



# OCEANIC ENGINEERING SOCIETY

*Newsletter*



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EDITOR: FREDERICK H. MALTZ

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**President**  
GLENN N. WILLIAMS  
Computer Science Dept.  
Texas A&M University  
College Station, TX 77843  
(409) 845-8419/5484

**Vice President, East**  
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TASC  
1101 Wilson Blvd., Suite 1500  
Arlington, VA 22209  
(703) 351-6340

**Vice President, West**  
NORMAN D. MILLER  
West Sound Associates  
2644 NW Esplanade  
Seattle, WA 98117  
(206) 373-9838

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ROGER DWYER  
43 South Cobblers Ct.  
Niantic, CT 06357  
(203) 440-4511

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CLAUDE P. BRANCART  
CS Draper Laboratory, Inc.  
c/o Undersea Warfare Office  
4301 North Fairfax Drive, Suite 700  
Arlington, VA 22203  
(703) 516-6042 (O)  
Fax (703) 516-6060  
(703) 548-4517 (H)

(Continued on inside back cover)

**Journal of Oceanic Engineering Editor**  
WILLIAM M. CAREY  
Defense Advanced Research Projects Agency  
Arlington, VA 22203-1714  
Editorial Office:  
79 Whipoorwill Road  
Old Lyme, CT 06371  
(203) 434-6394  
Fax (203) 434-6394

**Newsletter Editor**  
FREDERICK H. MALTZ  
64 Hillview Ave.  
Los Altos, CA 94022  
(408) 742-8298 (O)  
(415) 917-0126 (H)

**Regional Associate Editors (outside North America)**  
(For addresses please see inside back cover)

TAKENOBU KAJIKAWA  
Asia (except Middle East)

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RICHARD STERN  
**Engineering Acoustics:** *Equipment and Devices, Instrumentation, Materials, Measurement Techniques*

**CHAPTER CHAIRMEN**

**New Orleans**  
Mr. Charles F. Getman  
U.S. Naval Oceanographic  
Office Code PDMM  
Engineering Department  
Bay St. Louis, MS 39522  
(601) 688-4553

**Galveston Bay**  
Dr. William E. Pinebrook  
P & H  
P.O. Box 1711  
Dickinson, TX 77539-1711  
(713) 339-3031

**Washington/Northern Virginia**  
Mr. Jim Barbera  
EG&G Washington Analytical  
Services Center  
1396 Piccard Drive  
Rockville, MD 20850  
(301) 840-5003 Fax: (301) 258-9522

**New England**  
Mr. Thomas B. Pederson  
Raytheon  
MS 146  
1847 W. Main road  
Portsmouth, RI 02871  
(401) 847-8000

**Seattle**  
Mr. Edward W. Early  
4919 N.E. 93rd Street  
Seattle, WA 98115  
(206) 543-3445

**Victoria, British Columbia**  
Mr. James S. Collins  
2815 Lansdowne Road  
Victoria, BC Canada V9A 4W4  
(604) 380-4605

**Canadian Atlantic**  
Dr. Ferial El-Hawary  
Tech. University of Nova Scotia  
P.O. Box 1000  
Halifax, Nova Scotia  
Canada B3J 2X4  
(902) 429-8300, X-2053/2446

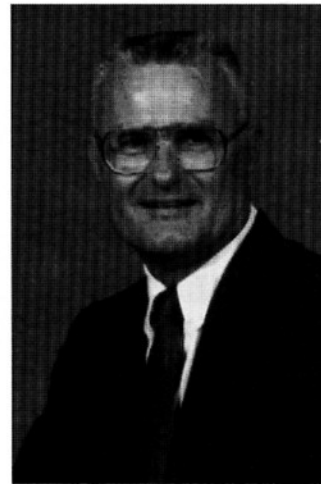
**San Diego**  
Dr. David B. Fogel  
ORINCON Corporation  
9363 Towne Centre Drive  
San Diego, CA 92121  
(619) 455-5530, X-424

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## President's Message

Although its several months out from Oceans '92, I think that its quite appropriate to recognize both the strong technical and financial success of this Conference, especially in the economic times of today. The Conference was sponsored by several organizations, including the local New England Chapters of both the IEEE/Oceanic Engineering Society and the Marine Technology Society, and, under the able leadership of Dr. Craig Dorman of Woods Hole Oceanographic Institution, with the extensive Oceans Conference experience of Executive Chairman Dr. Stan Chamberlain, the enjoyment of such success was almost assured. (Stan was not quite sure of this, until the On-Site Registration numbers let him breathe a bit easier.) To me, there were four outstanding parts to this Conference. The first, the Tutorial Program on the day before the Conference itself, was quite well attended, with many positive comments as to the topics and the presenters. Continuing Education enjoys strong support from the IEEE, and is certainly one of the ways in which the Oceanic Engineering Society can benefit its members. The next two activities at the Conference which were quite impressive were the Technical Program and the Exhibits. Dr. Tom Mottl of TASC and his Technical Program Committee aimed for technical quality in both the presentations and the written Conference Record, and they certainly hit their mark. The Exhibits, put together by Mr. Jim Hannon, were a key element in the success of Oceans '92. Conference attendees were most impressed with the wide array of new technologies and equipment displayed by government, corporate, and academic organizations. I also want to take this opportunity to express my sincere appreciation to the exhibiting groups for their continuing role in the success of the Oceans Conferences. I consider the Exhibits to be an integral part of our Conferences and Workshops and look forward to a long and fruitful relationship with the Exhibitors. The last event of the week was a Classified Conference at the Naval War College, which was held in response to many requests of United States OES members and was well attended. (For those of you who may be unaware, the IEEE strongly considers itself an international technical organization which charters free and open information interchange, and therefore does not sponsor classified, proprietary or closed meetings of any type.) In summary, Oceans '92 was another example of the exceptional leadership and participation of IEEE and MTS volunteers, and the Oceanic Engineering Society sincerely appreciates your efforts.

As concerns the separate sponsorship of the Oceans 'XX Conference by the IEEE/OES and the MTS 'XX Conference by the MTS, representatives of both Societies have met on three occasions to date, in an attempt to arrive at a mutually beneficial agreement to jointly host one Oceans-related Conference for the membership of both Societies. In fact, Dr. Robert Spindel, current MTS President and member of the



OES Administrative Committee, met with the OES Executive Committee at its last meeting in Victoria, B.C. Both organizations have tentatively designated San Diego as the sites for their next Conferences, and, based on continuing negotiations between the two organizations, I hope to report positive results in the next Newsletter.

On a more informative note, over the past several years, the IEEE Technical Societies have implemented an internal review program. This program, currently scheduled on a five year cycle, involves an inward look by each society at its own operations, governance, publications, conferences and other meetings, financial status, and member services. A brief report on these society activities is then prepared and discussed with the IEEE Technical Activities Board (TAB) Society Review Committee. The Oceanic Engineering Society was scheduled for its review at the last TAB Meeting. Therefore, during the previous several months, Mr. Ed Early, with the aid of several Society volunteers, prepared the OES Status Report, and the OES was reviewed at the TAB Meeting in Chicago on February 28, 1993. I report with great pleasure at this time that the Oceanic Engineering Society stands in good stead, and is in a quite solid and stable financial position. The OES is viewed as a strong applications-oriented society which has found its proper niche within the umbrella of the IEEE. If you are interested in a copy of the OES Status Report, please let me know.

As a footnote, I would like to invite interested members of the OES to actively participate in the governance of the Society. We need volunteers to serve on Technical Committees, IEEE-related committees such as education, training and standards, as well as the Administrative Committee. I would also ask that the current membership look to their non-member engineer and scientist colleagues, and offer them membership in the IEEE and the Oceanic Engineering Society. We want to continue to improve the OES and to offer the opportunity to serve to all parties with oceans-related interests.

*Warm Regards,*

**Glen N. Williams**

**OCEANIC  
ENGINEERING  
SOCIETY**

**Distinguished  
Technical  
Achievement  
Award**

1975	Robert Frosch
1976	Werner Kroebel
1977	Howard A. Wilcox
1978	Richard K. Moore
1979	David W. Hyde
1980	Neil Brown
1981	No Award
1982	Ira Dyer
1983	Alan Berman
1984	John B. Hersey
1985	William N. Nierenberg
1986	Robert J. Urick
1987	James R. McFarlane
1988	Chester M. McKinney
1989	Victor C. Anderson
1990	Robert C. Spindel
1991	Henry Cox

**DISTINGUISHED TECHNICAL  
ACHIEVEMENT AWARD**

**Oceanic Engineering Society  
Oceans 1992**

**Dr. Arthur B. Baggeroer**



Arthur B. Baggeroer is the Ford Professor of Engineering in the Departments of Ocean and Electrical & Computer Science at the Massachusetts Institute of Technology. He received the B.S.E.E. from Purdue University in 1963 and the Sc.D. from MIT in 1968. He has been on the faculty at MIT since 1968. He has had a long involvement with the Wood Hole Oceanographic Institution through the MIT-Wood Hole Joint Program in Oceanography and Oceanographic Engineering, of which he was the MIT Director from 1983 to 1988. He was consultant to the Director of the NATO SAACLANT Center during a sabbatical leave in 1977 and a Green Scholar at the Scripps Institution of Oceanography during a sabbatical leave in 1990.

