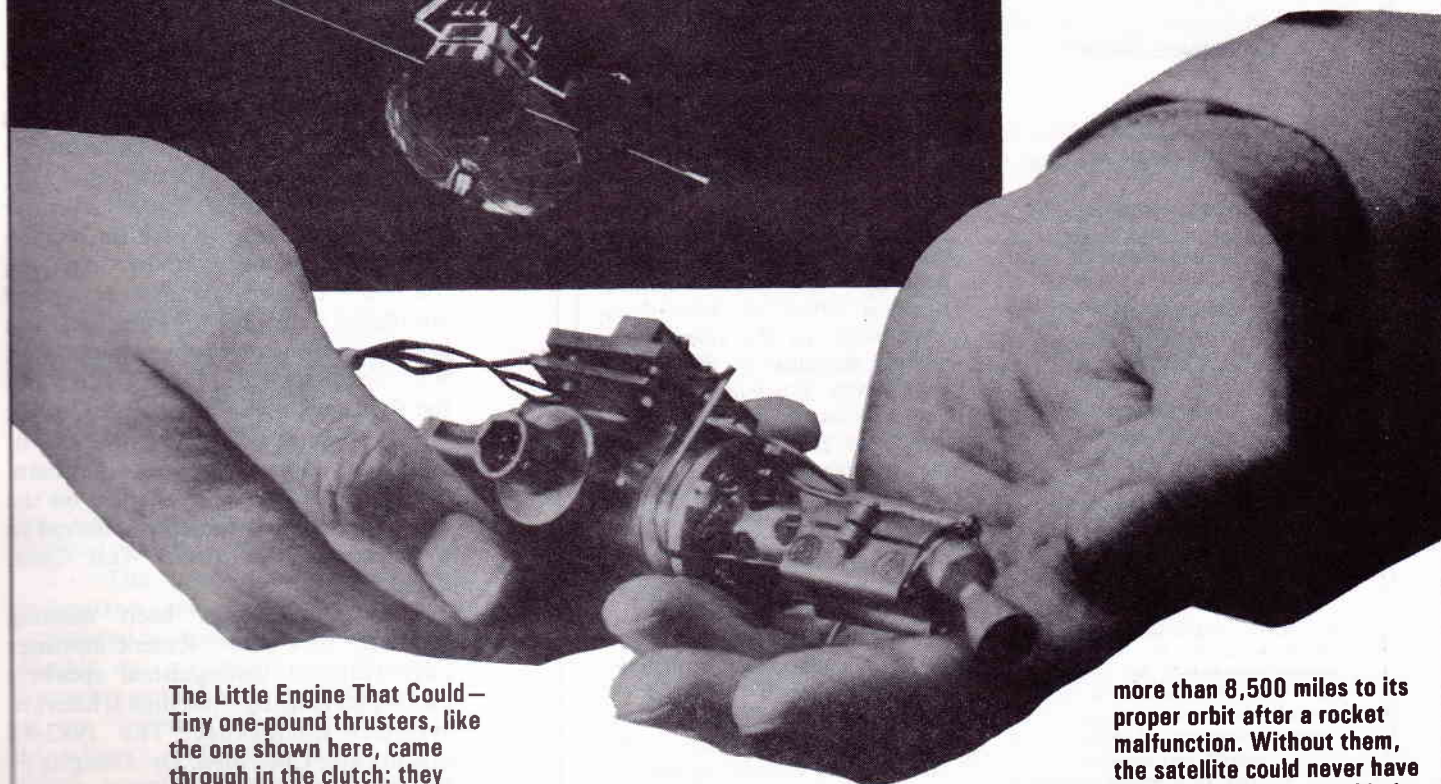
Number 10

RESCUE IN SPACE

Story on Page 7



Spanning 57 feet from tip to tip, the Tracking and Data Relay Satellite orbits the Earth in this artist's rendering. The satellite can transmit as many as 300 million "bits" of information per second—the equivalent of a 140-volume encyclopedia.



The Little Engine That Could — Tiny one-pound thrusters, like the one shown here, came through in the clutch: they moved the 5,000-pound Tracking and Data Relay Satellite

more than 8,500 miles to its proper orbit after a rocket malfunction. Without them, the satellite could never have been deployed as a sophisticated switchboard in space.

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION

(Act of October 23, 1962; Section 4369;
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James A. Pearson, Editor

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No. 10

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ORANGE COUNTY CHAPTER OF THE ACOUSTICS, SPEECH, AND SIGNAL PROCESSING (ASSP) SOCIETY

Efforts to found an ASSP Chapter in
Orange County were initiated by Dr.
Stanley A. White in 1980, and a petition
for Chapter formation was submitted to
the IEEE in February, 1981.
Unfortunately, early in the calendar
year is not the time to petition because
many IEEE members are late in paying
their dues and are not members in good
standing. Thus, the first petition
bounced. However, proper paperwork
was eventually blessed by the IEEE and
the first meeting of the Orange County
ASSP Chapter was held in the fall of
1981 with Stan White as Chairman.
This is the only ASSP chapter on the
West Coast and is therefore referred to
by easterners as "the West Coast
Chapter."

The Chapter has been meeting
quarterly ever since. Recent meetings
have featured distinguished speakers
and topics ranging from digital filters to
artificial intelligence. The 1982-83
officers are: Chairman, Dr. Douglas F.
Elliott; Vice-Chairman, Dr. Lawrence
R. Weill; and Secretary-Treasurer, Dr.
David L. Hench.

A CHALLENGE FROM IEEE'S PRESIDENT— ELECT

I need your help! On January 1st, 1984 IEEE will begin its centennial celebration. It would be a great achievement if we can begin this celebration year a quarter million strong. This membership goal will be a challenge to achieve during the remaining months of 1983, but with your support, I believe we can achieve it.

To heighten interest in the effort and involve the entire membership a "Member Recruit a Member" campaign is being launched between September 1 and December 31, 1983. Every Member recruiting a higher grade Member, and complying with contest rules, will receive a centennial gift certificate from IEEE worth up to \$15.00 for each member recruited. The gifts to be awarded are attractive IEEE centennial items such as, key rings, ties, scarves, portfolios, banners and valuable prizes. The gift may be submitted for gifts by recruiter, or donated to the Section, Chapter or Society, membership efforts.

membership promotion it will require your publicize it widely and involved in promoting recruitment efforts at all meetings and events and December 31, 1983. The rules for the contest are in anticipation of your response and support of new membership you for your help.

CENTENNIAL 1984 MEMBER GET A MEMBER CONTEST RULES

The applicant recruited must be of higher grade membership (above Student grade).

The application must be submitted with payment and a form attached to be eligible for gift certificate. Recruiter forms published in the October issue of IEEE and available from Membership Development. These forms are reproduced by local sections. If copies are depleted, A request for copying, is printed

on this rules sheet.

3.) Recruiter forms must accompany the application and dues payment. Recruiter forms submitted separately will not be eligible for gift certificates. In the absence of a recruiter form, a letter by the applicant stating the member recruiter name, membership number, and address being submitted with their application and payment will be accepted in lieu of recruiter form.

4.) To be eligible to receive gift certificates, application, payment and recruiter forms must be received by IEEE no later than December 31, 1983.

5.) A certificate worth up to \$15.00 towards centennial items will be sent to the member recruiter for each new higher grade IEEE Member. Information on the centennial items available, and the procedures for redeeming gift certificates, will be provided with each certificate. There

are centennial items for both single and multiple certificates. Members may choose to combine their certificates to obtain larger valued centennial items.

6.) All IEEE Members including Student Members are eligible as recruiters to receive centennial gift certificates.

7.) 1983 membership applications will be accepted for 1984 membership or until 1984 membership applications become available. After December 31, 1983 applicants submitting applications with 1983 dues rates for 1984 membership will be invoiced for the balance due.

