

SCANNER

A JOINT PUBLICATION OF THE NORTHERN VIRGINIA AND WASHINGTON SECTIONS

September–October 2005

Volume 20, No. 5

Communications Society Members Visit Intelsat Satellite Center in Clarksburg

By Tim Weil
Washington Section Editor

At the end of June, IEEE members were given a glimpse of the past, present and future of the satellite communications industry. With the assistance of Intelsat staff engineers and the local Communications Society chapters, 30 attendees enjoyed a personal tour of the Intelsat Satellite Center in Clarksburg, Maryland.

Intelsat engineers Lynn Rector and Joe Gorzelnik provided an expert perspective on the satellite communications industry, including a tour of the physical plant, overview of the technology, discussion of the managed services, and historical background. As an added bonus, our group also met several industry veterans in the satellite communications field.

We split into two groups, allowing us to tour the operations center buildings and facility grounds without overcrowding. As Lynn Rector packed our group into his van, I spotted a raccoon trap. "Natural hazards," he remarked. "The raccoons will get on the roofs of the building, damaging HVAC and cabling. They're not as bad as what we see in the big dishes. Each fall we are cleaning out birds, hornets, and snakes from the satellite antennas."

Natural hazards aside, Rector gave us a brief overview of the earth sta-



Intelsat Tour – Retired COMSAT employee Dan Swearingen (left) chats with tour organizer Fred Seelig near a group of Inmarsat Standard B antennas, which operate at C-Band. The antenna on the right is for the Marisat F-2 satellite and supports data links to the South Pole when the satellite is visible to the South Pole station for approximately five hours per day.

tion grounds before we entered our first building tour. Rows and racks of equipment included satellite modems, high-powered amplifiers (HPAs), TDMA reference station equipment, up and down converters, antenna control systems and communications system monitoring equipment.

Engineers at the Clarksburg facility help maintain Intelsat's fleet of 27

satellites in geosynchronous orbit 22,300 miles above the Earth. The oldest of these 'birds' is 29 years old and the newest was launched in June.

The Clarksburg station uses 25 antennas to monitor and control

INTELSAT
continues on page 5

Meeting the Customer's "What's In It For Me?" Challenge

By Monica Mallini-Rourke

At the August meeting of the Consultants Network, Wally Lee, a veteran of more than 20 years as sole proprietor of T-Alpha Networks of Rockville, Maryland, gave an excellent presentation on "The One Person Proposal." Lee highlighted strategies that individual consultants can employ to get prospective customers' attention and win contracts.

The theme of Lee's talk was the consultant's challenge to understand the chorus of "What's in it for me?" (WII-FM) that plays over and over in the prospective customer's

head and to engage the prospect by "singing along with the top ten tunes." By following several guidelines in consideration of one's desired image and overall goals, a consultant's sales pitch can be fine-tuned to address the customer's chief concerns.

For example, noting that "nobody ever buys anything unless they have some pain," Lee suggests telling customers what the consultant can do to make the pain of costly projects and missed deadlines go away. Then, it's important to demonstrate the value of the product or service in return on investment. Finally, the consultant's

credentials, including a capability sheet, references, and especially a showcase of similar projects, will close the sale.

In closing, Lee recommended *The Computer Consultant's Workbook* by Janet Ruhl (1999) as a useful addition to any consultant's library, whatever his or her field of expertise.

The next Consultants Network meeting, on Tuesday, October 4, will include a collaborative discussion of networking and marketing ideas and planning for a spring workshop. All are welcome (see Calendar listing, p. 3).

Sept. 24 Workshop to Offer Strategies for Managing Career Transitions

Jobs and careers are in transition. What was previously accepted as "common sense" about work and employment is rapidly becoming obsolete.

On Saturday, September 24, the MPAC 2005 Workshop on Active Career Management will provide IEEE members with information and techniques to proactively manage their careers through these turbulent times.

A successful career shares several characteristics with a successful project. Both need to be managed. Resources (such as resumes and contacts) must be available in a timely manner, and the environment must be continually monitored for changes and risks.

The workshop will present the basics of project management and explain how to apply them for increased success in your professional activities as well as in your personal life. A fresh perspective on the two essential tools of career management—resumes and a network of personal contacts—will be presented using real-life examples.

Presentations will cover the successful navigation of continually changing projects, employment needs and hiring practices. How to capitalize on the opportunities created by such changes will also be discussed.

Registration is free for members of the IEEE Northern Virginia and Washington sections. (See the Calendar of Events, p. 3, for details.)

The workshop is presented by the IEEE Northern Virginia and Washington Sections and IEEE-USA's Professional Activities Committee for Engineers (PACE).