Prof. Baggeroer's research has focused upon the application of advanced signal processing methods to underwater acoustics and geophysics. He has been the chief scientist at six ice stations in the high Arctic, where large aperture arrays for acquiring acoustical and geophysical data have been deployed. These data have been used for long range propagation, reverberation, ambient noise and tectonic measurements in the Arctic. He has developed several algorithms for matched field processing. He led the first efforts for applying advanced digital communication methods for high data rate acoustic telemetry systems in reverberant ocean environments. He is now involved in the ATOC (Acoustics Thermometry of Ocean Climate) and studies on low frequency reverberation.

He has authored many articles concerning signal processing and underwater acoustics. He is now writing a text on array processing. He is a Fellow of the Acoustical Society of America and was Chairman of the Technical Committee on Underwater Acoustics from 1985-1988. He is a Fellow of the IEEE. He was an elected member of the School Committee for the Town of Westwood, MA from 1977-1989.

# DISTINGUISHED SERVICE AWARD

Oceanic Engineering Society  
Oceans 1992

**Dr. Gordon Raisbeck**



Gordon Raisbeck is a Fellow of the IEEE and a member of the IEEE Oceanic Engineering Society and of the IEEE Engineering Management Society. From 1988 to 1992 he served as Secretary of the Oceanic Engineering Society and, ex officio, a member of the Executive Committee and of the Administrative Committee. In 1990 he was elected to the Administrative Committee of the Maine Section of the IEEE.

Since 1961, he has been an engineering and management consultant, first at Arthur D. Little, Inc., where he was a Vice President for his last 13 years, and recently as an independent. Now in semi-retirement, he carries on his independent practice at a reduced level of activity. His principal professional activity during this period was related to large ocean area undersea surveillance, particularly passive acoustic surveillance. Before becoming a consultant, he spent 11 years at Bell Laboratories and one at DARPA. During his last six years at Bell, he was Director of transmission Line Research.

After undergraduate education at Massachusetts Institute of Technology and Stanford, Dr. Raisbeck attended Oxford University as a Rhodes Scholar, and received a Ph.D. degree in mathematics at M.I.T. Two years of active duty in the Navy as a Radar Technical Officer introduced him to practical engineering and operational problems.

Dr. Raisbeck is the author of 35 technical publications and 22 patents. He is a Registered Professional Engineer. Besides his IEEE affiliations mentioned above, he is a Fellow of the Acoustical Society of America, the Operations Research Society of America, the Mathematical Association of America, and the Maine and National Societies of Professional Engineers.

## OCEANIC ENGINEERING SOCIETY

### Distinguished Service Award

- |      |                        |
|------|------------------------|
| 1975 | Arthur S. Westneat     |
| 1976 | Frank Snodgrass        |
| 1977 | Calvin T. Swift        |
| 1978 | Edward W. Early        |
| 1979 | Richard M. Emberson    |
| 1980 | Donald M. Bolle        |
| 1981 | Lloyd Z. Maudlin       |
| 1982 | Arthur S. Westneat     |
| 1983 | Elmer P. Wheaton       |
| 1984 | John C. Redmond        |
| 1985 | Joseph R. Vadus        |
| 1986 | Stanley G. Chamberlain |
| 1987 | Stanley L. Ehrlich     |
| 1988 | Harold A. Sabbagh      |
| 1989 | Eric Herz              |
| 1990 | Anthony I. Eller       |
| 1991 | Frederick H. Fisher    |

# OCEANS '92 CONFERENCE

Newport, R.I.



Exhibitors Hall



L: Stan Chamberlain,  
R: Craig Dorman



Claude Brancart accepting the Distinguished Service Award for the awardee Gordon Raisbeck



Plenary Speaker Bob Spindel



Craig Dorman accepting award for general chairman of Oceans '92



Tom Mottl accepting award for Oceans '92 technical program chairman from Stan Chamberlain. Craig Dorman at podium



Craig Dorman, WHOI; Bruce Sundlun, Gov R.I.;  
Ronald Hedlund, U.R.I.



Plenary Speaker  
James Atkinson



Plenary Speaker Bob Brammer



Stan Chamberlain accepting award for Oceans '92  
executive chairman



Left to right: Jim Collins, Jean Vicariot, Pierre Sabathe, Jean-Luc Lambla,  
Glen Williams, Ferial El-Hawary, Ed Early, Stan Chamberlain,  
Claude Brancart, Craig Dorman, Art Baggeroer, Joe Czika



Bruce Sundlun Gov. R.I.



# OCEANS '93

ENGINEERING IN HARMONY WITH THE OCEAN  
18-21 October 1993



The Victoria Conference Centre, Victoria, Canada  
**CONFERENCE ANNOUNCEMENT**

CONFERENCE  
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Royal Road Military  
College and  
University of Victoria  
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*Technical Program*  
Dr. Jon M. Preston  
Defense Research  
Establishment Pacific  
Ph: (604) 363-2897

*Tutorials*  
Dr. Meyer Nahon  
University of Victoria  
Ph: (604) 721-6040

*Publications*  
Dr. Dale J. Shpak  
Royal Roads Military  
College and  
University of Victoria  
Ph: (604) 363-4604

*Exhibits*  
Ms. Terry Curran  
Inst. of Ocean Sciences  
Ph: (604) 363-6583

*Publicity*  
Mr. G.D. (Joe) Young  
A/D Computing  
Instruments Ltd.  
Ph: (604) 592-9168

*Local Arrangements*  
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Applied Microsystems  
Ltd. and  
University of Victoria  
Ph: (604) 721-6079

*Finance*  
Dr. Christopher J.  
Damaren  
Royal Roads Military  
College and  
University of Victoria  
Ph: (604) 363-4572

*Registration and  
Management Services*  
Mrs. Mary O'Rourke  
University of Victoria  
Ph: (604) 721-8470  
Fax: (604) 721-8774  
e-mail:  
morourke@sol.uvic.ca

The theme for Oceans 93, *Engineering in Harmony with the Ocean*, emphasizes the benefits of technology which is tailored to the ocean environment. The Technical conference, Tutorials and Industrial Exhibitions are sponsored by the Oceanic Engineering Society of the Institute of Electrical and Electronics Engineers, Inc. and its Victoria Chapter. As always, the IEEE emphasis on high-technology content and high quality guides the development of the technical program.

## UNDERWATER ACOUSTICS

- Transducers and Arrays
- Source localization
- Matched Field Processing
- Boundary Effects & Propagation
- Air-Sea Acoustics

- Bottom Imaging & Detection
- Sonar Signal Processing
- Sonar Image Processing
- Bathymetry
- High-Bandwidth Communications

## REMOTE SENSING

- Active Microwave Techniques
- Ocean & Ice Measurements

- Passive Microwave & Optical Sensing
- Satellite Oceanography & Meteorology

## INSTRUMENTATION AND MEASUREMENT TECHNIQUES

- Ocean Environment
- Polar Environment

- Acoustic Thermometry
- Currents

## COMPUTING AND INFORMATION MANAGEMENT

- Modelling & Simulation
- Knowledge-Based Systems

- Geographic Information Systems

## UNDERSEA VEHICLES

- Positioning
- Obstacle Avoidance
- Robotics

- Stability and Imaging
- Power Sources
- Hardware/Software Architecture

## TECHNOLOGY ADVANCES

- Power Sources
- Navigation

- Materials
- Non-Acoustic communications

The Exhibit Program parallels the technical program. The exhibit hall, which is located conveniently in the main salons of the Victoria Conference Centre, will be the site of the opening reception and all breaks.

Representatives from companies, agencies or institutions are invited to participate in the Exhibit Program. The Victoria Conference Centre is adjacent to a completely protected harbour, so Exhibitors wishing to perform on-the-water demonstrations are encouraged to make their needs known to the Exhibits Chair.

The IEEE Oceanic Engineering Society is sponsoring Student Technical Poster Sessions.