8.) Membership applications and recruiter forms are available free of charge from IEEE Service Center, Membership Development Department, 445 Hoes Lane, Piscataway, NJ 08854 or by telephoning (201) 981-0060 Ext. 301.



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Recruit a new member above Student grade and win* a gift certificate to claim valuable IEEE centennial gifts. WIN IEEE centennial ties, scarves, digital clocks, mugs and other commemorative items.

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RECRUITERS NAME _____

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ADDRESS _____

This recruiter form must be accompanied by application and payment to receive gift certificate. Recruiter forms mailed separately from application **will not** be eligible.

*Applications must be received at IEEE by December 31, 1983 to be eligible to receive prize.

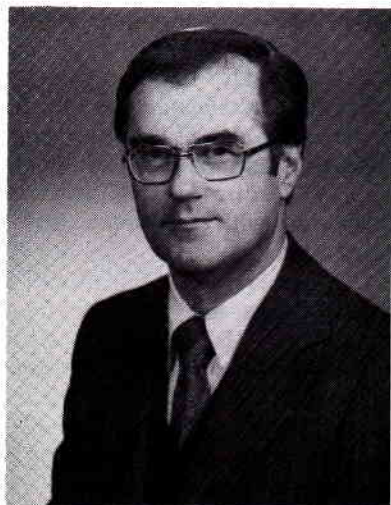
Additional recruiter forms are available from
IEEE MD, 445 Hoes Lane, Piscataway, NJ 08854.

MICROWAVE CIRCUITS AND SALARIES

Speaker:

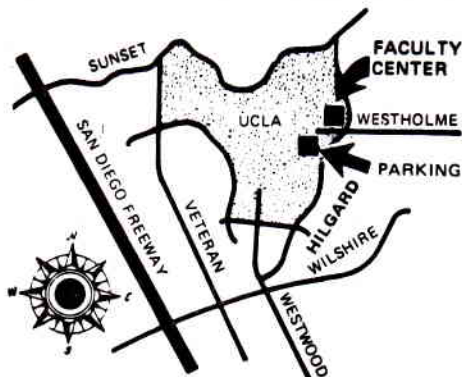
Allan C. Schell

Electromagnetic Sciences Division
RADC, Hanscom AFB, MA 01731



Microwave antenna technology is undergoing a significant and persistent evolution. Needs for greater performance are leading to smarter antennas, where the capability for adaptivity is integrated into the RF hardware. The trend is to integrate active circuits into the radiating structure. This talk will describe the directions of microwave integrated antenna technology, and the applications, with some examples of current practice. The second part of the talk will cover career trends in engineering. There will be a brief analysis and projections of salaries of electrical engineers, with some hints on career rewards and responsibilities.

Allan C. Schell is Director of Electromagnetic Sciences Division of Rome Air Development Center, Hanscom Air Force Base, Massachusetts. He received his education from MIT and the Technical University of Delft, Holland. He is a Fellow of the IEEE, a registered professional engineer, and a representative to the U.S. National Committee of URSI. He has served as



Editor of the IEEE Transactions on Antennas and Propagation, Editor of the IEEE PRESS, President of the Antenna and Propagation Society, Director of ELECTRO, and Director of the IEEE.

This is a students' night meeting, jointly sponsored by the Los Angeles Chapters of the Microwave Theory and Techniques Society and the Antennas and Propagation Society, and invited students and their Faculty Sponsors will be guests.

The technical meeting will start at 7:30 p.m., Tuesday, November 15, 1983, in the California Room at the UCLA Faculty Center, 405 Hilgard Avenue, UCLA Westwood Campus. The technical meeting will be preceded by a social at 6:00 p.m. and dinner at 6:30 p.m. (\$9.00).

For information or dinner reservations (needed by November 11) call Dr. Sembiam Rengarajan, Jet Propulsion Laboratory (213) 354-2814 or 354-3916.

BRUSHLESS ULTRA-EFFICIENT REGENERATIVE SERVOMECHANISMS

The Metropolitan Los Angeles Section is pleased to announce that Mr. Dick Fradella, Chief Executive Officer of Regenerative Power and Motion, Inc., will be the speaker at their joint luncheon meeting with the Power Engineering Society, L.A. Chapter, November 15, 1983, at Luminarias Restaurant in Monterey Park.

Mr. Fradella, BSEE U.C. Berkeley and MSEE California Institute of Technology, will speak on his new invention, "Brushless Ultra-Efficient Regenerative Servomechanism," U.S. patent pending Serial No. 433-170.

Some advantages of this system:

- No commutator brushes or sliding rotor contacts, nor their losses, heat, friction, wear, maintenance, sparks, RFI, speed limitations.

- Can drive and regeneratively brake/decelerate/reverse on command, handle up to a horsepower per pound at 94% servo efficiency.

- Can exert full torque under continuous overload including locked rotor, without shutdown, overheating, or servo damage.

- No rotor excitation or dissipation, no need for coolant or air flow. Permits protective sealed housings, continuous unventilated operation.

- No torque pulsations, no cogging torque, no pole-slip.

- Derives continuous lagless position and speed feedback internally for position control, zero-error speed compliance, adaptive torque and braking control, self-programming, at lower cost.

- No excessive currents or surges to weaken motor magnets.

Time: 11:30 a.m. (social), 12:00 noon (lunch)

Location: Luminarias Restaurant, 3500 Ramona Blvd., Monterey Park, Calif. 91754

Reservation & Information: Matthew Collins (213) 847-9650 or Nora Higgason (213) 921-4069 by Nov. 11, 1983.

ORANGE COUNTY AEROSPACE FIRM TO HOST WINCON '84

C. James Dorrenbacher, Vice President-General Manager of McDonnell Douglas Astronautics Company-Huntington Beach, has been named general chairman of WINCON '84, the 25th annual Winter Convention on Aerospace and Electronic systems.

The theme for WINCON '84, to be held Feb. 15-17 in Costa Mesa, Calif., is "Strategic Initiatives of the 80s and Tactical Readiness: A Report."

Dorrenbacher is an engineering graduate of Purdue University and holds a masters degree in electrical engineering from the University of Illinois. He became Vice President-General Manager of MDAC-HB in 1979 and also was named a Corporate Vice President in 1981. He originally joined Douglas Aircraft Company as an electronics field group engineer at White Sands, New Mexico, following his graduation from Illinois in 1950.

Kenneth A. Francis, MDAC Vice President for advanced product development, is Assistant General Chairman.

WINCON is sponsored each year by the Los Angeles Council of the Institute of Electrical and Electronic Engineers (IEEE) and the Aerospace Electronic Systems Society (AESS). The three-day event attracts about 500 attendees from the ranks of management, as well as engineers and scientists working in the aerospace and electronic industries, government and the military.

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Microwave Design Engineer	To \$35,000
Communications Systems Engineer	To \$49,000
Senior Analog Engineer	To \$40,000

Microprocessor Engineers

Microprogrammer - 8085	To \$34,000
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Diagnostics Software Engineer	To \$35,000
Senior Communications Programmer	To \$40,000
Software Product Assurance	To \$45,000
CPU Systems Designer	To \$41,000
Graphics Microcoder	To \$40,000
CAD/CAM Engineer	To \$39,000
Intel 8086 Image Processing	To \$46,000
Local Networks Designer	To \$40,000
Electronics Packaging Engineer	To \$30,000
Microelectronic Connector Engineer	To \$35,000

Management

Software Managers	To \$45,000
Quality Assurance Manager	To \$35,000

CPU Section Manager	To \$55,000
Manufacturing/Process Manager	To \$40,000
Operations/MRP Manager	To \$40,000

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Test Engineering Manager	To \$45,000

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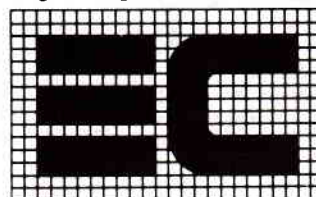
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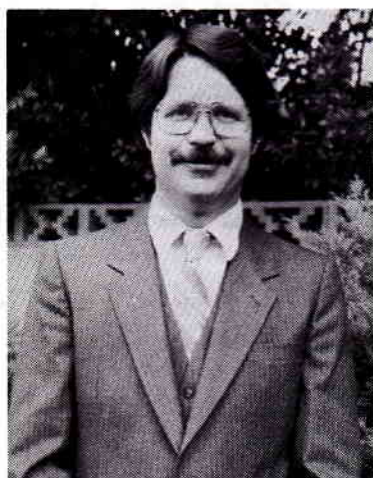
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Dr. Loren P. Clare

Communications systems often require the multiplexing of data from many sources over a common channel. Data arrives at random instants, thus requiring data to queue in a finite capacity buffer. The system may be designed so that the relative priority of the sources is reflected by the resulting performance. Dr. Loren P. Clare will discuss the set of all achievable performances for given arrival statistics and buffer capacity, where the performance is measured in terms of the vector of the buffer overflow probabilities.

