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NATIONAL CAPITAL AREA COUNCIL

SCANNER

April/May 1995 Volume 10, No.2

Meet our new "Fellows" at our annual Awards Banquet!

Details and Registration Forms on Page 13

Attend our Annual Election Meeting!!

See Calendar of Events May 22nd

Attend Officers Training Workshop!

See Calendar of Events, June 3rd, and "Diamond" Story

Help to Re-engineer the Institute!

See Editor's Corner, page 14

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SCANNER EDITORIAL STAFF

Editor-in-Chief	Associate Editor	Advertising Manager	Business Manager
Tom Doeppner 8323 Orange Court Alexandria, VA 22309 Tel: 703/780-3983 Fax: 703/799-9084	Jim Strother P.O. Box 3296 Alexandria, VA 22302 Tel: 703/751-6186 Fax: 703/751-6869	Charles W. True III 12310 Pinecrest Road Reston, VA 22091 Tel/Fax: 703/448-7622	Jerry Johnston P.O. Box 1777 Lorton, VA 22199 Tel: 703/246-0563 Fax: 703/246-0492

Calendar of Events

Attendance at IEEE Meetings. IEEE meetings are open to members and guests. When meetings are combined with meal functions, it is not mandatory — although desirable — to attend the meal functions. Please make timely reservations for all meetings (cancel early, if necessary). Any IEEE member may attend Council and Section Administrative Committee (ADCOM) meetings.

Announcements. Calendar information should follow the format used in this Calendar of Events. The calendar item listing includes the abbreviation for the managing section after each society chapter listing. In the case of joint chapters, the managing section is listed first. A diamond (◆) preceding the event in a calendar item indicates that further information on that event is provided in the "Diamond Stories" Department of that issue. Articles for the "Diamond Stories" Department should be limited to 150 words, and include a synopsis of the talk or event, and a biosketch of the speaker which lists, if available, his or her academic background, current position, and IEEE as well as other professional societies memberships, if any.

All announcements, diamond stories, and other material to be printed in an issue of the SCANNER must be sent or faxed to the Editor-in-Chief in time to arrive on or before the 25th of the second month preceding the month of desired publication. The deadline for camera-ready material (e.g., ads) is the first workday of the month preceding the month of desired publication.

APRIL 1995

Mon Apr 3-Fri Apr 7 — **◆ Defense Systems Integration: Methodology and Effectiveness Analysis** (Course # 1535)
Sponsor: George Washington University Continuing Education Program (See also ad on page 5)
Instructors: (See Diamond Story)
Place: George Washington University Academic Center, Room 308, 801 22nd Street NW, Washington, DC
Time: 8:30 am to 4:15 pm
Contact: Monique Wilson, 202/994-0726

Mon, Apr 3-Thu Apr 6 — **◆ Video Communications: An Introduction** (Course # 1554)
(For further details, see preceding GWU entry)

Tue Apr 4 — **Washington Section ADCOM Meeting**
Place: UDC Van Ness Campus, 4200 Connecticut Ave, NW Bldg 32, Room 204. UDC-Van Ness Metro Stop on Red Line. Premeeting Dinner at Charlie Chiang's Restaurant, 4250 Connecticut Ave. If driving, park in UDC garage on Van Ness Street
Time: Dinner: 5:30 pm; Meeting: 7:00 pm to 9:00
Contact: For dinner reserv: Call Jerry Gibbon, 202/482-2265

Tue Apr 4 — **National Consultants Network: Networking/Business Meeting**
Sponsors: NCAC PACE Consultants Network, Washington Section, Northern Virginia Section
Place: Panevino Restaurant, Embassy Suites Hotel, 1755 Duke Street, Alexandria, VA 22314; by Metro, take Yellow Line to King Street Station; Hotel is across the street from station exit; by car, take Beltway to Route 1 north, turn left on King Street; approx. 1 mile, turn left on Diagonal Road; go one block to Embassy Suites. Park in Hotel underground lot.
Time: Dinner 5:30 pm; Meeting 7:00 pm
Contact: For dinner reservations, call 301/262-0300 by noon Monday, Apr 3

Tue Apr 4-Wed Apr 5 — **◆ Wireless Communications** (Course # 180B)
Sponsor: Armed Forces Communications & Electronics Association (AFCEA) Professional Development Center
Instructor: Dr. Harvey Gates, VP of Operations, BDM Federal, Boulder, CO

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Place: AFCEA International Headquarter, 4400 Fair Lakes Court, Fairfax, VA
Time: 8:30 am to 4:30 pm
Contact: Cynthia Weller, 703/631-6135

Wed Apr 5 — **Northern Virginia Section ADCOM Meeting**
Place: MITRE Corporation 7525 Colshire Drive, McLean, VA
Time: 7:00 pm to 9:00
Contact: Lalit Batra, 703/883-7853

Mon Apr 10-Wed Apr 12 — **◆ Broadband Networking: T-1, T-3, SONET, and Other Loop Technologies** (Course # 1834)
(For further details see GWU entry for Apr 3-7)

Tue Apr 11 — **Circuit Design Techniques for Bipolar Transistors and p-HEMT Devices**
Sponsor: Microwave Theory and Techniques Society (W/NV)
Speaker: Al Ward, Hewlett Packard Company
Place: University of Maryland Adult Education Center, University Blvd & Adelphi Road, Adelphi, MD
Time: Cocktails 5:30 pm; Dinner 6:30; Meeting 7:30
Contact: Info and dinner reservations: Dave Hinzel, 703/729-6000x3737, by April 5.