For a copy of the Advance Program or further information, please contact:

OCEANS '93  
University of Victoria  
Conference Services, Division of Extension  
P.O. Box 3030  
Victoria, BC  
V8W 3N6  
Ph: (604) 721-8470 Fax: (604) 721-8774  
E-mail: morourke@PostOffice.uvic.ca





# Oceanic Engineering Society Technology Committees



**Stanley G. Chamberlain**  
*Technical  
Committees Coordinator*

The technical scope of the Oceanic Engineering Society is very broad, encompassing the many specialties within electronic & electrical engineering that are applied in the ocean environment. To provide a focus for these within the OES, technology committees have been formed. These committees contribute to the technical vitality of the Society in very significant ways, including organizing sessions at OCEANS Conferences, sponsoring special workshops in their area of expertise and in encouraging publication of papers in the Oceanic Engineering Journal and Newsletter.

There are currently eleven technology committees within OES. These are in various stages of formation and activity, with the Current Measurements Technology Committee being the oldest and most firmly established and the Non-Acoustics Imaging Technology Committee being the newest. One Committee, the Neural Networks for Oceanic Engineering Committee, is currently without a Chairperson.

If you would like to participate in one of these committees, or if you have ideas for the formation of another committee, please contact me or the chairperson of the committee in which you are interested.

The function of an OES Technology Committee, as specified in the OES Bylaws, is summarized below. The names and addresses of each Committee chairperson are also listed below, followed by a statement of technical scope for many of the committees.

The FUNCTION OF AN OES TECHNOLOGY COMMITTEE is to promote activities in its field under the overall supervision and administration of ADCOM and to provide the expert knowledge and assistance to:

a. Organize and operate sessions at meetings of IEEE at all levels and at meetings of other organizations with which the OES Society is desirous of cooperating. They may organize technical symposia and conferences in the area of their technical coverage.

b. Arrange through the Publication Committee and appropriate editors for publishing pertinent papers in IEEE publications.

c. Encourage, generate and review papers within their scope in cooperation with the Journal Editor.

## OES TECHNOLOGY COMMITTEE CHAIRPERSONS:

### 1. Underwater Acoustics

Robert Farwell  
Naval Research Laboratory  
Code 243  
Stennis, MS 39529-5004  
(601) 688-4875 (O); (601) 688-4673 FAX

### 2. Polar Instrumentation

Paula A. Lau  
Northwest Research Associates, Inc.  
P.O. Box 3027  
Bellevue, WA 98009  
(206) 453-8141; (206) 646-9123 FAX

### 3. Autonomous Unmanned Underwater Vehicles

Daniel Steiger  
Naval Research Laboratory  
Code 5127  
Washington, DC 20375-5000  
(202) 767-3265 (O); (202) 767-2387 FAX

### 4. Current Measurements

Gerald F. Appell  
NOAA-National Ocean Services  
Code N/OESx1, Room 110  
6001 Executive Blvd  
Rockville, MD 20852  
(301) 433-8026 (O); (301) 443-0492 FAX  
OMNET: G.APPELL  
(address good till 4/19/93)

### 5. Marine Communication & Navigation

James Atkinson  
Illgen Simulation Technologies, Inc  
4201 North View Drive  
Suite 200  
Bowie, MD 20715  
(301) 805-4439 (O); (301) 805-5864 FAX

### 6. Modeling, Simulation & DataBases

George Dworski  
Applied Physics Lab  
University of Washington  
1013 NE 40th Street  
Seattle, WA 98105  
(206) 685-1827 (O); (206) 543-1300 (O)  
(206) 543-6785 FAX  
george@apl.washington.edu E-MAIL

## 7. Oceanographic Instrumentation

Orest Diachek  
Naval Research Laboratory  
Code 5120  
4555 Overlook Ave, SW  
Washington, DC 20375-5000  
(202) 767-3359 (O)  
While Diachek is abroad:  
Orest Diachek  
SACLANT Center  
CMR-426  
APO AE 09613-5000  
39187-540-317 (O); 39187-524-6000 FAX  
39187-540-238 Secretary

## 8. Remote Sensing

David E. Weissman  
Department of Engineering & Computer Sciences  
104 Weed Hall  
Hofstra University  
Hempstead, NY 11550  
(516) 463-5546 (O); (516) 463-6010 FAX

## 9. Sonar Signal Processing

Roger Dwyer  
Naval Undersea Weapons Center  
New London Laboratory  
New London, CT 06320  
(203) 440-4511 (O); (203) 440-6571 FAX  
DWYER@NO.NUSC.NAVY.MIL e-mail

## 10. Non-Acoustic Image Processing

Frank M. Caimi  
Mgr. Electrical Engineering  
Harbor Branch Oceanographic Institution  
5600 Old Dixie Highway  
Fort Pierce, FL 34946  
(407) 465-2400, ext 256; (407) 464-9094 FAX

## 11. Neural Networks for Oceanic Engineering

Currently vacant

## 12. Technology Committees Coordinator

Stanley G. Chamberlain  
Raytheon Company  
1847 West Main Road  
(401) 842-4423 (O); (401) 842-5200 FAX  
sgc@ssd.ray.com E-MAIL

# STATEMENTS OF TECHNICAL SCOPE OF THE OES TECHNOLOGY COMMITTEES:

### 1. Underwater Acoustics Technology Committee

The technical domain of the Underwater Acoustics Technology Committee shall comprise all aspects of applied acoustics in the ocean environment, including, for example: (1) the design of acoustics instrumentation (hydrophones, sound sources, transponders and recording systems); (2) the use of acoustics instrumentation (active and passive sonar systems) for such applications as acoustic telemetry, bottom mapping, underwater imaging, acoustic navigation, ocean measurements, target surveillance and tracking and position keeping; (3) the modeling and prediction of ocean acoustic parameters, such as multipath arrival structure, scattering, reverberation and noise that influence system performance.

### 2. Polar Instrumentation Technology Committee

The technical domain of the Polar Instrumentation Technology Committee shall include the development of instruments for sensing and measurements in polar regions. These measurements shall include, but are not limited to, in situ and remote sensing of ice, water and air temperatures; wind speed and direction; ice dynamics; ice and under-ice acoustics; water currents; and bottom topography.

### 4. Current Measurement Technology Committee

The Current Measurement Technology Committee shall be a continuous forum within the marine community for addressing the issues and problems related to technology for measuring water currents. It shall also provide a focus for technical information exchange and promote cooperation and coordination among those in the marine community involved in current measurement including instrument manufacturers, and shall

address the issue of standards for current measurement including laboratory and field standards, standard test methods and data recording standards.

### 5. Marine Communication and Navigation Technology Committee

The technical areas of interest of the Marine Communications and Navigation Technology Committee shall be:

**Marine Communication:** Communications systems used between all possible combinations of marine platforms, shore based facilities, and intermediate relay facilities. This includes electromagnetic and acoustical systems of all wavelengths. It also includes data and verbal communications.

**Navigation Systems:** Systems which are used to derive present location and to provide the ability to move a platform to another relative or geographic location in the marine environment within a desired error budget. It includes electromagnetic positioning systems and electronic processing systems which use all sources of location or motion data. It also includes the interfaces to the user.

**Command and Control Systems:** Systems which are used to direct the operations of platforms in the marine environment by echelons of operational, administrative or experimental control. This area would address the data, processing systems and operator interfaces.

### 6. Modeling, Simulation & DataBases Technology Committee

The technical scope of the Modeling, Simulation & DataBases Technology Committee encompasses all activities and products associated with computer oriented modeling, simu-

lation and databases within ocean engineering and science. The Committee identifies three major issues to be focused on in the next few years. The first one concerns quality control in existing and developing databases and their user interfaces. The second relates to the need for a better description of applicable models, introducing the notion of an informal "sunset law" for their codes. The third issue is attainment of a greater interdisciplinary interaction with workers in the other technical fields under OES cognizance. The Committee considers the activities in its domain to be primarily a service tool for solving concrete problems in the other areas of the ocean engineering arena, and intends to serve as a bridge — in an advisory capacity — between application needs and solution means.

#### **7. Oceanographic Instrumentation and Data Acquisition Technology Committee**

The technical interests of this committee shall include new developments in Oceanographic Instrumentation and Data Acquisition and their dissemination through workshops, conferences and publications; the solicitation and evaluation of papers related to Instrumentation and Data Acquisition; and the development, evaluation and acceptance of standards for oceanographic measurements and acquisition of data.