Loren P. Clare received his B.A. and M.A. degrees in Mathematics, and his Engineer and Ph.D. degrees in Communications Systems, from the University of California at Los Angeles. Since 1980 he has been with the Communications Systems Research Section at the Jet Propulsion Laboratory, where he is a Member of the Technical Staff. His interests are in the modeling, analysis, and design of communications systems, primarily in the area of communications networks.

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THE SOVIET THREAT

Soviet Weapons, Strategy and Tactics In Relation to USSR Expansionism

Speaker:

Howard L. Christensen
Strategic Analyst
Northrop Corporation

Since the Romanov dynasty, Russian policy has been territorial expansion through conquest. The awesome array of weapons the Soviets now have at their disposal to accomplish this expansion will be discussed and a comparison will be made with the U.S. arsenal.

Comparison of strategic nuclear weapons will be emphasized and the Arms Control Treaty related issues of throw weight, number of warheads, and number of launchers will be considered. SALT I, SALT II, ABM, and START treaties will be discussed as will be the status of chemical and biological warfare preparations.

The Soviet strategy and tactics for world domination including the roles of terrorism, espionage, and disinformation will be examined. The presentation will conclude with a short briefing on the asymmetry in defense systems, e.g., Air Defense, Ballistic Missile Defense, and Civil Defense.

The meeting will be held at the LAX Holiday Inn on Tuesday, November 22nd. Cocktails at 6:00 p.m., dinner at 7:00 p.m., presentation at 8:00 p.m.. For reservations, call Ev King (213) 418-5266, Stan Stewart (213) 418-6477, or David Thornhill (213) 318-2611.

**NOTE: See Calendar Section;
NPSS-05, Tuesday, November 22,
1983.**



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VULNERABILITIES AND RESILIENCY OF COMPUTER SYSTEMS

Vulnerabilities and resiliency of computer systems is the topic of a talk to be given by Dr. Rein Turn at the November 21, 1983 meeting of the San Fernando Valley Section.

Large-scale automation in industrial computer systems has created new vulnerabilities which may lead to catastrophic disruptions in a society and its quality of life. A set of potential vulnerabilities are identified and discussed in the meeting. Recommendations are presented to increase the resiliency of individual computer systems to minimize vulnerabilities to catastrophic disruptions.

Dr. Turn is Professor of Computer Science at California State University, Northridge. His principal research and teaching areas are computer security, computer architectures, distributed processing, and social impacts of computer systems. He has published numerous papers on these topics and made conference presentations in the U.S. and abroad. He is the editor of "Advances in Computer System Security" and has chaired the CS Technical Committee on Security and Privacy and the AFIPS panels on Transborder Data Flows as well as on Resiliency of the U.S. Information Society. Prior to CSUN he was with TRW and The Rand Corporation. He is a senior member of the IEEE.

The meeting will take place on Monday, November 21, 1983 at 6:30 PM in the Plaza Suite Restaurant located at 18460 Roscoe Blvd., Northridge, CA. For reservations and more information, call Kim or Sergene (213) 885-2190.

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RESCUE IN SPACE OF THE TDRS FLIGHT

A special IEEE Santa Monica Bay Section and Reliability, Aerospace and Computer Chapters dinner meeting will be held at the Hacienda Hotel on Thursday, November 17, 1983.

The real life drama of the successful recovery of the Tracking and Data Relay Satellite after it was cast into a tumbling elliptical orbit will be described by the TRW task team leader, Emery Reeves. On last April 5, during the Shuttle Mission 6 flight, the Inertial Upper Stage (IUS) manufactured by Boeing Aircraft experienced a lock up of the 25,000 lb. thrust motor's movable nozzle, thus making it an unguided stage. This resulted in an anomalous spinning of the TDRS in the improper orbit. The details of how precise planning and a combination of fortuitous events were utilized over a period of months will be recounted. Don't miss this amazing story of how the expertise of about 150 controls, structures, orbital mechanics, analysis, test and software specialists were brought together to rescue TDRS from a doomed wild ride in space.

Emery I. Reeves is from Chillicothe, Ohio and received his Bachelor of Electrical Engineering degree from Yale University in 1951 and his Masters in the same field from M.I.T. in 1954. From 1955 to 1958, he served in the U.S. Navy as Assistant Officer-in-charge of Guided Missile Service Unit 211.

In 1958, Mr. Reeves joined TRW as a Control Systems Engineer. Subsequent assignments as Section Head and Department Manager included work on the Thor, Atlas, Titan, and Minuteman Weapon Systems, design and development of the Defense Space Project, VELA and OGO Attitude Control Systems, design and development of the ABLE and ABLE Star Upper Stage Control Systems, and a wide variety of study programs. In 1965, Mr. Reeves became Project Manager of Project 169, a classified military spacecraft. In 1972 he became Project Manager of FLTSATCOM, a military communications satellite. Currently Mr. Reeves is Vice President and General Manager of the Spacecraft Engineering Division, responsible for the engineering design of TRW's Spacecraft and Spacecraft Subsystems. The Spacecraft Engineering Division employs 1,000 people in the technical disciplines of Mechanical Engineering, Control and Sensor Systems, Electric

Power, Command and Data Handling, and Spacecraft Integration.

During his free time, Emery serves as a Scoutmaster and Soccer Coach. He enjoys boating and duck hunting.

He resides in Palos Verdes with his wife, Emmy, and three of their four children.

The Hacienda Hotel is located at 525 N. Sepulveda Blvd., El Segundo, CA. Take the San Diego Freeway to Imperial offramp, then west to Sepulveda Blvd., then south to the Hacienda. Cocktails are at 6:00 p.m., dinner at 6:30. The presentation will follow dinner at approximately 7:30 p.m. Non-members are invited. A roast prime rib dinner will be served and your reservations should be made by sending

a check by November 11, 1983 to the IEEE, P.O. Box 1285, Pacific Palisades, CA 90272, or call Sam Lehr at (213) 535-2905.



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The Aerospace Corporation has immediate openings for individuals with a degree in electrical engineering or physics and background in one of the areas listed:

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Design, analysis, and measurement of advanced antenna concepts for space and ground applications. Demonstrated background with state of the art computer codes. Familiarity with adaptive processing technology. System level appreciation of antenna design impacts and evaluation of projected system performance.

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Statistical communication theory, modulation, coding, filtering and propagation effects; spread spectrum technology. Satellite laser communications.

COMMUNICATION SYSTEM ARCHITECTURE

Satellite communication technology. Communication satellite system trade studies; SHF, EHF, and laser links, military terrestrial communication system synthesis.

MICROWAVE SYSTEMS TECHNOLOGY

Design and test of microwave components including solid state components for space applications; hardware design and development of low noise receivers, power amplifiers and antennas. TWT amplifier and TWT power supply design, development, test in satellite applications.