Thu Apr 13 — **◆ Globalstar Satellite System for Personal Communications**
Sponsor: Aerospace & Electronic Systems Society (W/NV)
Speaker: Dan Smith, Principal Engineer, Loral Aerospace Corp
Place: Computer Sciences Corporation, 10110 Aerospace Rd, Seabrook, MD, GreenTec-2 Bldg, Room 24 F/G; from Capital Beltway, take Greenbelt Exit (Rt 19 east) towards Goddard Space Flight Center. Go past Center approx. 1.5 miles east; turn left at tfc light onto Aerospace Rd; Greentec Bldgs 1 and 2 are on the left; check in lobby of GreenTec-2 (10110 Aerospace Rd) and ask for IEEE meeting
Time: 12:00 noon to 1:30 pm; brown-bag lunch (bring your own food, or buy from nearby fast-food restaurant)
Contact: Saj Durrani, 301/794-1544 for information and directions

Tue Apr 18 — **◆ Consulting Workshop: What PRICE am I Worth???**
Sponsors: NCAC PACE Consultants Network, Washington Section, Northern Virginia Section
Place: Panevino Restaurant, Embassy Suites Hotel, 1755 Duke Street, Alexandria, VA 22314; by Metro, take Yellow Line to King Street Station; Hotel is across the street from station exit; by car, take Beltway to Route 1 north, turn left on King Street; approx. 1 mile, turn left on Diagonal Road; go one block to Embassy Suites. Park in Hotel underground lot.
Time: Dinner 5:30 pm; Meeting 7:00 pm
Contact: For dinner reservations, call 301/262-0300 by noon Monday, Apr 17

Wed Apr 19 — **◆ Virtual Reality Primer**
Sponsor: Reliability Society (W/NV)
Speaker: Henry Hartt, Vitro Corporation
Place: Dinner: Anchor Inn, University & Georgia Ave, Wheaton, MD; Meeting: Vitro Corporation, Intersection of Aspen Hill Road * Connecticut Ave, Silver Spring, MD; Enter off Aspen Hill Road (immediately behind the Shell Station) into Parking Lot of Bldg 4 (park anywhere); sign in at guards station; Meeting will be held in Main Conf. Room
Time: Dinner 6:00 pm; Meeting 8:00
Contact: For more information and reservations, call Lynn Fugate, (W) 301/794-8315; (H) 301/499-3476

Thu Apr 20 — **◆ Issues in U.S. Spectrum Allocation, 1995**
Sponsor: Communications Society (W/NV)
Speaker: Bennett Z. Kobb, Author and Publisher
Place: The George Washington University, Academic Center (22nd and I Streets, NW, Room T-640 (EE Dept Conference Room). One block from Foggy Bottom/GWU Metro Station. Limited on-street parking; cheapest parking garage is across from Academic Center (Use I-Street visitors' entrance)
Time: Registration 11:30 am; Lunch 11:45; Presentation 12:15 pm to 1:00. Bring your own brown-bag lunch (there are several good delis in the neighborhood)
Contact: Robert J. Hollingshead, 202/646-2351

Mon Apr 24 — **NCAC Steering Committee Meeting**
Place: UDC Van Ness Campus, 4200 Connecticut Ave, NW Bldg 32, Room 204. UDC-Van Ness Metro Stop on Red Line. Premeeting Dinner at Charlie Chiang Restaurant, 4250 Connecticut Ave. If driving, park in UDC garage on Van Ness Street
Time: Dinner: 5:30 pm; Meeting: 7:15
Contact: For dinner reservations: IEEE NCA Office, 703/803-8701 or Fax 703/222-5971

Mon Apr 24-Fri Apr 28 — **◆ Military Satellite Communications** (Course 1022) **SECRET (U.S. Citizens only)**
Instructors: Dr. Harry Van Trees (Course Coordinator), Director C3I Center, George Mason University; additional eminent speakers from both industry and government
(For further details see AFCEA entry for April 4)

Wed Apr 26 — **◆ The Space-Time Adaptive Array**
Sponsor: Antennas and Propagation Society (W/NV)
Speaker: Dr. Ronald L. Fante
Place: COMSAT Corporation, Multi-Purpose Room, 6560 Rock Spring Drive, Bethesda, MD
Time: 6:30 pm
Contact: Dr. David T. Auckland, 301/982-5285, or Andy Humen, 301/982-5264

Sat Apr 29 — **NCAC Annual Awards Banquet**
(See registration form on page 13)
Sponsors: National Capital Area Council, Washington Section, Northern Virginia Section
Speaker: Mr. Wallace S. Read, 1995 President Elect
Place: Bolling Air Force Base Officers Club; Take I-295 to Bowling Air Force Base Exit, drive to Main Gate, follow signs to Officers Club
Time: Cash Bar 6:30 pm; Dinner 7:30; Awards Ceremony 8:30
Contact: Rex Klopfenstein, 703/883-6862, or NCA Office, 703/803-8701, or fax 703/222-5971

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SEAMEB

MAY 1995

Mon May 1 ◆ **Small Business Legal Issues and Tax Considerations**
Sponsor: Washington Section. (See also ad on page 12)
Speakers: Richard Puryear, C.P.A. and Jerome Ostrov, P.C.
Place: Allee's Restaurant, Bethesda Marriott Hotel, 5151 Pooks Hill Road, Bethesda, MD. From Beltway take Wisconsin Ave (Rockville Pike) north to Exit 34. Stay in right lane to Route 355 South, Bethesda. Follow the U-turn to go south on Wisconsin Ave for about 1/4 mile to first traffic light: Pooks Hill Road. Bethesda Marriott Hotel is at 5151 Pooks Hill Road. Meeting will be in the Hotel's "Allee's Pantry" Restaurant.
Time: Cocktails 5:30 pm; Dinner 6:00; Meeting 7:00; ("Early Bird" dinner available for $11.00 plus tax/tip)
Contact: Jerry Gibbon, 202/482-2265

Mon May 1-Fri May 5 ◆ **Command, Control and Communications (Course 101BO)**
(For further details see AFCEA entry for Apr 24)

Tue May 2 **Washington Section ADCOM Meeting**
Place: UDC Van Ness Campus, 4200 Connecticut Ave, NW Bldg 32, Room 204. UDC-Van Ness Metro Stop on Red Line. Premeeting Dinner at Charlie Chiang's Restaurant, 4250 Connecticut Ave. If driving, park in UDC garage on Van Ness Street
Time: Dinner: 5:30 pm; Meeting: 7:00 pm - 9:00
Contact: For dinner reservations: Call Jerry Gibbon, 202/482-2265