#### **8. Remote Sensing Technology Committee**

The technical domain of this committee shall encompass the technologies associated with the observation of geophysical quantities that describe the oceans, the air-sea interface, and its boundaries which may include coastal regions, estuaries and ice. The medium of measurement shall be electromagnetic energy that may span all radio, microwave and optical frequencies. Technologies of principal interest are the development of airborne, spaceborne or land-based sensors that transmit, collect and process the energy and information that they receive. Equally important is the interaction, reflection and/or emission of energy from these geophysical bodies, as it affects communication links from sensor to further processing centers. In many important instances, the ocean surface or upper regions below the surface may be part of the channel of communication. The domain also includes theoretical interpretations and modeling, and their application to the needs of society; commercial, scientific, defense and educational.

#### **9. Sonar Signal Processing Technology Committee**

The technical interests of the Sonar Signal Processing Technology Committee shall include new developments and improvements of signal processing techniques applied to sonar systems. These include theory and modeling, simulation and implementation of beamforming, filtering, detection and tracking, information processing, imaging and display methods.

#### **10. Non-Acoustic Imaging Technology Committee**

The scope of the Non-Acoustic Imaging Technology Committee shall comprise all aspects of electromagnetic technology for obtaining images or multidimensional data constructs useful in undersea sensing applications. Included are: (1) active or passive optical/electromagnetic methods and techniques for mapping, robotics, inspection, navigation, identification, localization, and detection, (2) improved methods of

modeling, predicting, describing or enhancing the image formation process in relation to the physical characteristics of the medium, (3) conventional and non-conventional optical systems development, testing, and evaluation, (4) signal and image processing techniques, implementation and performance as applied to the image formation or detection process, and (5) the use of non-acoustic methods in conjunction with other technology. Application of photogrammetric, tomographic, interferometric, LIDAR and time-gating principles to undersea imaging technology is encouraged.

## **Seattle Chapter OES Activities**

The Seattle OES Chapter held two Fall (1992) meetings both on the subject of the U.S. Navy's S.E. Alaska Underwater Measurement Range which has just recently been completed. The first meeting was held on October 1st at the Applied Physics Laboratory of the University of Washington and the speaker was Norm Miller of West Sound Associates of Bremerton, WA. Norm is also a Vice President of OES. The second meeting was held on October 20th at the Washington Conference and Trade Center in conjunction with the Northcon Electronic Trade Show and the speaker was Rich Chwaszczewski of the Naval Surface Warfare Facility at Bremerton, WA. Also, a video of Scripp's FLIP was shown at each meeting — courtesy of Dr. Fred Fisher.

In November the officers of Seattle OES and of the Puget Sound Chapter of the Marine Technology Society met and decided to hold joint technical meetings. Since MTS has been holding regular dinner meetings nine times a year on the 3rd Thursday of the month it was decided to hold the joint meeting on these dates.

The first joint meeting was held on January 21, 1993 with 38 in attendance. The topic was "Recovery of Arsenic Drums Offshore New Jersey" and the speaker was Arthur Wright of Williamson and Associates.

The second joint meeting was held on February 18 with 28 in attendance. The topic was "An Acoustically Controlled Elbow" with the speaker being Dr. James Collins of the Royal Roads Military College of Victoria B.C. Jim is also the chairman of Oceans '93 to be held in Victoria on October 18-21. Both meetings were held at Latitude 47 restaurant in Seattle.

Our next meeting will address "The Status of Prince Williams Sound; four years after" by Dr. Alan Mearns of NOAA on March 18. (This will obviously have occurred before this newsletter has been published.)

OES/Seattle Chapter officers are:

Chair: Ed Early 206-525-2578

Vice Chair: Paula Lau 206-453-8141  
(N.W. Research)

Sec/Treas.: Dave Wilson 206-547-1133  
(Williamson & Assoc.)



## OES ExCom Meeting, Victoria, B.C. March 13 1993

Left to right: Norman Miller, Joseph Czika, Stanley Chamberlain, Glen Williams, Claude Brancart, and Ferial El-Hawary.

## SUMMARY OF ACTIONS Technical Activities Board

### February 28, 1993

The following actions were taken during the Technical Activities Board meeting held February 28, 1993 at the Sheraton Chicago & Towers, Chicago, Illinois.

1. As requested by the TAB Periodicals Council, approved a new *IEEE Signal Processing Letters* to be published by the IEEE Signal Processing Society subject to approval by the TAB Finance Committee and the IEEE Publications Board.

2. As requested by the TAB Periodicals Council, approved 1994 Transactions/Journals page rates.

3. As requested by the TAB Periodicals Council, approved 1994 Magazine and Newsletter Rates.

4. As requested by the TAB Periodicals Council, endorsed a proposal to allow the IEEE Engineering in Medicine and Biology Society to enter into a Sister Society relationship with RESNA and offer *IEEE Transactions on Rehabilitation Engineering* at a Sister Society rate to RESNA members subject to approval by the IEEE Publications Board.

5. Endorsed for recommendation of approval by the IEEE Executive Committee a proposal to change the name of the IEEE Components, Hybrids and Manufacturing Technology Society (CHMT) to the IEEE Components, Packaging and Manufacturing Technology Society (CPMT).

6. As requested by the TAB Periodicals Council, endorsed for recommendation of approval by the IEEE Board of Directors modifications to IEEE Policy 6.14B(1) concerning copyright protection of Newsletters.

7. Approved the *IEEE Parallel & Distributed Technology Magazine* as an Interdisciplinary publication for 1993.

8. Approved the 1993 TAB Strategic and Operating Plan consisting of seven (7) objectives and seventeen (17) goals.

9. Endorsed for recommendation of approval by the IEEE Board of Directors modifications to IEEE Bylaws 401 and 403 governing current requirements for the formation of a geographic Council.

10. Endorsed for recommendation of approval by the IEEE Board of Directors the recommendations of the IEEE Task Force on Life Members Services which outlines proposed criteria for Life Membership and cost implications.

11. As requested by the TAB Steering Committee on Design and Manufacturing Engineering, approved the continuation of the Committee in 1993 with the same membership as in 1992.

12. As requested by the TAB Steering Committee on Design and Manufacturing Engineering, approved a proposal to allow the Committee to co-sponsor two manufacturing meetings with the American Vacuum Society.

13. Resolved that the IEEE actively encourage participation of women in all its activities, and requested that the IEEE Board of Directors establish a mechanism to encourage greater participation of women, especially students, in engineering.

14. Since the TAB/USAB U.S. Technology Policy Conference Committee no longer manages the Conference, approved a recommendation that the Committee be dissolved.

15. Approved the formation of a TAB Ad Hoc Committee to study the necessity and cost-effectiveness of the TAB Administration Council, and report its findings to TAB at a later date.

16. As requested by the RAB/TAB Transnational Committee, endorsed for recommendation of approval by the IEEE Executive Committee the concept of a pilot project for an IEEE/university library and instrumentation program in China, with the RAB/TAB Transnational Committee acting as the intermediary body.

17. Accepted the report of the TAB Society Review Committee on the review of the IEEE Power Engineering Society (PE).

## National Science Foundation Plans Overhaul of Its Mission

As boundaries between basic and applied science blur and as the interval between discovery and application shortens, the science establishment is preparing to reorganize the National Science Foundation (NSF) to “strengthen its ability to serve the nation.” NSF Director Walter Massey made these observations as he proposed—and the NSF board approved—formation of a commission to decide how NSF can play a leading role in a world in which the role of science has changed dramatically in recent years.

The report of the Special Commission on the Future of the NSF was presented to the NSF Board November 15. The 15-member body is chaired by two persons, a university official (William H. Danforth, University of Washington, St. Louis) and an industrial manager (Robert W. Galvin, Motorola and Sematech).

As Dr. Massey said to the Board, the time has come when the Foundation should consider building on its success in supporting research ideas by accepting a major role in fostering links between research and technology. He bolstered his argument with quotes from Frank Press (of the National Academy) to the effect that science has already entered the “new era”, one in which “science will drive technology and technology will drive scientific progress. x x x This new reality will entail an increasingly direct connection between fundamental science and engineering and their commercial applications.”

IEEE-USA endorsed the Foundation’s self-examination in a statement to the Commission dated October 15. IEEE

strongly supports “a new direction for the Foundation” based on “greater interaction with industry and toward problem-solving and applied research.” IEEE-USA applauds the suggestion that NSF help foster links between research and technology.

With respect to NSF’s role in technology transfer and industry’s role in NSF programs IEEE-USA offered these specific suggestions: 1) NSF should encourage universities to work more closely with industry but should not provide direct funding for industrial research, 2) Federal funding of industrial research and development on precommercial technologies should be supported through established programs (such as those in the Commerce Department) and not by NSF; and 3) NSF should increase technology transfer efforts by expanding seminar programs.