RADAR SYSTEMS

Design and analysis of radar system for space and ground applications. Theoretical and hardware aspects of receivers, transmitters and signal processing; ECCM techniques and clutter suppression techniques.

TT&C SYSTEMS

Engineering analysis and design of TT&C systems including COMSEC equipment. Digital and analog circuit design for spaceborne telemetry, data transmission, modulation/demodulation techniques, telemetry data processing. ECCM, test and flight operations related to TT&C systems. Spaceborne tape recorders technology. AFSCF experience desired.

Qualified persons are invited to forward a detailed resume together with salary information to:



The Aerospace Corporation

Professional Placement, M1/118, Dept. 00424
2350 E. El Segundo Blvd., El Segundo, CA 90245

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IEEE MEETINGS CALENDAR

ACOUSTICS, SPEECH AND SIGNAL PROCESSING (S-1)

Reservation & Information: Douglas F. Elliott (714) 632-2340

Wednesday Nov. 9

AEROSPACE AND ELECTRONIC SYSTEMS (S-10)
Topic: Army AH-64 Attack Helicopter: A Total System for Battle
Speaker: Doug Fouse, Section Manager, Weaponization and Fire Control System Interface Design Group; Hughes Helicopters, Inc., Culver City, CA
Time: Dinner 7:00 p.m.; Meeting 8:00 p.m.
Location: Pacifica Hotel, Redondo Room
6161 West Centinela Avenue, Culver City
(Exit from San Diego Freeway at Centinela Avenue)

Reservations & Information: John Van Egmond (213) 988-2600 Ext. 7153
Bill Hartman (213) 615-8432
Sam Eiferman (714) 632-3912
Dinner \$10 including dessert, service and tax but reservations are required. Reservations no later than 7 November.

Thursday Nov. 17

JOINT—AEROSPACE AND ELECTRONIC SYSTEMS (S-10), COMPUTER LOS ANGELES (S-16.1) AND RELIABILITY (S-07) SOCIETIES

Topic: Rescue in space of the TDRS Flight 1
Speaker: Emery Reeves, V.P. & General Manager, TRW, Spacecraft Engineering Division
Time: Dinner 6:30 p.m.
Location: Hacienda Hotel
525 N. Sepulveda Blvd.
El Segundo, CA

Reservations & Information: Samuel N. Lehr (213) 535-2905
Send \$11.50 to: IEEE Computer Society, P.O. Box 1285, Pacific Palisades, CA 90272

Tuesday Nov. 15

JOINT MEETING OF THE AP-S (GROUP 3) AND MTT-S (GROUP 17) SOCIETIES, LOS ANGELES CHAPTERS
Topic: Microwave Circuits and Salaries
Speaker: Allan C. Schell, Director of Electromagnetic Sciences, Division of Rome Air Development Center, Hanscom Air Force Base, Mass.
Time: Social period 6:00 p.m.; dinner 6:30 p.m.; (\$9.00); meeting 7:30 p.m.
Location: California Room, UCLA Faculty Center, 405 Hilgard Avenue, UCLA Campus

Reservations & Information: Dr. Sembiam R. Rengarajan, Jet Propulsion Laboratory, (213) 354-2814 or 354-3916. Dinner reservations by November 11.

Thursday Nov. 17

BUENAVENTURA SECTION (512)
Topic: Advances in Floppy Disk Technology—3½-inch vs. 5¼-inch
Speaker: Anil Deodhar, Project Manager 3½-inch Disk Development Tandon Magnetics
Time: 7:30 p.m., Coffee, tea, dessert; Meeting 8:00 p.m.
Location: Community Room, Oaks Mall, Thousand Oaks, CA.
Park and enter Oaks Mall on North side, East of J.C. Penny Co.

Reservations & Information: C. Glen Stuck (213) 706-6414

CHINA LAKE SECTION (513)

Reservations & Information: Mel Creusere (714) 939-2009

CIRCUITS AND SYSTEMS (S-04) AND ELECTRONIC DEVICES (S-15)

Reservations & Information: Stan Wong (Secretary) (714) 871-500 X1087
Gertrude Katz (Publicity) (213) 812-1460

Wednesday Nov. 16

JOINT MEETING—COMMUNICATIONS (S-19) AND VEHICULAR TECHNOLOGY (S-06)

Topic: Los Angeles Police Dept. Emergency Command, Control, Communications System
Speaker: Capt. David Burney plus speakers from Systems Development Corp. and E-Systems
Time: Presentation 7:30 p.m. (no dinner planned)
Location: Parker Center Auditorium, 150 N. Los Angeles St.

Reservations & Information: Gary Gray (714) 834-2123 by Nov. 10, 1983 PLEASE (Accommodations are limited—RSVP now!)

Wednesday Dec. 7

Topic: Testing complex electronics
Location: Proud Bird Restaurant, 11022 Aviation Boulevard, Los Angeles
Time: Social Hour 5:30 p.m.; Dinner 6:30; Program 7:30 p.m.

Reservations & Information: John F. Perkins (213) 357-6083

Thursday Nov. 17

JOINT—COMPUTER, LOS ANGELES (S-16.1), RELIABILITY (S-07), AND AEROSPACE AND ELECTRONIC SYSTEMS (S-10) SOCIETIES

Topic: Rescue in Space of TDRS Flight 1
Speaker: Emery Reeves, VP & General Manager, TRW, Spacecraft Engineering Division
Time: Dinner 6:30 p.m.
Location: Hacienda Hotel, 525 N. Sepulveda Blvd., El Segundo, CA

Reservations & Information: Samuel N. Lehr (213) 535-2905; Send \$11.50 to: IEEE Computer Society, P.O. Box 1285, Pacific Palisades, CA 90272

Dec 1, 2 & 3

Topic: Hardware/Software/Reliability
Speaker: Gene Barnett, TRW, System Engrg./Irv Doshay, TRW & Lecturer at Univ. Calif. courses/Annette Frimzis, Consultant, formerly TRW/Sam Lehr, TRW, Product Assurance/Myron Lipow, TRW, Lecturer at Univ. Calif. Course & Text Author
Location: TRW Training Facility, El Segundo, CA

Reservations & Information: Sam Lehr (213) 535-2905
Myron Lipow (213) 536-2001

Wednesday Nov. 16

COMPUTER, ORANGE COUNTY CHAPTER (16.2)
Topic: The-soon-to-be-announced ZILOG 800
Speaker: Mr. Thomas Wright from Zilog Corporation
Time: 8:00 p.m.
Location: Cal-Comp Auditorium, 2411 W. LaPalma Avenue, Anh. CA 92801

Reservations & Information: Demetris Michalopoulos (714) 773-3717

CONTROL SYSTEMS (S-23)

Reservations & Information: W. Larry Bacon (213) 573-5663

ELECTROMAGNETIC COMPATIBILITY, LOS ANGELES (S-27)

Reservations & Information: Fred J. Nichols (213) 870-9383

Thursday December 6

ELECTROMAGNETIC COMPATIBILITY, O.C. (S-27)
Topic: Spacecraft Charging Design Considerations for Galileo near Jupiter
Speaker: Al Whittlesey, Member of the Technical Staff
Jet Propulsion Laboratory, Pasadena
Time: Social hour 6:00 p.m.; dinner 7:00 p.m.; speaker 8:00 p.m.
Location: Saddleback Inn, Orange Room, 1660 E. 1st St., Santa Ana (Take 1st St. offramp from Santa Ana Freeway, go 1 blk. west to Inn)

Reservations & Information: Ed Nakauchi (714) 730-2577
John Knighten (619) 565-7171

ENGINEERING IN MEDICINE AND BIOLOGY (S018)

Reservations & Information: W. Larry Bacon (213) 573-5663

ENGINEERING MANAGEMENT (S-14) EDUCATION (S-25), AND PROFESSIONAL COMMUNICATION (S-26)