Tue May 2 **Consultants Network: Networking/Business Meeting**
Sponsors: NCAC PACE Consultants Network, Washington Section, Northern Virginia Section
Place: Panevino Restaurant, Embassy Suites Hotel, 1755 Duke Street, Alexandria, VA 22314; by Metro, take Yellow Line to King Street Station Hotel is across the street from station exit; by car, take Beltway to Route 1 north, turn left on King Street; approx. 1 mile, turn left on Diagonal Road; go one block to Embassy Suites. Park in Hotel underground lot.
Time: Dinner 5:30 pm; Meeting 7:00 pm
Contact: For dinner reservations, call 301/262-0300 by noon Monday, Apr 17

Wed May 3 **Northern Virginia Section ADCOM Meeting**
Place: MITRE Corporation, 7525 Colshire Drive, McLean, VA
Time: 7:00 pm to 9:00
Contact: Lalit Batra, 703/883-7853

Tue May 16-Thu May 18 ◆ **Digital Data Communications and Emerging Technology** (Course 171M)
(For further details see AFCEA entry for Tue Apr 4)

Tue May 16-Thu May 18 ◆ **Digital Data Communications and Emerging Technologies** (Course 171M)
(For further details see AFCEA entry for Tue Apr 4)

Tue May 16 ◆ **Annual Awards Banquet, Washington Academy of Sciences**
Subject: The Future of Science in the United States
Speaker: Rev. Frank R. Haig, SJ; Chairman of Physics Department of Loyola University, and President of the Washington Academy of Sciences
Place: Naval Officers Club, Naval Medical Center, Bethesda, MD Free parking available next to Club; Metro Stop: Medical Center, walking distance to Club 1/2 mile
Time: Cocktails 6:30 pm; Dinner ($25) 7:30; advance payment should be sent to Norman Doctor, 6 Tegner Court, Rockville, MD 20850, Tel 301/424-3126
Contact: For reservations, C.R. Creveling; daytime 301/496-5360; evening: 301/493-8414

Wed May 17 ◆ **Computers, Databases, Telecommunications and the Migrant Farmworker**
(rescheduled from Feb 15)
Sponsor: Social Implications of Technology Society (NV/B/W)
Speaker: Victor Perez Nunez, MITRE Corporation
Place: Tysons Corner Magic Pan Restaurant: Tysons Corner Center, lower level near Lord & Taylor
Time: Social 6:15 pm (cash bar); Dinner 7:00; Presentation 8:00
Contact: Bill Kelly 703/883-5745 or e-mail wjkelly@mitre.org for dinner reservations and information on Metro accessibility

Wed May 17 ◆ **Short Circuit and Coordination Studies**
Sponsor: Industry Applications Society (W/NV) and Power Engineering Society (W/NV)
Speaker: Pranab Mukhopadhyay, MET Electrical Testing Co.
Place: Anchor Inn, University Blvd & Georgia Ave, Wheaton, MD (Near Wheaton Metro Station)
Time: Social 6:30 pm; Dinner (optional; cost $20) 7:00; Presentation 7:30
Contact: Annette Allender, 202/205-8031, or Ron Aasen, 202/205-8088, or Internet Ron_Aasen@Beng.VOA.Gov Reservations requested by May 12

Thu May 18 ◆ **DoD's Joint Spectrum Center — Directions and Challenges**
Sponsor: Electromagnetic Compatibility Society (W/NV)
Place: Fred's Place Restaurant, 2d Floor, Holiday Inn Crystal City; two blocks north of Crystal City Metro stop; Some free parking in garage; stop at front desk for parking permit.
Time: Registration/cash bar: 5:30 pm; Dinner 6:00; Program 6:30
Contact: For reservations call JoAnn Dorsey, 301/417-0220 by Tuesday, May 16

May 18 ◆ **U.S. Mobile Satellite Communications**
Sponsor: Communications Society (W/NV)
Speaker: Michael Ward, American Mobile Satellite Corporation
Place: Treviso Ristorante, 2138 Pennsylvania Ave NW, Washington, DC.
Time: Lunch 12:00 noon (Menu: Garden Salad, choice of fish w/pasta or chicken w/pasta, chocolate mousse dessert and beverage; cost: $15
Contact: Robert J. Hollingshead, 202/646-2351

Thu May 18 ◆ **The Iridium System for Personal Communications via Satellite** (also AESS Spring Social/Elections)
Sponsor: Aerospace and Electronic Systems Society (W/NV)
Speaker: John Knudsen, Director, Spectrum and Standards, Motorola
Place: Recreation Center, Goddard Space Flight Center; from Capital Beltway take Greenbelt Rd Exit (Rt 193) east towards Goddard Space Flight Center. Go past Center approx 1 mile east; turn left at Soil

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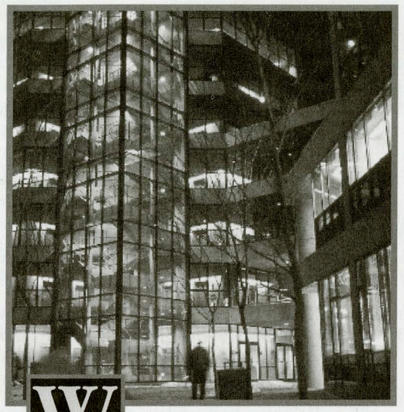

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Conservation Road; go past the Visitors Center, then turn right at the Recreation Center entrance. (Ongoing construction may cause some diversions)

Time: Reception 5:30 pm; Optional (New York strip steak) Dinner 6:00 (Cost: $12 per person); Elections 7:30; Talk 8:00 - 9:00

Contact: Joe Toro, 301/794-1568; reservations and payments must be received by May 10. Spouses are welcome Important: For security reasons, RecCenter visitors must register and get a car pass at the main gate at Goddard, unless we have provided their names to the Guard at the Rec Center ahead of time. To expedite entry, please call and "register" even if you intend to come only for the talk. Names of **foreign nationals must be provided to Security by May 2.** Call Joe Toro for details.