There are and will be differing views on the NSF mission among scientists. A contrary view sent to the Commission came from Philip Siekevitz, a biochemist and professor emeritus, Rockefeller University. The change being discussed, he said, go away from the promotion of science “for it ties basic scientific research to industrial endeavors, not to the goals of research per se. It will retard the national health, prosperity, and welfare, for it implies that these goals can be met by industrial management....” Continuing, Siekevitz said the future being projected for NSF “is a not-so-thinly disguised attempt to bring in scientists to work for the goals of industry.”

## Congress Seeks Explanation for Scarcity of Women in Science and Engineering

One item that will face legislators in the new Congress is a bill that seeks to document and eliminate barriers that prevent women from being fairly and adequately represented in the fields of science and engineering. In September 1992 the House passed H.R. 3476, legislation sponsored by Rep. Connie Morella (R., MD) that would create a commission to examine the causes and propose remedies. Similar legislation was introduced in the Senate by Sen. Paul Simon (D., IL) but failed to get floor consideration.

The bill was steered through the House by a group of women legislators that includes Reps. Patsy Mink, Pat Schroeder, Olympia Snowe, and the Women’s Caucus. It was also strongly supported by the members of the House Committee on Education & Labor.

Rep. Morella sponsored the bill as a response to findings that women are underrepresented, underemployed, and underpaid in science and engineering. It would create a Commission

to identify and study the barriers to the recruitment, retention, and advancement of women scientists and engineers in academia, industry, and government. Based on the findings, the Commission would be required to issue recommendations that these institutions could follow to recruit more women into the science and engineering work forces.

Rep. Morella noted in debate that although many of us are aware of the problems that “beset” women in the sciences and in engineering, few policies have emerged to correct the situation. “We need a broad research project to consolidate information and identify intervention models that work. We need a commission to examine the reasons why women are leaving the technical fields. We need a commission to identify the barriers and to research successful programs and policies upon which to build models for success.” Sponsors promise the bill will be re-introduced in 1993.



## IEEE Fellow Wins Top Award For Paper On Standards

WASHINGTON, Nov. 30— Robert D. Hunter of Austin, Tex., an IEEE Fellow, took top honors in this year's competition for the best paper on standards. His winning entry, "Standards: The Keys to Domestic and International Competitiveness," earned a cash prize of \$2,500.

Held in conjunction with National Standards Week, the competition — which was open to all engineers in the United States — was part of an effort to focus national

attention on the importance of standards to all sectors of commerce, industry and government. Two dozen corporations, trade associations and professional groups sponsored the event.

Hunter, who holds bachelor's and master's degrees from Drexel University in Philadelphia, retired from Texas Instruments in 1990. He now works as a consultant in regulatory compliance management and product safety.

## Engineers Call For Policy Changes To Boost Technology Commercialization

WASHINGTON, Dec. 28— U.S. members of the world's largest technical professional society have called for new government policies to leverage technology into applications that create wealth and jobs.

In a policy statement issued December 7, the United States Activities' unit of The Institute of Electrical and Electronics Engineers, Inc. (IEEE) recommended that the Department of Commerce be empowered to provide a strong, coordinated approach to technological competitiveness encompassing all elements of engineering research and development.

IEEE-USA also called for increased funding of the Advanced Technology Program within the Technology Administration (TA) at Commerce and recommended that TA be designated the Federal Government's lead agency for coordinating technology commercialization ventures.

The unit said the advanced technology program represents a foundation from which a national civilian technology agency may evolve. IEEE-USA recommended that the new agency should have responsibility for both standards and technology commercialization.

"Current tax laws emphasize short-range profits over long-term, strategic investments in R&D and in new and improved manufacturing," according to the IEEE-USA statement.

"Federal Government policies and programs are needed to support and facilitate engineering R&D directed toward the efficient production of innovative civilian products and services and to encourage U.S. industry to commercialize the results of R&D effectively," the unit noted.

Goals of the IEEE-USA recommendations are to:

- Encourage and facilitate investment by U.S. industry in longer-range strategic and high-quality manufacturing undertakings;
- Maximize the use of technology resources residing in U.S. government laboratories and in research universities; and
- Strengthen the U.S. technology infrastructure.

The IEEE is the world's largest technical professional society, with a worldwide membership of more than 320,000 electrical and electronics engineers and computer scientists. IEEE-USA is responsible for promoting the professional careers and technology policy interests of the 250,000 IEEE members who live and work in the United States.

## Engineers Call For Tort Reform To Help Boost Nation's Economy

WASHINGTON, Dec. 28— Citing critical insurance problems, frivolous lawsuits and excessive jury awards, electro-technology engineers are urging Federal and state lawmakers to enact significant tort reform during the coming year.

Without such reform, the "entire economy of the nation" will be seriously affected, the U.S. Activities' unit of The Institute of Electrical and Electronics Engineers, Inc. said in

an official position statement adopted December 7. Engineers are seriously affected, especially those in private practice, the group added.

IEEE-USA noted escalating liability insurance costs threaten engineers' ability to provide services needed to help sustain U. S. economic growth. Also cited were important services being excluded from insurance coverage, including

areas such as cleanup of hazardous waste and removal of asbestos.

In its statement, IEEE-USA pledged to work with other groups in bringing about changes in the legal system. It recommended:

- Elimination of joint and several liability so defendants pay damages only in proportion to their responsibilities;
- Revision of comparative negligence so that plaintiffs cannot receive awards if they are more responsible for their injuries than defendants;
- A return to a rational, not arbitrary, basis for distribution of punitive damages;
- Limits on liability for non-economic damages;
- Defined and limited contingency fee schedules for lawyers;
- Repeal of the collateral source rule that prohibits defendants from offering evidence of potential plaintiff benefits from other sources; and
- A requirement that all pleadings and motions be signed by attorney of record certifying that they are well grounded in fact.

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## New Journal From The IEEE And ACM To Explore Advances In Computer Network Designs, Applications

NEW YORK, Jan. 8— The mushrooming science of computer networks is the subject of a new bi-monthly journal to be published jointly by the Computer and Communications Societies of the Institute of Electrical and Electronics Engineers, Inc. (IEEE), and the Association for Computing Machinery (ACM) and its Special Interest Group on Data Communication (SIGCOMM).

*IEEE/ACM Transactions on Networking* will be introduced in February, 1993, when the first issue will be published. The journal will include articles of interest to computer network researchers, designers and users, especially those whose corporations and organizations — such as governments and financial institutions — transmit masses of information.

Editor of the new journal is Dr. James Kurose, Professor of Computer Science at the University of Massachusetts, Amherst.

Kurose foresees a global audience for *Transactions on Networking*, with significant numbers of readers in Europe and the Pacific Rim. "An estimated half trillion dollars (\$500 billion) is spent each year worldwide on telecommunications equipment and services," he said. A more tangible example, Kurose pointed out, is the recent growth of Internet, which 10 years ago connected some 200 computers and now serves well over 750,000.

Kurose also noted that the networking industry in recent years has exploded exponentially. This has been made possible, he said, by the confluence of technical advances in a number of areas, including transmission technologies, switching, and design methodologies. "Engineers and users want to know of the latest designs and applications, and *Transactions on Networking* will enable them to do so."

Kurose said that *IEEE/ACM Transactions on Networking* will be interdisciplinary in nature. Articles will appeal to readers from a wide variety of backgrounds, but particularly those in electrical engineering and computer science. Two contributions in the first issue of the journal that he believes will attract significant interest are "Language-Based Approach to Protocol Implementation," and "Joint Source/Channel Coding of Statistically Multiplexed Real-time Services in Packet Networks."

Kurose welcomes inquiries from potential contributors to the new publication. Correspondence should be addressed to him at: Department of Computer Science, University of Massachusetts, Amherst, Mass., USA 01003.

Subscription information to *IEEE/ACM Transactions on Networking* may be obtained from either ACM or the IEEE:

ACM Member Services Dept.  
151 Broadway  
New York, N.Y. 10036-5701  
(212) 626-0500  
FAX (212)944-1318  
E-Mail ACMHELP@ACMVM.BITNET

IEEE Customer Service  
P.O. Box 1331  
445 Hoes Lane  
Piscataway, N.J. 08855-1331  
800-678-4333 (toll-free)  
FAX (908)981-1667



## IEEE Engineers' Survey Shows Profession Adapting To A Changing World

WASHINGTON, Feb. 26 — The end of the Cold War. The “white-collar recession.” The continuing explosion of high technology. Increased economic competition from Asia. Waves of corporate restructuring. Relentless changes sweeping across the American landscape over the past few years have affected the lives and work of no group more than U.S. electrical engineers.