Reservations & Information: Samuel Lehr (213) 535-2905

Tuesday Nov. 15

FOOTHILL SECTION (514)
Topic: Alternative Energy Sources
Speaker: Southern California Edison Company Staff
Time: 7:00—Optional dinner (\$9.00)
Location: The Red Lion Inn, 222 N. Vineyard Ave., Ontario
Reservations & Information: By Friday Nov. 11; Gary Davison (213) 915-9812
Barry Bailey (213) 864-3794; Dave Mains (714) 787-7425

GEOSCIENCE AND REMOTE SENSING (S-29)

Reservations & Information: Fred Aminzadeh (714) 528-7201 X2494

Wednesday Nov. 9

Topic: Digital Techniques in Molded Case Circuit Breaker Sensing and Tripping Units
Speaker: William E. May—Manager, Electronics Development for I-T-E Electrical Products, a division of Siemens-Allis, Inc.
Time: Social hour 5:30 p.m.; dinner 6:30 p.m.; meeting 7:30 p.m.
Location: Taix Restaurant, 1911 W. Sunset Blvd., Los Angeles

Reservations & Information: Gail Bartholomew, (213) 796-9141 X118

Wednesday Nov. 30

Topic: Performance Boundaries of Prioritized Multiplexing Systems
Speaker: Dr. Loren P. Clare, Member of the Technical Staff, Communications Systems Research Section: Jet Propulsion Laboratory, Pasadena
Time: Social Period 6:30 p.m.; dinner 7:00 p.m.; meeting 7:45 p.m.
Locations: Hacienda Hotel Dining Room, 525 N. Sepulveda Blvd., El Segundo (One mile south of LAX, between Imperial and El Segundo Blvds.)

Reservations & Information: Victor Li, Chairman (213) 743-5543/Tom Carter, Vice Chairman, TRW, (213) 535-7676/Dinner \$10 including beverage service and tax. Lecture is free and open to all.

INSTRUMENTATION AND MEASUREMENT (S-09) INDUSTRIAL ELECTRONICS (S-13)

Reservations & Information: W. Larry Bacon (213) 573-5663

Wednesday Nov. 16

Topic: Magnetic Analysis, Two Computer Programs
Speaker: Provided by Bheem Sahgal, Control Data
Time: Dinner 6:00 p.m.; presentation 8:00 p.m.
Location: #14 Steele Hall, Bldg. 61, California Inst. of Technology, Chester St. Pasadena. Park south of Del Mar on Chester St. No reservation needed for meeting.

Reservations & Information: Dinner 6:00 p.m., One West Restaurant. One West California St., Pasadena. Corner of Fair Oaks and California. Menu prices from \$6.95 plus tax, plus 15% tip. Dinner reservations by noon on Tuesday, November 15 - Philip Massie (213) 839-6498 or Art Grinnell (213) 988-2600 X6949

Tuesday Nov. 15

Topic: Brushless Ultra-Efficient Regenerative Servomechanisms
Speaker: Mr. Dick Fradella, Chief Executive Officer, Regenerative Power and Motion, Inc.
Time: Social 11:30 a.m.; lunch 12:00 (\$8.00)
Location: Luminaria's Restaurant, 3500 Ramona Blvd., Monterey Park
Reservations & Information: Matthew Collins (213) 847-9650 or Nora Higgason (213) 921-4069 by November 11

Tuesday Nov. 15

Topic: Microwave Circuits and salaries
Speaker: Allan C. Schell, Director of Electromagnetics Sciences Div. of Rome Air Development Center, Hanscom Air Force Base, Mass.
Time: Social period 6:00 p.m.; dinner 6:30 p.m. (\$9.00); meeting 7:30 p.m.
Location: California Room, UCLA Faculty Center., 405 Hilgard Ave., UCLA Campus

Reservations & Information: Dr. Sembiam R. Rengarajan, Jet Propulsion Laboratory (213)354-2814 or 354-3916; Dinner reservations by Nov. 11

Tuesday Nov. 22

Topic: The Soviet Threat
Speaker: Howard L. Christensen
Time: Cocktails, 6:00 p.m.; Dinner 7:00 p.m.; Presentation 8:00 p.m.
Location: LAX Holiday Inn, 9901 La Cienega Blvd., Los Angeles (Just west of the San Diego Fwy. at the Century Blvd., exit.)

Reservations & Information: E. E. King (213) 418-5266/S. H. Stewart (213) 418-6477 D. H. Thornhill (213) 318-2611

OCEANIC ENGINEERING (S-22)

Reservations & Information: W. Larry Bacon (213) 573-5663

ORANGE COUNTY SECTION (516)

Reservations & Information: John J. Peterson (714) 863-0102 X548
Gene H. Hostetter (714) 833-6627 X5467

POWER ENGINEERING (S-31) LA.

Reservations & Information: Chris Damron (213) 481-8852

QUARTERLY MEETINGS—NEXT MEETING IN JANUARY 1984 JOINT-POWER ENGINEERING (S-31) AND INDUSTRY APPLICATIONS (S-34), ORANGE COUNTY

Reservations & Information: Dr. Khalil N. Zadeh (714) 838-0511

QUANTUM ELECTRONICS AND APPLICATIONS (S-36)

Reservations & Information: William H. Steier (213) 743-2578

Thursday Nov. 17**JOINT RELIABILITY (S-07), COMPUTER (S-16.1) AND AEROSPACE & ELECTRONIC**

Topic: Rescue in Space of the TDRS Flight I
Speaker: Emery Reeves, VP & General Manager, TRW, Spacecraft Engineering Division
Dinner 6:30

Time: Hacienda Hotel, 525 N. Sepulveda Blvd., El Segundo

Reservations & Information: Sam Lehr (213) 535-2905

Send \$11.50 to Computer Society, P.O. Box 1285, Pacific Palisades, CA 90272

Dec. 1, 2 & 3 RELIABILITY AND COMPUTER SOCIETY (S 16.1/S 07)

Topic: Hardware/Software Reliability
Speaker: Gene Barnett, TRW, System Engrg./Irv Doshay, TRW & Lecturer at Univ. Calif. courses/Annette Frimzis, Consultant, formerly TRW Sam Lehr, TRW, Product Assurance/Myron Lipow, TRW, Lecturer at Univ. Calif. Course & Text Author TRW Training Facility, El Segundo CA

Location: Sam Lehr (213) 535-2905
Reservations & Information: Myron Lipow (213) 536-2001

Monday Nov. 21

Topic: Vulnerabilities and Resiliency of Computer Systems
Speaker: Dr. Rein Turn
Time: Social Hour 6:30 p.m.; Dinner 7:00 p.m.; Program 8:00 p.m.
Location: Plaza Suite Restaurant, 18460 Roscoe Blvd., (Corner of Roscoe and Reseda Blvd.) Northridge

Reservations & Information: Sergene Zimmerman (213) 885-2190

Monday Nov. 21

Topic: Role of Electronics at Operation Crossroads—the First Atomic Bomb Tests at Bikini Atoll in 1946
Speaker: Larry Rauch, Jet Propulsion Laboratory
Time: 8:00 p.m. (no dinner)
Location: 102 Steele Laboratory, Calif. Institute of Technology, Pasadena

Reservations & Information: Robert V. Langmuir (213) 356-4845

Thursday Dec. 8

Topic: Year End Tax Tips
Speaker: Mr. Abe Carnow, IRS
Time: 7:30 p.m.
Location: Loyola Marymount Univ., Westchester Campus, Pereia Hall, Rm. 31

Reservations & Information: No resv. needed; Call J. Wilkerson for info (213) 648-4214

SOCIAL IMPLICATIONS OF TECHNOLOGY (S-30)

Reservations & Information: Pending

SONICS AND ULTRASONICS (S-20)

Reservations & Information: Chen Tsai (714) 833-5144

Thursday Nov. 17

Topic: Fiber Optics for Aerospace Applications
Speaker: Mr. Adrian E. Popa
Time: Dinner 7:00 p.m.; Meeting 8:00 p.m.
Locations: Alondra Club Restaurant, 16411 S. Prairie Ave., Lawndale

Reservations & Information: Peter Nilsen (213) 641-8600/Russell Gaspari (213) 648-1325

SYSTEMS, MAN AND CYBERNETICS (S-28)

Reservations & Information: W. Larry Bacon (213) 573-5663

Wednesday Nov. 16

Topic: Los Angeles Police Dept. Emergency Command Control Communications Systems
Speaker: Capt. David Burney plus speakers from Systems Development Corp. and E-Systems

Time: Presentation 7:30 p.m. (no dinner planned)
Location: Parker Center Auditorium, 150 N. Los Angeles St.