Mon May 22 NCAC Steering Committee and Annual Election Meetings

Sponsors: NCAC, Washington and Northern Virginia Sections

Place: UDC Van Ness Campus, 4200 Connecticut Ave, NW Bldg 32, Room 204. UDC-Van Ness Metro Stop on Red Line. Premeeting Dinner at Charlie Chiang Restaurant, 4250 Connecticut Ave. If driving, park in UDC garage on Van Ness Street

Time: Dinner: 5:30 pm; Meeting: 7:15

Contact: For dinner reservations: IEEE NCA Office, 703/803-8701 or Fax 703/222-5971

Wed May 24 ◆ A Comparison of Software Testing Methodologies

Sponsor: Reliability Society (W/NV)

Speaker: Dr. Carol Smidts, University of Maryland

Place: Dinner: Anchor Inn, University & Georgia Ave, Wheaton, MD; Meeting: Vitro Corporation, Intersection of Aspen Hill Road & Connecticut Ave, Silver Spring, MD; Enter off Aspen Hill Road (immediately behind the Shell Station) into parking lot of Bldg #4, park anywhere; sign in at guard station; Meeting will be held in Main Conference Room

Time: Dinner 6:00 pm; Meeting 8:00

Contact: For more information and reservations, call Lynn Fugate, (W) 301/794-8315; (H) 301/499-3476

JUNE 1995

Sat Jun 3 ◆ Officers Training Workshop

Sponsors: National Capital Area Council, Washington Section, Northern Virginia Section

Speakers: (See Diamond Story)

Place: George Washington University, Marvin Center 800 21st Street NW, Washington, DC

Time: 9:00 am to 3;00 pm; (See Diamond Article)

Contact: IEEE NCA Office, 703/803-8701, or Fax 703/222-5971 Reservations Required

Mon June 5-Tue Jun 6 ◆ Global Command and Control System (Course181) **SECRET** (For further details see AFCEA entry for May 1-5)

Tue Jun 6-Thu Jun 8 TECHNET '95, AFCEA's International Convention and Exposition (Imaging '95 and TechTransfer '95 held in conjunction with TechNet). **Make sure you visit the IEEE NCAC Booth while attending TECHNET!**

Sponsor: AFCEA, the Armed Forces Communications and Electronics Association

Place: Washington Convention Center, Washington, DC

Contact: AFCEA Programs Office, 703/631-6128, or 1-800/336-4583, ext 6128. For exhibits information, call 703/631-6200 or 1-800/336-4583, ext 6200.

◆ DIAMOND STORIES ◆

This Department of the SCANNER provides short abstracts and biosketches to accompany those calendar items which show a diamond (◆) before the name of the sponsoring society/chapter.

Defense Systems Integration: Methodology and Effectiveness Analysis

(See Calendar of Events, Monday, April 3 to Friday, April 7)

This course draws from a number of technical and managerial disciplines to synthesize the ideas and techniques needed to develop effective hardware and organizational systems. Three principal applications of system effectiveness are highlighted. For hardware and software systems, reliability, adequate design, and readiness provide the framework for measuring effectiveness. Guided weapons systems illustrate methods for measuring system effectiveness. The course examines measures of adequacy (MOA). Measures of performance (MOP) are used to examine each subsystem. The tradeoff between developing new systems and improving existing ones are also explored. Measures of organizational effectiveness, such as technical, interactional, and managerial (TIM) activities, are examined. A workshop allows participants to apply system integration, partitioning, and analysis tools to the design of a complex system.

(The fee for this course is $1,295. Instructor: Abdul Habayeb, Ph.D.)

Video Communications: An Introduction

(See Calendar of Events, Monday, April 3 to Thursday, April 6)

Considerable growth in the development of video transmission schemes has generated new standards for television signals. These developments will affect consumer products, such as television sets and recording equipment, direct broadcast satellite (DBS) systems, and the semiconductor industry. This course introduces the principles and characteristics of video signals, current developments in HDTV, and video compression techniques for digital television and video conferencing. It covers multiplexed analog component standards and other video-related topics, such as transmission issues, and international developments in HDTV.

(The fee for this course is $1,125. Instructors: Lalji Ghedia and Robert Kepley.)

Wireless Communications

(See Calendar of Events, Tue, April 4 to Wed,April 5)

Commercial wireless communications is becoming as much an underpinning technology as the computer. It represents the next generation electromagnetic network. Miniaturization, clever use of radio spectrum, the expanded roles of the cellular phone and pager, the popularity of tetherless lap and palm-tops, the new breed of low earth orbiting satellites and even the Global Positioning System (GPS) are all key factors in the increased popularity of this technology. Major software, computer and common carrier businesses are committed to wireless through new developments, acquisitions, mergers and teaming. The same technology offers some of the solutions necessary for digitization of the battlefield.

(The fee for this course is $580 for members of industry, $440 for government and military personnel. Instructor: Harvey M. Gates, Ph.D.)

Broadband Networking: T-1, T-3, SONETand Other Loop Technologies

(See Calendar of Events, Mon April 10 to Wed April 12)

The emergence of synchronous optical network (SONET) and its coexistence with T-1 and T-3 networks has created many technical issues in optical networking. This course describes the basics of T-1, T-3 and SONET networks and services. It also thoroughly describes multiplexing techniques and migration from T-1 to T-3 and SONET. The course explains the T-1, T-3 and SONET services, and the functions of the equipment used in these networks. Variation of services based on T1, T-3 and Sonet, including frame relay and switched multimegabit data services (SMDS) are also covered.

(The fee for this course is $975. Instructor: Roohollah Hajbandeh, Ph.D.)