The workshop includes six presentations, described on p. 7. Biographical information about the speakers is available on the eScanner website.

Current information and calendar listings for IEEE meetings and activities in the National Capital Area are available on the internet at <http://ewh.ieee.org/r2/capitalarea/eSCANNER>.

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Women in Engineering (W/NV)

To be determined
<http://ewh.ieee.org/r2/washsec/wie/>

Editorial Policies and Procedures**Calendar Items and Announcements**

Please submit calendar items in the format used in the Calendar of Events. You can send email to ncac-scanner@ieee.org. If possible, include a synopsis of the event and a biographical sketch of the presenter including academic background, current position, notable achievements, and IEEE and other professional affiliations.

Other contributions, such as reports on chapter events and other member activities, reviews of books by or of interest to members, are most welcome. Please submit them to the managing editor, electronically if possible, at ncac-scanner@ieee.org.

On the Web**eSCANNER Calendar of Events**

The calendar is available at <http://ewh.ieee.org/r2/capitalarea/eSCANNER> (case sensitive). Check here for events submitted too late for print publication.

IEEE National Capital Area Virtual Community

Exchange ideas and participate in discussions with local IEEE members at www.ieee-communities.org/nca.

Advertising

Contact the advertising manager about ad rates and to place advertising orders. Ads must be submitted by the deadline below.

Deadlines

The editor reserves the right to set policies and procedures necessary to provide members with a newsletter that is informative and timely. Deadlines must be strictly adhered to to keep the publication on schedule. If you are planning an event and have insufficient information by the deadline, please contact the managing editor.

The deadline for the upcoming issue will always be published on this page.

The deadline for the November–December issue is October 1, 2005

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CALENDAR OF

events

Tuesday, September 6, 2005**Washington Section Administrative Committee Meeting and IEEE-USA PACE Briefing**

- Speaker:** Russell T. Harrison, Legislative Representative - Grassroots Affairs, IEEE-USA
- Time:** Dinner at 6:00 pm; meeting at 6:30 pm
- Place:** Allie's American Grill, Bethesda Marriott, 5151 Pooks Hill Rd., Bethesda, Md.
- Directions:** From the north, take 270 South to Route 355 and exit at Wisconsin Ave. From the south, take 495 exit 34 (which is Wisconsin Ave.) to Pooks Hill Rd.
- More info:** Mr. Harrington will discuss how IEEE-USA influences legislation to benefit members and how members can help. All interested IEEE members are welcome to attend.
- Contact:** Jackie Hunter 703-803-8701 or nca-admin@ieee.org. Please include the term IEEE in the subject line of your e-mail.

Wednesday, September 14, 2005**Northern Virginia Section Administrative Committee Meeting**

- Time:** 6:30 pm
- Place:** Corner 7 Cafe, Tysons Corner Marriott, 8028 Leesburg Pike, Vienna, VA
- Directions:** From the east or I-495, take Route 7 West, turn right on Towers Crescent Drive, then immediately right into the Marriott parking lot. From the west on Route 7, turn right onto Old Gallows Road just opposite the Marriott, proceed around to the left until you have completed almost a full circle, and turn left into the Marriott parking lot. Free parking.
- More info:** All interested IEEE members are invited to attend.
- Contact:** Jackie Hunter at 703-803-8701 or nca-admin@ieee.org. Please include the term IEEE in the subject line of your e-mail.

Thursday, September 15, 2005
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- Sponsors:** Power Engineering Society, Northern Virginia and Washington Chapter; Industry Applications Society, Washington and Northern Virginia Chapter
- Speaker:** Kameel Andrawos
- Time:** Social hour at 5:45 pm; snacks at 6:00 pm, speaker at 6:30 pm
- Place:** KEMA Consulting, 4400 Fair Lakes Court, Fairfax, VA
- More info:** Refreshments will include assorted sandwiches, potato chips, dessert, coffee, tea and soda.
- Cost:** Free for members (including student members), \$10 for guests.
- Contact:** RSVP by September 14 at 5:00 pm to Sirak Belayneh at sbelayne@ieee.org.

Thursday, September 15, 2005**◆ Preparing for the CISSP Exam**

- Sponsors:** Graduates of the Last Decade; and Computer Society, Northern Virginia Chapter
- Speaker:** Dr. Van B. Le, Blueprint Technologies, Inc.
- Time:** Networking and food 6:00 pm; technical presentation 7:00-8:00 pm
- Place:** Oracle Facility, 1910 Oracle Way, Reston, VA
- More Info:** Pizza and soft drinks provided. For more information on this presentation, see Diamond story, p. 4, or contact Dr. Le at vanble@alumni.gwu.edu.
- Contact:** Registration is required. Please pre-register at <http://www.cigital.com/ieee/reserve.html>. For more information on GOLD activities, please contact Chuck Baldi at cbaldi@ieee.org or Syed Ahmed at syed.f.ahmed@ieee.org. For more information on technical activities of the Northern Virginia Chapter of the Computer Society, please contact T.K. Ramesh, co-chair, at tkramesh@ieee.org.