The United States Activities unit of The Institute of Electrical and Electronics Engineers Inc. (IEEE-USA) recently announced the results of an *IEEE Spectrum* magazine reader survey that charts the response of real-life engineers to this rapidly changing environment. Results were announced on February 17 by IEEE President Martha Sloan at the U.S. Department of Energy in conjunction with National Engineers Week.

The questionnaire survey of 2,000 IEEE members, one-third of whom responded, is the first since a similar but less comprehensive study in 1988. Questions in the latest survey encompassed the areas of image perceptions, job functions and satisfaction, corporate restructuring, performance, and analyses of the profession's past and future.

### Defense Conversion

The much-discussed impact of the end of the Cold War with the Soviet Union has been keenly felt by survey respondents. Conversion from military to commercial enterprise is evident in the decline in respondents working in aircraft, missiles, space and ground-support equipment, from 10.4 percent five years ago to 8.1 percent today. Of the 29 percent of respondents' companies that are significant military contractors, 47 percent of those respondents say their company has a plan for conversion to commercial products. And fully one-third of all respondents say that the Cold War's end has had an impact on their job, citing most notably: job security; less defense spending/contracts; lay offs; and less business.

### Job Security

Corporate restructuring and downsizing has also been a prevalent trend in the recent experience of engineers recently, according to the survey. Sixty-two percent of respondents say their companies have restructured in the last five years, with the most significant result being lay offs and staff cuts. In addition, 61 percent report that their companies have downsized. Forty-five percent of these were affected personally. The most significant effect was reassignment (28.4 percent), with the majority being reassigned to an equivalent position; 8.3 percent say they were laid off. The median number of employ-

ees laid off from respondents' companies during the past five years is 484, and 37 percent laid off 1,000 or more employees.

### Job Satisfaction

In spite of decreasing job security, job satisfaction for electrical engineers appears to remain high. Nearly two-thirds of the respondents are satisfied with their position, including 22 percent who are ‘very satisfied.’ Almost 40 percent say they are more satisfied than they were five years ago — but less than 36 percent claim diminished satisfaction.

Responses to questions on job functions indicate that the responding engineers experience more job satisfaction after increases in their time spent on research, development and design, while satisfaction declines after increases in internal meetings and paperwork. Overall, compared with five years ago, respondents say they are spending more time on development and administrative work — and less on research.

### Occupational Values

The economic pressures of the recession may have affected the occupational values of the survey group, but even so the engineer still places more importance on creativity than compensation. Although 50 percent of respondents indicate that salary is more important to them today than five years ago, almost 60 percent cite the opportunity to be creative as more important now. Regarding salary, 53 percent report that it has kept pace with their expectations, although 52 percent do not think it has improved compared to other professions. The average salary for respondents is \$64,000 (median \$62,700), with the largest segment (43 percent) earning between \$50,000 and \$74,999.

### Self-Image

Engineers continue to react with ambivalence to their self-image and public perceptions. Although in slightly declining numbers than before, most engineers still regard as “often” or “sometimes true” the traditional stereotypes that they are generally socially awkward, possess poor writing and communications skills, and allow their interests to be narrowly defined by their jobs. On the other hand, respondents strongly reject the suggestions that engineers lack imagination, and that they have less time to keep up with world and cultural events than other professionals have.

The survey group shows stronger consensus on its views of the public's understanding of the engineering profession. A majority claim that most people have no understanding of what an electrical engineer does, and that the media misrepresents



engineers. Countering these misperceptions, respondents overwhelmingly maintain that engineering has a greater impact on society than most other professions have.

### Evaluating Engineering's Achievements

When evaluating the progress of the profession over the past quarter-century, survey respondents see some notable successes and failures. Almost 30 percent of respondents say that the profession's greatest success is the development of computers, microcomputers and desktop computers, while nearly 20 percent cite bringing technology to the public, automation and consumer electronics. On the downside, 17 percent are disappointed with the slow growth of the technological automation sector in the United States, and the loss of U.S. technological stature and leadership to Japan. An additional 12 percent indicate disappointment with status and low image, and 10 percent are disheartened by the loss of U.S. production, jobs and job security.

### The Profession's Future

Looking toward the future, respondents named two areas above all others as offering the profession's greatest challenge: automation, and the technology and new products for managing information effectively; and effective and continuing education to keep up to date. Engineers are Confident of meeting

these and other new challenges. More than 73 percent say that the profession either definitely has or probably will have the ability to meet the challenge. Nearly 56 percent of these expect to be involved in such a challenge. And most would bring along their friends and relatives: 73 percent say they would encourage a family member or acquaintance to enter the electrical engineering field, down a little from a whopping 83 percent who would have done so five years ago.

Overall, the IEEE Spectrum survey illustrates a profession in transition amidst a changing world. Economic and political forces have re-molded the occupational shape of engineering, sometimes causing dislocation and anxiety in the lives of individual professionals. At its most acute, this reality leads to outlooks such as this respondent's: "The 1990s will be a decade of misery for engineers as the Defense Department declines and nothing replaces it."

Another view sees a profession which has spawned and continues to generate an era of technological creativity that promises to continue transforming American life into the foreseeable future, carried forward by engineers who love their work and have tremendous confidence in their abilities to meet any challenge. As one respondent summed up this perspective: "Electrical engineering could become the most creative and exciting profession ever in the next 25 years. The potential is almost beyond imagination."

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## IEEE-USA Announces Winners Of National Engineers Week Photo Contest

WASHINGTON, Feb. 26 — High on a hilltop, where windswept earth meets a heavy sky, a rainbow arches down from the heavens to kiss the base of a starkly beautiful wind turbine. This dramatic nexus of the works of man and the forces of nature, captured on a color slide by Michael Rizzi of Oakland, California, vividly illustrates the theme of the National Engineers Week 1993 photo contest, "Visions of Technology: Powers of Energy," sponsored by the United States Activities unit of The Institute of Electrical and Electronics Engineers, Inc. (IEEE-USA). Rizzi was announced as the contest's first-prize winner by IEEE president Martha Sloan during a National Engineers Week press conference here last Wednesday, Feb. 17, at the U.S. Department of Energy.

The competition, which attracted entries from across the United States and Canada, was open to practicing engineers and engineering students. Submissions portrayed engineers' contributions to the development and conservation of the nation's energy resources, and were evaluated for composition, originality, interest and consistency with the theme.

Rizzi, 31, a senior software engineer and IEEE member, was awarded \$500 for his winning entry. In addition, five other winners were honored with cash prizes: Wayne M. Bussard of Brecksville, Oh., \$250 second prize, practicing engineers category; Jorge Reis of Bloomfield, N.J., \$100 third prize, practic-

ing engineers; Kevin R. Goodfellow of Carmichael, Calif., \$500 first prize, engineering students category; Gregory Chappelle of San Diego, Calif., \$250 second prize, engineering students; and Lisa Collins of Auburn, Ala., \$100 third prize, engineering students.

Representatives from three National Engineers Week sponsoring societies assisted in evaluating contest entries. Several distinguished photography editors also volunteered to serve as judges in the contest, including: Jane Colihan, *American Heritage of Invention and Technology*; Nisa Geller, *Scientific American*; Tom Kennedy, *National Geographic*; and Ruth Ravenel, *Smithsonian*.

The winning photos were on display Feb. 17 at the National Engineers Week Future City Competition finals at the Energy Department and at the National Engineers Week Evening Gala at Intelsat headquarters in Washington.

IEEE-USA promotes the professional careers and technology policy interests of 250,000 U.S. IEEE members. The IEEE, the world's largest professional technical society, joins 17 other engineering societies and 10 major corporations in sponsoring National Engineers Week 1993. The week, founded in 1951 by the National Society of Professional Engineers, is the only annual program celebrating the engineering profession's contributions to American life.

# KEEPING TAB REVIEW

IEEE TECHNICAL ACTIVITIES DEPARTMENT

445 Hoes Lane, Piscataway, NJ, 08855-1331, USA

Volume 2, Number 1, Spring 1992

## NEW TECHNOLOGY DIRECTIONS

The New Technology Directions Committee (NTDC) is a standing committee of the IEEE Technical Activities Board (TAB). Its charter is to identify emerging technology areas not addressed by IEEE entities and to encourage and facilitate the formation of appropriate ad-hoc inter-society committees in such areas.

The current activities of NTDC include identification of several emerging technology areas for IEEE consideration. Among these are flat panel displays, personal navigation systems, environmental concerns and issues, virtual reality, and visualization technology.