Globalstar— Satellite System for Personal Communications

(See Calendar of Events, Thursday, April 13)

Globalstar is one of the three "Big LEO" systems licensed by the FCC which will provide world-wide cellular-type voice and low-rate data communications. (The other systems are TRW's Odyssey and Motorola's Iridium.) The Globalstar system includes 48 operational satellites and a network of ground gateways. Up to 12 satellites will be launched at a time beginning in 1997, with the full constellation in place by the end of 1998. The talk will provide an overview of the Globalstar system, and will discuss some of the past and future challenges facing the system.

The speaker, Dan Smith, works for Loral AeroSys in Seabrook, MD, and is the Principal Engineer for the Globalstar Control Center. He has worked on the Globalstar program for three years, supporting basic operations concept development and system design.

Consulting Workshop: What Price Am I Worth?

(See Calendar of Events, Tuesday, April 18)

We IEEE members are all highly trained in our technical specialties, but are generally unschooled in business. To address this shortcoming, the NCAC Consultants Network presents this Consultant Workshop Series.

Session Four in this series focuses on fundamental, sometimes agonizing decisions you as a consultant must make: how do you set your fees? What are the factors involved? What does the competition charge? How do you handle those "extras"? Task-basis vs. cost-basis charging; when should you charge "portal-to portal"? Fee adjustments for longer jobs; making sure that your contract has the right clauses, and is properly written to cover payment terms, prepayments, progress payments, etc. We will also present results of several fee surveys taken by other IEEE consultant networks across the country. Don't miss this one!

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Tuesday, April 25
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Virtual Reliability Primer

(See Calendar of Events, Wednesday, April 19)

This session will present some historical background, and then move to current thrusts in the exciting field of virtual reality. Activities in a number of fields — including surgery, manufacturing, training, and maintenance — will be covered in discussions, brief video clips, and, if time permits, some hands-on demonstrations of inexpensive software for personal computers. Potential applications to the assurance world, and the reliability engineer's part in this growing field, will be covered along with a recommended reading list and addresses of interesting sources on the Internet's "World Wide Web."

Henry Hartt hold a BSEE degree from the University of Maine. He has been with Vitro Corporation since 1963, and is currently supporting the Office of Safety and Mission Assurance at NASA Headquarters, where he is editor of NASA's "Reliability Preferred Practices" effort. He also supports the Navy's Strategic Systems Program Office. He is a member of the IEEE, which he has represented on the Annual R&M Symposium Management Committee, and was Vice President of the IEEE's Reliability Society from 1988 to 1994.

Issues in U.S. Spectrum Application, 1995

(See Calendar of Events, Thursday, April 20)

The Federal Communications Commission (FCC) is pursuing an aggressive schedule to roll out new expanded radio services. Frequently these spectrum allocations involve difficult compromises between competing parties, as well as satisfaction of statutory and international requirements. This presentation will review several of the high-profile uses of radio currently under FCC consideration, including low earth orbit satellites, unlicensed devices, personal radio services, millimeter wave applications, and recommendations of government spectrum users.

Bennett Z. Kobb holds a M.S. degree in Telecommunications from the University of Colorado. An IEEE member, he is an author and publisher of the book "Spectrum Guide: Radio Frequency Allocations in the United States, 30 MHz-300 GHz." He is a contributing editor for Telecommunications Reports, Wireless News, W5YI Report, and IEEE's Spectrum Magazine.

Military Satellite Communications

(See Calendar of Events, Monday, Apr 24 to Friday, Apr 28)

Satellite communications dominate current and planned military and government communications systems. This course provides an in-depth understanding of current and future military satellite communications. The military requirements and threat are developed. The communication aspects of the system (e.g., modulation, coding and multiple access) are emphasized, and the key problems of communicating in a jamming and/or nuclear environment are presented in detail. All of the current and future military satellite systems are described in detail. The topics provide a comprehensive perspective of military satellite communications.

The Space-Time Adaptive Array

(See Calendar of Events, Wednesday, April 26)

The characteristics and limitations of space-time adaptive arrays will be discussed, illustrating how space-time adaptive degrees of freedom can be used to detect small targets, even in the presence of heavy ground clutter, jammers, and jammer multipath. The limitations on performance imposed by internal motion of the ground clutter, radar-platform crabbing, electromagnetic interaction of the antenna with the radar platform, channel equalization, jammer multipath, etc., will be covered.

Ronald L. Fante received his Ph.D. from Princeton University and has more than 30 years of experience in electromagnetics. He is a Fellow in the IEEE, the Optical Society of America, and the MITRE Corporation. He is a former Editor of the IEEE Transactions on Antennas and Propagation, and is presently Chairman of the Awards and Fellows Committee of the Antennas and Propagation Society.

Small Business Legal Issues and Tax Considerations

(See Calendar of Events, Monday, May 1)

Two experts will discuss tax matters and related financial issues associated with the selection, acquisition, operation and sale of small businesses. The presentation will be followed by a question-and-answer session at which both speakers will take questions from the audience.

Mr. Richard Puryear is a certified public accountant (CPA) with 15 years experience representing individuals and small businesses in the Washington area and elsewhere. He received his bachelor's degree from the University of Texas.

Mr. Jerome Ostrov is an attorney with fifteen years experience counseling individuals and small businesses in tax and related matters. He received his L.L.M. in taxation from the New York University School of Law, and subsequently clerked for a judge on the United States Tax Court in Washington, D.C.

Command, Control and Communications

(See Calendar of Events, Monday, May 1 to Friday, May 5)

The importance of effective command, control and communications to our national security is continually demonstrated. This course develops C3I in the context of the military missions it is designed to support. Starting with a basic model of the command and control process, it discusses how C3I is conducted at the strategic, operational and tactical levels. Emphasis is placed on characterizing C3I system architectures to illustrate the evolving plans for future systems. To complement this perspective, technology is described for future C3I systems and quantitative techniques are identified and explored which can be used to assess the contributions of C3I to mission effectiveness.

(The fee for this course is $1,295 for members of industry, $980 for government and military personnel. Course coordinator: Harry L. Van Trees, Ph.D.)