Reservations & Information: Gary Gray (714) 834-2123 by Nov. 10, 1983, PLEASE (Accommodations are limited—RSVP now!)

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INSTRUMENTATION AND MEASUREMENT TECHNOLOGY CONFERENCE

The expanded IEEE Instrumentation and Measurement Technology Conference (IMTC) will emphasize automated testing and computer-aided instrumentation at its 1984 meeting aboard the Queen Mary in Long Beach, January 17-18.

The two-day conference will be preceded by a full day of tutorials and followed by the annual Measurement Science Conference, a two-day event devoted to measurement and quality assurance. The IMTC and Measurement Science will share exhibits and a theme—"Automation-Quality-Productivity."

The vertically structured IMTC is designed for engineers and scientists engaged in testing and measurement. It is the annual international conference of the IEEE Society for Instrumentation and Measurement, a recognized technical forum for disseminating and exchanging information concerning the science and application of instrumentation and measurement. Co-sponsor of the conference is the Los Angeles Council of IEEE.

Subjects to be covered at the conference include testability, waveform measurements and analysis, measurement and calibration, millimeter wave and optical technology, antenna measurement technology and digital ATE technology. There will be a special panel discussion on "Governmental Influences on Technological Innovation."

There will be one technical session Tuesday morning (January 17) and two each Tuesday afternoon, Wednesday morning and Wednesday afternoon. Three separate programs will be delivered in each session period.

IMTC will begin Tuesday morning with a keynote address by Hugh Brady, Vice President and General Manager of TRW Operations and Support Group. His topic will be "Automation, Quality, Productivity; Let's Lead the World Again."

A Tuesday luncheon will feature a presentation on the Voyager project by Richard J. Terrile, a member of the technical staff at Jet Propulsion Laboratories. Wednesday, Capt. John W. Kinnier, USN, commanding officer of the Naval Weapons Station, Seal Beach, will talk on "Designing for

Testability."

Both luncheons and a Tuesday evening reception are included in the advance registration fee of \$125 (before December 16) or \$140 at the door.

IMTC is an expansion of the former Electrical and Electronic Measurement and Test Instrument Conference (EEMTIC), held until two years ago in Ottawa, Ont. Canada. The 1984 IMTC will be one of the first events in the centennial year of IEEE.

The tutorial workshops preceding IMTC on Monday, January 16, will be sponsored by the Los Angeles Council. Six concurrent workshops have been tentatively scheduled—design for testability, solid state transducers, field testing applications of ATE, digital waveform analysis, physical metrology and electrical metrology. Advance registration (prior to December 2) is \$145 for IEEE members (after that date \$205).

The Measurement Science Conference, following IMTC, is held annually in California. It attracts metrologists and other technical disciplines in industry and government and emphasizes metrology advancements and the effect of metrology on quality.

All events will be held aboard the Queen Mary, the former luxury ocean liner permanently berthed at Long Beach.

General Chairman of IMTC is Frank Koide of Rockwell International. Information on the conference is available from Robert Myers, 1700 Westwood Blvd., Suite 101, Los Angeles, CA 90024; telephone (213) 475-4571.

ADVANCES IN FLOPPY DISK TECHNOLOGY

3½ inch vs. 5¼ inch

Mr. Deodhar has been Project Manager for 3½ inch disk development, has been in disk development and recording technology for over fifteen years.

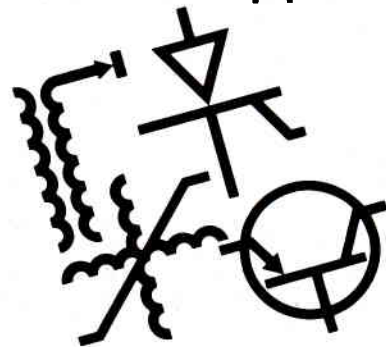
In speaking of future prospects of the technology of disk development, Mr. Deodhar will discuss and compare the newer 3½-inch diameter disk with the 5¼-inch by discussing storage capacities, design criteria, and the applications of each. Mr. Deodhar received his Masters Degree in Electrical Engineering from University of California at Berkeley, and his MBA from University of California, Los Angeles.

DIGITAL TECHNIQUES IN MOLDED CASE CIRCUIT BREAKER SENSING AND TRIPPING UNITS

Digital electronic sensing in a circuit breaker reads the actual current wave—vs. analog electronics' reading of an average heating factor—in an industrial electrical system. In his talk to the Industrial Applications Society, Mr. William E. May will describe the digital technique's improved accuracy in electrical system coordination and protection.

Mr. May is Manager, Electronics Development for I-T-E Electrical Products, a division of Siemens-Allis, Inc. A registered Professional Engineer and IEEE member, he holds a BSEE degree from Villanova University and has 15 years' electrical engineering experience. He holds patents for electrical/electronic devices. Today, Mr. May is responsible for the integration of electronics technology into electrical power control and distribution.

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RELIABILITY MINI-COURSE

The Los Angeles Chapters of the IEEE Computer and Reliability Societies are presenting a three day course on Hardware/Software Reliability December 1-3, 1983 (Thursday-Saturday). The location is at 300 N. Sepulveda Blvd., which is the TRW Training Facility, Bldg. 110, on the corner of Sepulveda Blvd. and Grand Avenue (one block north of El Segundo Blvd.). The closest accommodations are at the Hacienda

Hotel, which is just across Sepulveda Blvd., one block north of the TRW Training Facility and only a few minutes by free van pickup from LA International Airport. Instructors are listed below.*

The first day's presentation, on the subject of hardware reliability, will include current techniques of electronic reliability prediction using MIL-HDBK-217D, including proposed usage factors based upon user experience. Also included will be a wide-ranging discussion on methods of reliability modeling from the practicing engineer's viewpoint. Other topics are

reliability allocations, operations research model applications, Monte Carlo simulation, availability and incentive modeling, all at an intermediate to advanced level.

The software reliability material covers advances made in software reliability prediction and measurement techniques, as well as on applications of computer program complexity theories. The two day presentation will also cover hardware and software relationships and analogies used in determining system reliability, with definitions of software/hardware reliability, availability and maintainability terms, the methods and value of simulation in evaluating impact of software and firmware on system design, and use of fault tolerance for on-board computers requiring very high reliability.

Software Quality Assurance will be the final topic, covering software quality requirements, planning in terms of MIL-S-52779 and MIL-STD-1679, and making the software development visible and auditable via the Unit Development Folder.

The three-day course will include a continental breakfast, beverages, and catered luncheon each day. The course material consists of the course presentation figures; a text: *Reliability: proceedings of a seminar, entitled "Improving Availability of Hardware-Software Systems,"* held in November 1982 under IEEE Reliability and Computer Societies sponsorship. Fees for the hardware reliability course alone, on December 1, and for the two day software reliability course on December 2, 3, 1983, can be quoted by the contact numbers listed below.

Contact Sam Lehr at (213) 535-2905 or send inquiries to LA IEEE Computer Society, P.O. Box 1285, Pacific Palisades, CA 90272.