In the interest of preparing a "portfolio" of emerging technologies, NTDC has solicited from each Society a summary of emerging technologies related to its technical purview. Several fascinating summaries have been received and will form the basis of the portfolio.

NTDC continues to plan promotion of new technologies within IEEE and welcomes your suggestions in this regard.

## SOCIETIES TURNING TO NEW MEDIUMS

A variety of Societies and Technical Councils are using video to record tutorials, distinguished lecturers, and conference proceedings. Many of these programs are being coordinated through the Educational Activities Department and the Educational Activities Board (EAB). For more information about these video production services contact IEEE Educational Activities.

## PROCEEDINGS ON TAPE - Video Proceedings of the 1992 IEEE International Conference on Robotics and Automation

Following the success of last year's Video Proceedings, the 1992 IEEE Robotics and Automation Conference has issued the second Robotics and Automation Conference Video Proceedings. The purpose of this video proceedings is to present new and significant experimental results in robotics and automation undertaken by this international community. The effort is intended to enhance and complement the theoretical results presented in technical sessions of the conference.

The one-hour tape contains 29 segments, and covers 11 robotics categories, including: automation; vehicles; manipulator design; robotic hands; manipulator control; hand-eye coordination; robotic assembly; tele-robotics; sensing; walking machines and robotic applications. Segments came from nine countries including Belgium, Canada, France, Germany, Italy, Japan, Sweden, Switzerland, and United States.

The next edition of the video proceedings will be shown in conjunction with the 1993 Robotics and Automation Conference, currently planned for May 2-7, 1993. If you would like to submit a video, or would like additional information on the program, contact Prof. Rajiv Dubey, Dept. of Mechanical and Aerospace Engineering, Univ. of Tennessee, Knoxville, TN 37996, USA; phone (615) 974-5275 or e-mail [dubey@utkvx.utk.edu](mailto:dubey@utkvx.utk.edu).

"Keeping TAB Review" contains reprints and excerpts of articles from "Keeping TAB," the newsletter of the IEEE Technical Activities Department. For additional information on this material, contact Jayne Cerone, Society Communications, IEEE Technical Activities, Piscataway, New Jersey 08855-1331, USA; phone (908) 562-3908.

# IEEE USA HOT LINES

IEEE-USA Office, 1828 L Street, N.W., Suite 1202, Washington, DC 20036-5104, USA (202) 785-0017  
IEEE-USA telephone hotline recording: (202) 785-2180  
James A. Watson, Editor—Georgia C. Stelluto, Associate Editor

## Energy Policy Committee Supports Development of Advanced Energy Technologies

IEEE-USA's Energy Policy Committee submitted a statement to the House Appropriations Subcommittee on Energy and Water Development on the FY 1993 DOE budget request for energy supply R&D. A similar statement was also submitted concurrently to the Senate Appropriations Subcommittee on Energy and Water Development.

Strongly supporting the aggressive development of advanced energy technologies to satisfy future growth in demand for electricity, IEEE-USA urged DOE and Congress to support research and development of the full range of solar and renewable energy technologies. IEEE-USA also called for increased investment in advanced nuclear energy technologies, a timely demonstration of fusion as a viable power service source for base load power generation, and increased research into electric energy systems.

Further, IEEE-USA asked that Congress and DOE consider continued development of energy storage technologies for both utilities and transportation applications. In addition, the statement supported increased research into the potential health effects of power frequency electric and magnetic fields.

Legislation making Fiscal Year 1993 appropriations for energy and water development was passed by Congress in September and signed into law by the President in October. Despite a tight DOE budget, increased funding was made available for key energy technology programs supported by IEEE-USA, including \$254 million for research and development of solar, geothermal, hydropower, electric energy systems, and energy storage technologies. More than \$311 million was provided for advanced nuclear energy technologies. Magnetic fusion research received funding of \$340 million, a cut of \$20 million from the President's request.

## IEEE-USA Celebrates International Space Year

To help celebrate International Space Year, IEEE-USA's Aerospace R&D Policy Committee co-sponsored a session on *Space and Disaster Management* as part of the 1992 World Space Congress. The session was video-conferenced by satellite, with panels in Washington, D.C., and Geneva, Switzerland. C-SPAN and a large number of educational and university networks provided coverage.

Other participating organizations included the International Academy of Astronautics, the International Astronautical Federation's Working Group on Space and Disaster Prevention, Preparedness, and Relief, and the Society of Satellite Professionals International. The World Space Congress, which attracted thousands of aerospace

and astronautical engineers from around the world, was held in Washington, D.C.

## Congressional Fellows Work on Election Year Issues

Larry Stern, Kenneth Wagner, and Richard Jaeger, the three 1992 Congressional Fellows began their Fellowship terms at the beginning of the year. Initially with Rep. Don Ritter (R-Pennsylvania), Stern selected a new position in the office of Rep. George Brown (D-California), Chairman of the House Science, Space, and Technology Committee. Wagner selected a position on the staff of Rep. James Bacchus (D-Florida), a member of the House Science, Space, and Technology Committee. Jaeger selected a position on the staff of Rep. Richard Santorum (R-Pennsylvania), a member of the House Budget Committee.

In a letter to the Congressional Fellows Committee, Stern wrote that he has been helping to promote H.R. 5231, the *American Technology and Competitiveness Act*. The bill would expand the efforts of key Federal agencies to bolster the economic competitiveness of American industry in global markets, create technology extension centers to aid small- and mid-sized companies in the private sector, increase R&D, upgrade the U.S. educational system, and forge a new compact between government, industry, and education to create a sustainable base for economic recovery.

Wagner has been working on reinvestment initiatives and has drafted H.R. 5310, the *Defense Workers Economic Reinvestment Act*. The goal of this Act is to seize on our nation's victory in the Cold War to create new high-tech, high-growth job opportunities for former defense workers and military personnel. The legislation would implement a national strategy to retrain skilled defense workers and military personnel, create government-private sector partnerships to increase R&D, and spur the growth of new commercial technology industries.

Jaeger has been working on identifying budget-cutting bills and drafting new legislation. Through his efforts, Rep. Santorum has sponsored 16 new bills in defense, space, environment, agriculture, Medicare, and Government personnel. In addition, Jaeger has made extensive use of the Congressional Research Service and interacted with many Government agencies. He has also attended meetings, and technical seminars sponsored by such groups as the Digital Information Exchange, the AAAS Colloquium on Science and Technology, and the Semiconductor Research Council.

Two new 1992-93 IEEE Congressional Fellows have been selected. Dr. Lawrence Larsen, of Silver Spring, Maryland, and Ms. LeEarl Bryant, of Richardson, Texas, are actively seeking their Fellowship assignments.

# IEEE USA HOT LINES

IEEE-USA Office, 1828 L Street, N.W., Suite 1202, Washington, DC 20036-5104, USA (202) 785-0017  
IEEE-USA telephone hotline recording: (202) 785-2180  
James A. Watson, Editor—Georgia C. Stelluto, Associate Editor

## IEEE-USA Offers Policy Ideas to Clinton's Technology Advisers

Immediately after the election, IEEE-USA presented President-elect Bill Clinton with a series of idea papers prepared by IEEE members on issues ranging from defense conversion and education to developing an information infrastructure for the 21st Century. 1992 USAB Chairman Arvid G. Larson commented that "technology is the key to restoring U.S. leadership in competitiveness" and added that these ideas will help produce jobs.

Clinton's transition team requested ideas from IEEE-USA for creative approaches to science and technology issues facing the new Administration. IEEE-USA also responded to the team's request for nominees to fill Executive Branch science and technology positions.

The idea papers addressed such issues as a national policy for converting current defense spending to civilian needs, reforms in science education policies at all levels, changes in tax policies to encourage continuing education for a work force that can respond to rapid technological change, the role of the Department of Commerce in civilian technology, reform of data rights to encourage commercialization, competition in multi-channel television service, and creating a biomedical engineering unit at the National Institutes of Health. Larson said these ideas do not necessarily represent official IEEE-USA positions but reflect the thinking of concerned engineers who believe that technology plays a crucial role in U.S. competitiveness.

## Engineering R&D Policy Committee Supports National Science Foundation

1992 USAB Chairman Arvid G. Larson submitted a statement to the Special Commission on the Future of the National Science Foundation (NSF) on behalf of IEEE-USA's Engineering R&D Policy Committee. In a letter to Commission Co-Chairmen Robert W. Galvin and William H. Danforth, Larson said that IEEE-USA supports the science and engineering research and education missions of the NSF and applauds the Foundation for its willingness to examine its role in the new competitiveness challenges confronting the nation.