Digital Data Communications and Emerging Technologies

(See Calendar of Events, Tue, May 16 to Thu, May 18)

The explosion of information transfer has been made possible by widespread implementation of digital transmission techniques. The extensive use of commercial networks and services in DESERT STORM presage an era in which DoD communications, policies and procedures will rely to a significant extent on commercial systems in management and logistics, and even in tactical applications. A much broader range of data services and higher levels of accessibility and reliability are available from the advanced technologies now being developed.

(The fee for this course is $600 for members of industry, $650 for government and military personnel. Instructor: Harvey M. Gates, Ph.D.)

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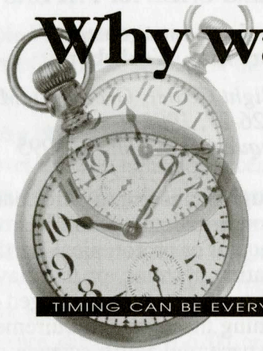

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The Washington Academy of Sciences Annual Awards Banquet

(See Calendar of Events, Tuesday, May 16)

During the Washington Academy of Sciences 1995 annual Awards Banquet at the Bethesda Naval Officers Club, awards for outstanding achievements will be presented in the following categories:

Distinguished Career in Science
Behavioral and Social Science
Biological Science
Engineering Science
Physical Science
Mathematics and Computer Science
Leo Schubert Award for Teaching of Science in College
Bernice Lamberton Award for
Teaching of Science in High School

Selection of the awardees was made by a Committee of Washington Academy of Sciences Fellows, based on recommendations by experts in the respective category's discipline.

Computers, Databases, Telecommunications and the Migrant Farmworker

(See Calendar of Events, Wednesday, May 17)

U.S. farmers employ annually more than 4 million migrant and seasonal farmworkers to hand harvest and cultivate over 85% of the fruits and vegetables produced in this country. However, the health of migrant farmworkers has a higher risk than the rest of the U.S. population, in part because of the movement of workers. Several projects have attempted to use modern computer and communication technology to give healthcare professionals a history for the migrant worker patients they see. One such project is the "Migrant Health Data Transfer Pilot Project" to evaluate the feasibility and benefits of a computer-based system as a tool to capture, manage, and transfer patient information between geographically separated clinic sites. This talk describes the background of the project, previous work, the computer-based system and associated database developed, and the lessons learned.

Victor Nunez is a Member of the Technical Staff at the MITRE Corporation. He holds a B.S. in Mathematics and a B.S. in Physics from the University of Miami, and an MSEE from the Georgia Institute of Technology.

Short Circuit and Coordination Studies

(See Calendar of Events, Wednesday, May 17)

This presentation will discuss various aspects of the application of short circuit and protective coordination studies for electrical power systems. Why are these studies required? What is the purpose of the analysis? What tools are used in performing these studies, and what new products are available to assist the electrical engineer? The answers to these questions, along with related material, will be discussed.

Mr. Mukhopadhyay has 14 years of electrical engineering experience in the design of power generation and power distribution systems.

ANNOUNCEMENT and CALL for PAPERS

Science Information Management and Data Compression Workshop

NASA Goddard Space Flight Center, Greenbelt, MD
October 26-27, 1995
Paper submissions requested by June 2, 1995

Paper submissions are sought concerning information management and data compression approaches that have been integrated into actual or prototypical Earth or space science data information systems, or that have a clear plan for such integration. Also encouraged are tutorial presentations outlining the special requirements of current and upcoming space and Earth science data information systems.

Mail, FAX or E-Mail a 4 to 6 page paper summary by *June 2, 1995* to: James C. Tilton, Mail Code 935, NASA GSFC, Greenbelt, MD 20771; FAX: (301) 286-1776; E-Mail: tilton@chrpisis.gsfc.nasa.gov. Please include your affiliation, address, phone number, FAX number, and E-mail address with your paper summary.

For more or updated information, send a request to one of the addresses listed above, or look under "Upcoming Events" in the World - Wide - Web URL http://sdcd.gsfc.nasa.gov/ISTO/AIS/ais.html.

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Watch top military leaders demonstrate the latest defense technologies. You'll hear about key technologies behind some of today's most innovative defense strategies, and you'll participate in interactive demonstrations led by top brass.

Invited speakers at *TechNet '95* include **The Honorable William J. Perry**, Secretary of Defense, on Tuesday, June 6, and **The Honorable Newt Gingrich**, Speaker of the House, on Wednesday, June 7.

Choose sessions from three comprehensive tracks:

Technology Solutions Track
Hear how leading experts are approaching technological challenges. You'll get the most up-to-date information during the essential question-and-answer period.

Tech Transfer Track
Study the ways government, military, and industry are working together to remain competitive in the global marketplace. You'll learn how to increase business through technology-focused operations.

Imaging '95 Track
Discover the latest technologies being used to re-engineer business and government. Hear industry experts, developers, and government users discuss the most recent imaging technologies. (For more information and registration fees for Imaging '95, the conference within a conference, call (703) 631-6200, or (800) 336-4583, ext. 6200.)

Free admission to the entire *TechNet* expo and the Technology Solutions and Tech Transfer Track! For more information, call (703) 631-6128, or (800) 336-4583, ext. 6128.

TechNet '95 ~ AFCEA's 49th International Convention & Exposition
June 6-8, 1995 ★ Washington, DC Convention Center

DoD's Joint Spectrum Center — Directions and Challenges

(See Calendar of Events, Thursday, May 18)

With the dwindling defense budget and the concurrent need to maintain state-of-the-art military C3I (command, control, and communications) readiness, the Joint Spectrum Center (JSC) has evolved to meet these challenges in a unified way. The JSC is more than the Tri-Service counterpart of the Electromagnetic Compatibility Analysis Center (ECAC), which for years, under Air Force sponsorship and direction, was the focal point for data, analysis and technical support for spectrum management and EMC within the DoD community.