* Gene Barnett, TRW, System Engrg. Irv Doshay, TRW & Lecturer at Univ. Calif. courses

Annette Frimzis, Consultant, formerly TRW

Sam Lehr, TRW, Product Assurance (Contact 213/535-5603)

Myron Lipow, TRW, Lecturer at Univ. Calif., Course & Text Author (Contact 213/536-2001)

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TASSM Binary License

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S320 — an Interactive TMS320 Software Simulator

S320 is a complete software simulator for the TMS320. Designed for use with the TASSM assembler, S320 allows reading an assembled binary file of TMS320 object code, executing that code either single-stepping or at full simulation speed under a variety of breakpoint conditions. It also observes the behavior of all programmable aspects of the simulated chip as the program runs. An elapsed cycle timer counts simulated TMS320 clock cycles, providing a means to measure the actual execution time of segments of TMS320 code. S320 is written in MicroMotion FORTH-79 (v. 2) and is currently available for CP/M systems using a Z-80, and for Apple II or II+ using CP/M or DOS 3.2 or 3.3. Under CP/M, a 48K system is required. Under Apple DOS, a language card is required.

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For further information, contact: D. Lloyd Rice



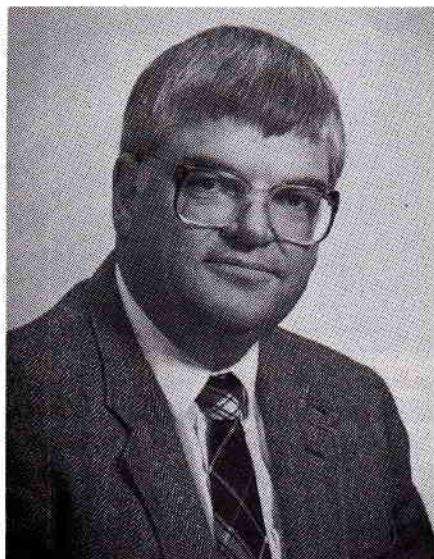
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FIBER OPTICS FOR AEROSPACE APPLICATIONS



Mr. Adrian E. Popa

The application of fiber optics in the aerospace industry will be the subject of the talk given at the South Bay Harbor Section meeting on November 17, 1983. Mr. Adrian E. Popa, manager of the Optical Circuit Department of Hughes Research Laboratories will first present a brief tutorial discussion of the principle of guided wave optic devices. This will be followed by a discussion of current research programs at Hughes, directed toward developing specialized components for the environment encountered by aerospace systems. The discussion will end with an overview of how light wave technology will impact the operation and architecture of future radar and communication systems.

Mr. Popa has more than 30 years experience in the avionics industry. Since joining Hughes in 1961, he has been involved in the design and development of millimeter wavelength and optical radar communications, and imaging systems. He is a contributing author to the CRC Handbook *Lasers and Masers*, published in 1982. Mr. Popa received the B.S.E.E. degree with honors from U.C.L.A. in 1969.

The meeting will take place November 17, 1983 at 8:00 PM at the Alondra Club Restaurant, 1611 S. Prairie Blvd., Lawndale. A cocktail hour at 6:15 PM and dinner at 7:00 PM will provide an opportunity to personally meet this eminently qualified speaker. For reservations and further information, contact Peter Nilsen at (213) 641-8600 or Russell Gaspari at (213) 648-1325.

Army AH-64 Attack Helicopter: Total System For Battle

Speaker:

*Doug Fouse, Section Manager
Weaponization and Fire Control
System Interface Design Group
Hughes Helicopters, Inc.*

The AH-64 APACHE is the U.S. Army's newest and most sophisticated attack helicopter. Culminating a five-year engineering development phase, the APACHE is now in production at the Hughes Helicopter's Mesa, Arizona production facility.

Described as being a "total system for battle," the AH-64 was specifically designed at the outset to meet today's threat. Employing an integrated target acquisition and (laser) designation sight (TADS) in combination with the HELLFIRE LASER—SEEKER GUIDED MISSILE, the APACHE provides the Army battlefield commander with a highly mobile, 24-hour, adverse weather attack helicopter capability never before available.

Mr. Fouse will present a brief AH-64 program overview followed with a description of the Weaponization Subsystem including the Fire Control System avionics, sighting systems, and armament systems.

Mr. Fouse has been associated with the AH-64 Weaponization Subsystem at Hughes Helicopters since the beginning of the Engineering Development Phase in 1977. His professional career spans 22 years at Rockwell International/North American Aviation following his graduation from the University of Miami (Fla) with a BSEE in 1955. At Rockwell he was the B-1 Offensive Avionics Project Engineering manager at the time of its cancellation. Previous assignments were those of B-1 Electro-

optical Systems Task Leader and B-1 Offensive Avionics Lead Engineer.

AEROSPACE CONFERENCE IN VAIL, COLORADO

The South Bay Harbor Section IEEE has announced plans for the Aerospace Applications Conference. This is the fifth annual section-sponsored winter conference on topics of specific local interest. The conference will be held January 28 to February 4, 1984, at Vail, Colorado.

The technical program will offer evening sessions Monday through Friday on a variety of topics related to the aerospace field. The emphasis will be on applications, present and future. Sessions scheduled will cover the topics of systems concepts and systems management as well as aerospace applications of communication, digital technology and software, microwaves, electro-optics, energy, and instrumentation/measurement.

Workshops are being planned as part of the conference. An evening workshop on computer automated measurement and an evening workshop on the evolution of aerospace technology are scheduled. Invited speakers will highlight trends in new developments. Questions, comments, and short presentations from all workshop attendees will be encouraged.

Further information may be obtained from section coordinator, Russell Gaspari, Hughes Aircraft Company, Mail Station S12/W315, P.O. Box 92919, Los Angeles, CA 90009.

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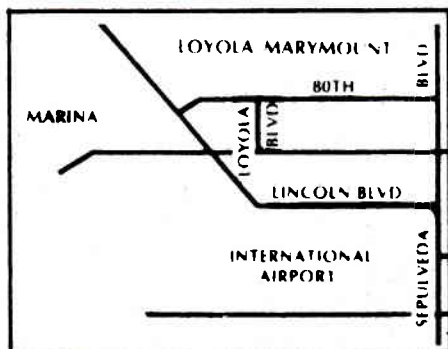
YEAR END TAX TIPS

There is still time to change your income tax situation if you act before the year end. Sometimes those last minute changes can save you dollars if you follow the proper rules. The Santa Monica Bay IEEE Section is sponsoring a presentation followed by a question and answer session on December 8 at the Loyola Marymount University Campus starting at 7:30 PM and ending when you run out of questions. There are no reservations required since this will not be a dinner meeting. Loyola is located near the LA Airport as shown on the map. The meeting will take place at Pereira Hall, room 31.

The income tax rules are changing and many of these new rules benefit both salaried and self-employed engineers. Our guest speaker is a revenue agent employed by the IRS for the past nine years. Mr. Abe Carnow has been a guest speaker for our section on two previous occasions and has been a panelist for the Region Six IEEE Conference in 1982. His talks are informative and entertaining, he has a way of humanizing the IRS.

Probably the most useful facts you will pick up at this talk are those which apply to IRA (Individual Retirement Account), to Keogh retirement plans, and to depreciation for tax purposes. Sometimes you don't really know what questions to ask and after hearing the talk some will occur to you. I have found that questions asked from the audience are often ones which bring out points which apply to my own tax situation.

By now you are thinking that anything the IRS is going to tell me will not save me any dollars. I can assure you this will not be the case for this lecture. Mr. Carnow has the knowledge and experience to give you answers, and the reasons that support the answers. Try to put this meeting on your calendar, it will be well worth the time.