With respect to NSF's research program, IEEE-USA recommended that the Foundation broaden its research objectives. Especially pleased with the proposal that NSF help foster links between research and technology, IEEE-USA encouraged the National Science Board and the Commission to concentrate on strategies to make this link possible.

IEEE-USA recommended that the Foundation encourage universities to work more closely with industry, but NSF should not directly fund industrial research. IEEE-USA supported direct Federal funding of industrial applied

research and development of precommercial technologies through such established programs as the Advanced Technology Program within the Department of Commerce. Further, IEEE-USA recommended that NSF improve its technology transfer efforts by expanding seminar programs that bring together NSF-funded researchers to present their results to invited industries.

## Directory of Volunteer Opportunities Now Available

An updated source book of opportunities is available for people who want to encourage youngsters to study mathematics and science and become technologically literate. Procedures for getting involved and a description of 35 different programs have been compiled into a directory available free of charge to potential volunteers.

The programs are nationally coordinated but depend on local volunteers for their operation. Volunteers are needed for a wide variety of activities designed to spark interest in precollege mathematics and science studies.

The *Directory of Volunteer Opportunities* includes information on specific volunteer responsibilities, so that users can choose programs best suiting their skills and interests. A quick-reference matrix lists programs, intended audiences, grade levels, specific tasks a volunteer may be asked to perform, time commitments involved, and any special qualification requirements.

IEEE-USA and Engineers for Education (E for E) co-sponsored the Directory's publication. E for E is a non-profit association composed of 45 engineering professional societies organized to support the goal of making U.S. students first in the world in mathematics and science by the year 2000. Copies of the Directory may be obtained by calling E for E at (800) 489-0348; or the IEEE-USA Office in Washington, D.C. at (202) 785-0017.

## IEEE Fellow Takes Top Honors for Standards Paper

IEEE Fellow Robert D. Hunter of Austin, Texas, took top honors for the best paper on standards in this year's competition. His winning entry, "*Standards: The Keys to Domestic and International Competitiveness*," earned him a \$2,500 cash prize.

Hunter, who retired from Texas Instruments in 1990, holds both a bachelor's degree and a master's degree from Drexel University in Philadelphia, Pennsylvania. He currently works as a regulatory compliance management and product safety consultant.

Part of an effort to focus national attention on the importance of standards to all sectors of commerce, industry, and government, the competition was open to all engineers and was held in conjunction with National Standards Week. Two dozen corporations, trade associations, and professional groups sponsored the event.

# IEEE USA HOT LINES

IEEE-USA Office, 1828 L Street, N.W., Suite 1202, Washington, DC 20036-5104, USA (202) 785-0017

IEEE-USA telephone hotline recording: (202) 785-2180

James A. Watson, Editor—Georgia C. Stelluto, Associate Editor

## **Suttle Named IEEE's Staff Director for Professional Activities**

W. Thomas Suttle has succeeded Leo C. Fanning as IEEE's Staff Director for Professional Activities in Washington, D.C. Fanning, now retired, held the post for the past 13 of his 17 years with IEEE.

Suttle is an honors graduate of The University of the South at Sewanee, Tennessee. He holds a masters degree in international studies from The School of Advanced International Studies of The Johns Hopkins University. Serving as an intelligence officer with the U.S. Air Force from 1971-73, Suttle joined IEEE in 1977 and has held a variety of staff management positions.

## **Intellectual Property Committee Chairman Testifies on Criminal Sanctions For Violation Of Software Copyright**

1992 IEEE-USA Intellectual Property Committee Chairman David M. Ostfeld testified before the House Judiciary Subcommittee on Intellectual Property and Judicial Administration on S. 893, *Criminal Sanctions For Violation of Software Copyright*. IEEE-USA believes the legislation is too stringent and opposes passage of the bill in its present form.

While IEEE-USA agrees that software piracy should be punishable, Ostfeld pointed out that the software field and copyright infringement considerations are in a state of flux. IEEE-USA believes that too many discrepancies and interpretations exist in U.S. courts about whether reverse engineering should be legal.

Until it is clear that S. 893 will not penalize engineers who use reverse engineering for research, interoperability, and enhancing technology, IEEE-USA cannot support such legislation. The Intellectual Property Committee will continue to monitor this legislation.

## **IEEE-USA Urges Congress to Counter Japan's Advanced Technology Trade Policies**

1992 USAB Chairman Arvid G. Larson testified before a subcommittee of the House Government Operations Committee to urge Congress to take new approaches to counter Japan's advanced technology trade policies. Calling for substantial changes in peacetime policies that will govern interaction in the high-performance computing industry, he said that supercomputers are at the top of a technology "food chain," dependent on the nation's entire technology infrastructure.

Larson stressed the importance of semiconductors in this chain and warned that U.S. Government indifference to the industry's problems is undermining the future of high-performance computing. "Dependence on foreign suppliers of equipment and materials represents an extreme vulnerability for U.S. semiconductor firms," he said.

Pointing out that high-performance computing has led to the development of U.S. industries that are highly successful in international competition, Larson said that supercomputers are vital to U.S. national security, the international competitiveness of the U.S. economy, and the nation's future standard of living. He added that "national security and industrial competitiveness could be threatened, if the Government begins awarding contracts to Japanese supercomputer firms."

## **TPCC Holds Workshop on Manufacturing, Quality Control, and Management**

IEEE-USA's Technology Policy Conference Committee will sponsor a workshop on the *Science of Manufacturing, Quality Control, and Management* in conjunction with the American Association of Engineering Societies' (AAES) Government Affairs Conference in Washington, D.C., on March 3. The Workshop will address how industry and government can work together to enhance quality and productivity in manufacturing and discuss the strategies of previous Malcolm Baldrige Quality Award winners.

The AAES Conference will include a morning plenary session, the 14th Annual AAES Awards Ceremony and luncheon, and four different afternoon workshops. To register, please call AAES at (202) 296-2237. For additional information on IEEE's workshop, contact Scott Grayson at the IEEE-USA Office in Washington, D.C. \*

## **IEEE-USA Names 1993 Congressional Fellows**

The United States Activities Board recently approved recommendations for two 1993 Congressional Fellowships. LeEarl Bryant of Richardson, Texas, and Lawrence E. Larsen of Silver Spring, Maryland, began their Fellowships on January 1 and will work in selected staff assignments on Capitol Hill for one year.

A consultant to toll authorities and advanced technology companies in the Dallas-Ft. Worth area, Ms. Bryant holds a master's degree in electrical engineering with a biomedical option from Southern Methodist University and the University of Texas Southwestern Medical School. She has selected an assignment on the staff of Rep. Pete Geren (D-Texas). Ms. Bryant will be working on science, space, and technology issues.

A physician and engineer, Dr. Larsen is a *magna cum laude* graduate of the University of Colorado School of Medicine at Denver. He later served with the U.S. Army Medical Research and Development Command, where he founded the first U.S. laboratory for millimeter wave biophysics at Walter Reed Army Institute of Research. Dr. Larsen has selected an assignment on the staff of Senator William V. Roth (R-Delaware) and will be working on engineering health care issues.

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1101 Wilson Blvd., Suite 1500  
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Tel (703) 558-7400  
FAX (703) 524-6666

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Cambridge, MA 02139  
(617) 253-4336

RICHARD STERN  
Applied Research Lab.  
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P.O. Box 30  
State College, PA 16804  
(814) 865-6344

TAKENOBU KAJIKAWA  
Ocean Energy Sect.  
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1-1-4 Umezono  
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Marine Systems Eng. Lab.  
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Marine Program Building  
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Centre for Marine Science & Tech.  
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Australia  
61 9 351 7380

WILLIAM J. PLANT  
Woods Hole Oceanographic Inst.  
Woods Hole, MA 02543  
(617) 548-1400, ext. 2725

ADRIAN K. FUNG  
Elec. Eng. Dept.  
Univ. of Texas at Arlington  
Box 19016  
Arlington, TX 76019  
(817) 273-2671

GIORGIO TACCONI  
University of Genoa  
Dept. Eng., Biophy. & Elec. (DIBE)  
Via all' Opera Pia 11a  
16145 Genoa, Italy  
39 (0) 10 31 18 11  
39 (0) 10 31 18 11

CHRISTOPHER VON ALT  
Dept. of Ocean Engineering  
Woods Hole Oceanographic Inst.  
Woods Hole, MA 02543  
(508) 548-1400, ext. 2290

MALCOLM L. HERON  
Physics Dept.  
James Cook University  
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