U.S. Mobile Satellite Communications

(See Calendar of Events, Thursday, May 18)

The American Mobile Satellite Corporation (AMSC) holds a Federal Communications Commission (FCC) license that requires domestic L-Band mobile satellite services to submit transition plans for conversion to the AMSC system 90 days after their first satellite launch. The AMSC satellite is the first U.S. commercial satellite in the mobile communications band, and, with an EIRP of 56.6 dB, the most powerful mobile satellite ever launched. The power from the satellite is large enough to allow communications to low-power mobile stations using omni-directional antennas. This will make satellite communications affordable to a larger segment of the population.

Mr. Michael K. Ward is a Senior Scientist with AMSC and an IEEE member.

The Iridium System for Personal Communications Via Satellites

(See Calendar of Events, Thursday, May 18)

The Iridium System is a global communications system which will provide many services. The primary driver in system design was to provide a personal hand-held voice communications capability to anyone, anywhere, anytime. The talk will include a brief history of how the system evolved from concept through system definition, FCC filing, formulation of IRIDIUM, Inc., spectrum allocation at WARC '92, financing, and award of license. The unique features of the 66 satellite constellation, intersatellite cross link, the related ground system, and the launch process will be described briefly. Major subsystems of the satellites and their functions will be discussed. Of special interest are the L-band antennas and their footprints on the ground, and the dynamics of cell motion relative to a user location. An overview of the gateway subsystem and control stations, and the remaining major challenges, will conclude the talk.

The speaker, John Knudsen, is Director of Spectrum and Standards at Motorola in Chandler, AZ. He has been deeply involved in spectrum related issues, which were crucial for successful implementation of the Iridium system.

The talk will be receded by a Spring Social and election of officers for the AESS local chapter.

SMALL BUSINESS LEGAL ACTIONS AND TAX CONSIDERATIONS

Join the Washington Section's May 1 Meeting in Bethesda's "Allee's Pantry Restaurant" and listen to

Richard Puryear, a CPA
and
Jerome Ostrow, an Attorney

(P.S., the food is excellent too!)

A Comparison of Software Testing Methodologies

(See Calendar of Events, Wednesday, May 24)

The speaker will discuss the results of a study to compare three testing methods currently in use to determine their relative efficiency, effectiveness, and how they contribute to the overall reliability of flight dynamic software used to control the on-orbit attitude of research satellites.

Dr. Carol Smidts is an Assistant Professor in the Department of Materials and Nuclear Energy, Reliability Program, University of Maryland, College Park. Her research focuses on dynamic systems reliability, Markovian analysis, human reliability, and software reliability. She has a Master's degree and a Ph.D in Physics Engineering from the "Free University" of Brussels, Belgium.

Global Command and Control Systems

(See Calendar of Events, Monday, June 5 to Tuesday, June 6)

The C4I for the Warrior concept and the Global Command and Control System will be the dominant force in the C4I area well into the 21st century. General Shalikashvili has stated, "I will support only one [Joint] Command and Control System." This course will present a comprehensive, in-depth description of the Global Command and Control System. The course will convene at AFCEA Headquarters, Fairfax, VA for the classified portions. The second day, the course will meet at the AFCEA Annual Convention and Exposition, TechNet '95, in the Washington Convention Center, where demonstrations of various functions will be conducted.

(The fee for this course is $600 for members of industry, $500 for government and military personnel. Course Coordinator: Harry L. Van Trees, Ph.D.)

Officers Training Workshop

(See Calendar of Events, Saturday, June 3)

The Officers Professional Activities Training Workshop originally scheduled for Saturday, March 25, has been rescheduled to Saturday, June 3rd. The workshop has been designed to provide section and chapter officers with an overview of information required as an IEEE volunteer officer, and an orientation on the many professional activities programs and benefits sponsored and provided by IEEE-USA Activities (IEEE-USA). Subjects to be presented include career maintenance and development, pension benefits, salary surveys, intellectual property, government activities, and technology policy issues. Highlights of the 1994 Professional Activities Committee for Engineers (PACE) Conference and Workshop will also be presented.

A knowledge of overall IEEE organization and professional activities programs is required for success as a council, section or chapter officer or director. Also invited (and urged to attend) are all incoming council and section officers and directors, all chapter officers, and new student branch officers, as well as other interested IEEE members.

Handouts and slide/vugraph-supported presentations will cover much of the information presented, as will references to publications and other material which is provided to officers and PACE chairpersons.

A buffet lunch will be served to all attendees. Reservations should be made with the NCA Office, 703/803-8701, or preferably by FAX to 703/222-5971, no later than Thursday, June 1st.

IEEE National Capital Area Council

Annual Awards Banquet

6:30 pm to 9:30 pm
Saturday April 29, 1995

Bolling Air Force Base Officers Club
Foot of Portland Street SE, Washington, DC

Cash Bar 6:30 pm Dinner 7:30 pm Awards Ceremony 8:30 pm

========== Ticket Order Form ==========

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Mail your reservation form as soon as possible, but no later than **April 21, 1995.**

For table reservations, please attach a list of attendees and your Group Name (e.g. Computer Society) if applicable.

CHAIRMANS' CORNER

National Capital Area Council Chairman's Message

Get active in your local IEEE affairs! You don't know what you are missing. Please consider the following: Being an IEEE volunteer is a great way to meet and make contacts with people in your profession. By volunteering in local chapter, section and council activities, I have met fellow professionals from many different government agencies, private sector companies, and not-for-profit organizations. And some of these fellow IEEE volunteers have become lifelong friends — friends I would never have met in any other way. Being an IEEE volunteer is good for your resume and your reputation. Volunteering for positions in local IEEE organizations and conferences can help you develop leadership, management and communication skills you may not have the opportunity to develop as quickly as you might like in your everyday work environment. Being an IEEE volunteer can provide opportunities to develop mentoring relationships that may not be available through your work alone. I have had the privilege and honor to know IEEE members who have had distinguished careers, and have given their time and advice to me — people I hold in very high esteem.

Being a volunteer is not necessarily easy — it requires commitment, dedication and time — especially time. But the rewards are great. The time I have spent over the years as an IEEE volunteer has provided me both friendship and mentors; has helped me to develop confidence in my abilities; and, most important, has enabled me to give something back to a profession about which I care deeply.