INFORMATION THEORY GROUP OFFICERS

Chairman — Victor O.K. Li



Victor O.K. Li was born in Hong Kong, China in 1954. He received his BS, MS, and Sc.D. degrees in Electrical Engineering and Computer Science from the Massachusetts Institute of Technology, Cambridge, Massachusetts, in 1977, 1979, and 1981 respectively. In February, 1981 he joined the Department of Electrical Engineering of the University of Southern California, Los Angeles, California, as an Assistant Professor. He is also a member of the newly formed USC Communication Sciences Institute. His research interests include Communications Networks, Distributed Databases, and Performance Modeling. He has published over 20 technical papers and has lectured both in the United States and abroad. Dr. Li is a member of ACM, IEEE, and ORSA, and a consultant of the Jet Propulsion Laboratory, Pasadena, California.

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First of Each Month

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Vice Chairman
Thomas E. Carter



Mr. Thomas E. Carter is a Section Head in the Systems Engineering and Integration Laboratory at TRW, where he has been employed for the past 6 years. He is currently acting as subproject manager on the Milstar Satellite payload effort. He received his BSEE and MSEE from Rice University in 1976 and 1977, and his Ph.D. EE from the University of Southern California in June 1983. He is a member of Tau Beta Pi, Phi Beta Kappa, and the IEEE.

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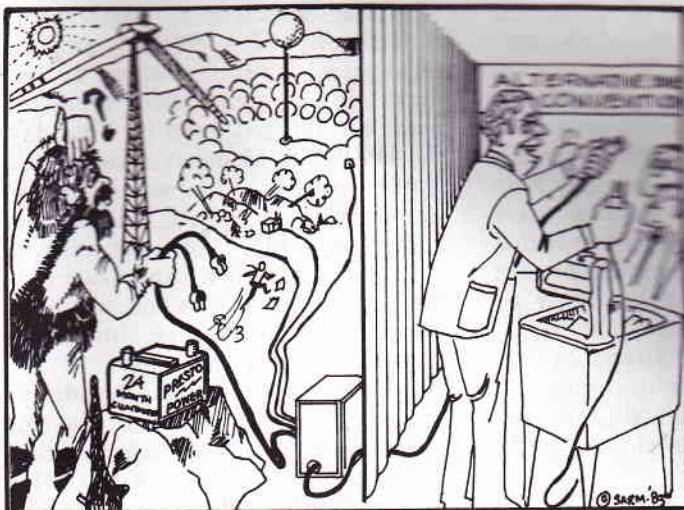
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ALTERNATIVE ENERGY SOURCES

A speaker from the Southern California Edison Company will give us a presentation on alternative energy sources currently in use. The talk will include the solar powered steam plant at Daggett, photo-cell arrays, geothermal systems, biocells, and wind-driven generators. The discussion will include some technical detail on the operation of these installations and promises to be very interesting. Non-members are welcome.

TUESDAY NOVEMBER 15, 1983

PLACE: The Red Lion Inn
222 N. Vineyard Ave., Ontario

DINNER: 7:00 p.m. (optional)
Members and Guests — \$9.00
Registered Students — Free

RESERVATION/INFO: (By Friday November 11)
Barry Bailey (213) 864-3794
Gary Davidson (213) 915-9812
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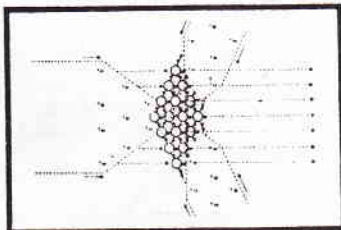
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WESCON/83!

Wescon/83, the nation's largest and most extensive high-technology electronics exhibition and convention, returns this year to San Francisco. It is destined to break all records for number of attendees and exhibitor companies at this oldest and most respected high-technology industry event. Reflecting the rapid resurgence of growth and expansion which is taking place within the electronics industry, Wescon/83 may be the most comprehensive and complete industry symposium in history, with special programs and events to satisfy the most demanding individuals.

Over 75,000 engineering and management professionals are expected to attend this expanded four-day convocation, scheduled November 8-11, 1983. Over 900 exhibitors will display the latest in product and process innovation at nearly 1,700 booths, utilizing the newly completed Moscone Convention Center, Brooks Hall and Civic Auditorium. The highly acclaimed Wescon Professional Program will be staged entirely at the Meridien Hotel.

Wescon/83 presents a number of significant changes in format and timing. First, the dates have been changed from the usual September timeframe to early November. Second, Wescon/83 has been expanded into a four-day event, instead of three days as in previous years. The extra day is designed to better accommodate Wescon's aggregate scope, permitting exhibitors to have more time for discussion and information exchange with customers and prospects, and to provide better scheduling of an extensive Professional Program and related special events and tutorials.

Attending Wescon/83 will be professionals from largely within a 450-mile radius of San Francisco who are engaged in the design, testing and manufacturing of electronic systems and components. Additionally, Wescon has for many years attracted a sizeable attendance both national and international.

Major production classifications for exhibitions on display at this event include: instrumentation; test equipment; control systems; components and micro electronics; communications equipment; and electronic packaging and production equipment.

Mini/Micro West-83 is being held concurrently with—although separately from—Wescon/83. Mini/Micro is the West Coast's only major computer conference and technical symposium which directly addresses the OEM marketplace. Both Mini/Micro and Wescon have reciprocal registration programs so that any attendee who is registered for one of the events may attend the other by showing his/her registration badge. More than 30,000 attendees are expected to participate in displays of small computers, peripherals, software, and data communications in 300 booths in Brooks Hall.

One of the most highly acclaimed and most popular events at the Wescon conference is its Professional Program. This year there will be 35 sessions, offered at no charge to registered attendees. These sessions will offer professionals the opportunity to keep abreast of the latest innovations and advancement in their fields and, additionally will give them an accurate, pertinent overview of what's happening in the industry in general. All of these programs will be presented at the Meridien Hotel over the duration of the convention.

One of the highlights of Wescon/83 will be a special Executive Day Program on Tuesday, November 8. The program will begin with the Marketing Conference on Tuesday morning, which will feature new market trends and products of the future. Following the Marketing Conference will be a Keynote Luncheon addressed by Donald E. Procknow, President of Western Electric Company on Tuesday at noon.

Also on Tuesday's Executive Day agenda is a Capital Financing Symposium, designed to acquaint both new and growing high-technology companies with the various and available capital sources. On Wednesday morning, November 9, there will be a Purchasing Conference that will deal principally with the purchasing manager/distributor relationship. An Export Marketing Symposium on Wednesday afternoon will address successfully exporting and marketing products overseas. And on Wednesday evening, foreign exhibitors and visitors will have a chance to get acquainted at the International Visitor's Reception.

Starting on Thursday morning, November 10, there will be a joint Electronic Representatives Association/

National Electronic Distributors Association (ERA/NEDA) program highlighting the successful use of both marketing systems for interested manufacturers. At noon on Thursday, the IEEE Life Members Program will feature speaker Emmet Cameron, former Wescon Director, who will talk about the history of electronics in Northern California. And, following that on Thursday afternoon, will be an Education Conference for those interested in career planning.

Other Wescon events include an updated Technology Forecasting Seminar, a Film Theater to be held each day, tutorials and an Office Automation Special Exhibit.

Parking will be available at the convention sites and at Candlestick Park as well. Shuttle buses will be available from Candlestick to the convention sites. BART (Bay Area Rapid Transit) will provide transportation in the downtown areas. In addition, free shuttle buses will run all day between all show locations.

Registration will begin at 8:00 a.m. each day of the show. Show hours will be from 9:00 a.m. to 5:00 p.m. every day. Early registration is recommended to avoid long lines.

Wescon is jointly sponsored by the Institute of Electrical and Electronics Engineers (IEEE) and the Electronic Representatives Association (ERA). Hundreds of volunteers from both of these organizations and from the industry at large donate their time and talent to organize this industry event. Wescon is produced by Electronic Conventions, Inc. (ECI), one of the nation's largest convention management firms.

For more information, contact Nancy Hogan, Communications Coordinator, or Kent E. Keller, PR Counsel, at 8110 Airport Blvd., Los Angeles, CA 90045. Telephone (213) 772-2965