In this issue you will notice that local elections are soon to be held. It's a perfect time to start your local IEEE volunteer activities — we need your help! Our annual Awards Banquet on April 29th is your chance to talk with three past IEEE presidents, the current president-elect, newly elected IEEE Fellows, and local IEEE leaders. I and all of them would love to tell you about the rewards of being an IEEE volunteer. I hope to see many new faces at the Banquet — I hope one of them is yours.

Dan Benigni

Chairman, National Capital Area Council

Washington Section Chairman's Message

The Washington Section's annual meeting reports have been completed and submitted to IEEE Headquarters in New Jersey, which gives me an opportunity to review our activities over the past year. We had a productive year with 64 technical society chapter meetings conducted in 1994. We are now in the process of revitalizing several dormant chapters by giving them new direction and support, as we promised. However, their success will depend on your help as active members serving as officers, and your personal support of your chapter's program, to keep up the momentum. Of the 23 chapters we have listed on our society chapter list, only 14 have held regular meetings for their members in 1944. IEEE Headquarters has pledged its support to us by providing more up-to-date material for operating our chapters, as well as funding. If your chapter is dormant and you want help to change that situation, give me a call or message over Internet: JGibbon@DOC.Gov.

On another note, I appreciate, as you do, the success of the 14 chapters that had a successful year. Each year we take the opportunity to recognize the efforts of chapter officers and members who turned the tide and contributed their time and efforts to make their chapters successful. At the NCAC Annual Awards Banquet on April 29 we will show our appreciation and recognition for their services to the IEEE, along with honoring our new IEEE Fellows. This is truly a joyous event for all us, and we certainly hope you will be able to join us for this celebration at the Bolling AFB Officers Club.

Nominations of chapter and section officers for the 1995/96 IEEE year are currently sought from the general membership. How about having yourself nominated? By serving your society you stand to gain experience that will help your technical and administrative career. You will grow in that knowledge and progress in your standing among peers and professionals. We need a few good engineers who are willing to answer this calling. Give me a call!

Jerry Gibbon

Chairman, Washington Section

EDITOR'S CORNER

Advertising in the SCANNER Pays Off!!

We received the following memorandum from one of our regular advertisers: "We have been having very good results from our ads and wish to continue the full-page advertising for the foreseeable future. Thanks for all your effort."
Acknowledgments like this one make it all worthwhile!

Reengineering the Institute

Last January, the IEEE Board of Directors sponsored a retreat for 91 volunteers and staff at Marco Island, Florida to initiate various proposals for re-organizing and re-engineering the Institute. The results of their 3-day retreat are covered in a front-page article in the March, 1995 issue of The Institute. The participants divided into seven working groups to consider a multitude of ideas for the future of IEEE in the 21st Century. The seven proposals will now be combined into plans by four task forces. *"The Institute"* will provide reports of task force activity throughout 1995, and inputs will be sought from societies, sections and members.
You, the members in the National Capital Area, constitute one of the most diversified, informed and involved groups in IEEE. Therefore, your opinions are particularly valuable.
If you want more details on these plans, see pages 1 and 13 of the March 1995 *"The Institute"*

YOUR LOCAL REPORTER

Improved IEEE Membership Data Diskette Program

For several years, the IEEE Membership Data Diskette Program has been used by Bob Hunt, the NCAC Database Manager, to provide a variety of services to the NCAC, sections, and chapters. The program managed by the IEEE Regional Activities Department has included providing the NCAC with a runtime diskette, an annual update of member data as of December 31st, and monthly updates.

A major application has been to produce Cheshire labels for mailing each issue of the SCANNER to a circulation of 16,000 copies. By adding "PLUS 4 and barcodes" to the database, mailing costs have been reduced by 35 percent.

Another valuable application has been the production of an alphabetical directory of all IEEE members in our area, including all information received annually in the data diskette program. Separate directories were prepared for each section and for society members. Labels for special mailings have also been prepared upon request.

The improved program became effective in January 1995. A major improvement has been to include the office address and telephone number in a member's record. A member may also specify whether to send IEEE publications to the home or office address. Another new feature is the addition of a field for local use so that members may be identified in several local special categories. This will provide a means for providing special sorts and lists. A new capability will be available for providing society chapters with diskettes, so that they may utilize the data in support of their activities.

Once the improved system has been placed in operation locally, Bob Hunt will maintain the database for support of the SCANNER, and continue to produce directories by section and society. His database will also include the supplemental database used to send the SCANNER to all members of the IEEE Board of Directors, the U. S. Activities Board, Presidents of Technical Societies, the Region 2 Committee, U. S. section newsletter editors, and key IEEE staff members in New Jersey and Washington, DC.

In addition to the SCANNER database, Jim Strother and Rex Klopfenstein (NCAC Vice Chairman) will each maintain a complete database for all local members, and will have the capability to provide support to sections and to society chapters. These capabilities will be announced as they become available.

SYSTEMS/SOFTWARE SAFETY ANALYST

Battelle, a practical technology company with 64 years' experience in "putting technology to work" for industry and government, has an exciting opportunity in its Transportation Division. The successful candidate will conduct hazard and other system and software safety analyses using such techniques as fault trees, FMEAs, etc., to analyze safety critical computer based designs, conduct safety audits, and develop safety assurance methodologies. Minimum requirements include: B.S. in electrical engineering/computer science/related field, 5 years' experience in system and/or software safety, knowledge of system/software testing/ analysis techniques, and excellent oral and written communication skills. Familiarity with software engineering and software quality assurance, assembler and high-level programming languages, safety related design/assessment standards, railroad/transit and other transportation-related safety critical control equipment, and project management experience would be a plus.

The position is at Columbus, Ohio headquarters. Columbus is a dynamic and growing city that is noted for diverse, convenient, and affordable housing, complemented by quality schools, a wide range of recreational opportunities, and an active arts community that offers a variety of cultural events throughout the year.

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