Saturday, September 24, 2005**MPAC 2005 Workshop on Active Career Management**

- Sponsors:** Northern Virginia and Washington Sections; and IEEE-USA's Professional Activities Committee for Engineers (PACE)
- Time:** 8:00 am to 4:00 pm
- Place:** Mitre Corporation, Building 2, 7515 Colshire Drive, McLean, VA
- Directions:** Off Route 123 in Tysons Corner. See www.mitre.org/about/locations/mitre2_map.html
- More Info:** See story, p. 1. Open to all members of the IEEE Northern Virginia and Washington sections. For more information, contact Amarjeet Basra at amarjeet.basra@ieee.org; or Shyam Bajpai at s.bajpai@ieee.org.
- Cost:** Free, including lunch.
- Contact:** Registration is requested by September 16. To register, please send an email to Jackie Hunter at nca-admin@ieee.org with "MPAC 2005 Workshop" in the subject line.

Monday, September 26, 2005**◆ EDS Distinguished Lecture**

- Sponsor:** Electron Devices Society, Northern Virginia and Washington Chapter
- Speaker:** Dr. Hans Stork, Texas Instruments
- Time:** Refreshments at 6:30 pm; lecture at 7 pm
- Place:** Mitre Corporation, Building 2 Conference Room 1N100A/B, 7515 Colshire Drive, McLean, VA.
- Directions:** Off Route 123 in Tysons Corner. Free parking. See http://www.mitre.org/about/locations/mitre2_map.html.
- More Info:** See Diamond story, p. 4.
- Contact:** Murty Polavarapu at murtyp@ieee.org.

Tuesday, September 27, 2005**My Life as an IEEE Engineering & Diplomacy Fellow**

- Sponsor:** Communications Society, Northern Virginia Chapter
- Cosponsors:** Society for Social Implications of Technology, Northern Virginia, Washington and Baltimore Chapter; and Women In Engineering, Washington and Northern Virginia Chapter
- Speaker:** Emily Sopensky, The Iris Company, IEEE Engineering & Diplomacy Fellow (2004)
- Time:** Dinner at 6:00 pm; speaker at 6:45 pm
- Place:** Mitre Corporation, Building 2, 7515 Colshire Drive, McLean, VA
- Directions:** Off Route 123 in Tysons Corner. See www.mitre.org/about/locations/mitre2_map.html.
- Cost:** Free, including dinner.
- Contact:** Please RSVP to Fred Seelig at fseelig@mitre.org.

Tuesday, September 27, 2005**◆ The Life of James Clerk Maxwell**

- Sponsors:** Microwave Theory and Techniques Society, Washington and Northern Virginia Chapter; and Life Member Life Members Affinity Group
- Speaker:** Dr. James Rautio, Founder, Sonnet Software, Inc.
- Time:** 7:00 pm
- Place:** TBD (College Park, MD)
- More Info:** See Diamond Story, p. 4. Please see www.ieee.org/mtt-wnva for the exact location in College Park and dinner arrangements.
- Contact:** Roger Kaul at 301-394-4775.

Tuesday, October 4, 2005**Washington Section Administrative Committee Meeting**

- Time:** Dinner at 6:00 pm; meeting at 6:30 pm
- Place:** Allie's American Grill, Bethesda Marriott, 5151 Pooks Hill Rd., Bethesda, Md.
- Directions:** From the north, take 270 South to Route 355 and exit at Wisconsin Ave. From the south, take 495 exit 34 (which is Wisconsin Ave.) to Pooks Hill Rd.
- More info:** All interested IEEE members are welcome to attend.
- Contact:** Jackie Hunter 703-803-8701 or nca-admin@ieee.org. Please include the term IEEE in the subject line of your e-mail.

Tuesday, October 4, 2005**Networking Meeting & Ideas Exchange**

- Sponsor:** National Capital Area Consultants' Network
- Time:** Dinner at 6:00 pm; speaker at 7:00 pm
- Place:** Corner 7 Cafe, Tysons Corner Marriott, 8028 Leesburg Pike, Vienna, VA
- Directions:** From the east or I-495, take Route 7 West, turn right on Towers Crescent Drive,

CALENDAR

continued from page 3

then immediately right into the Marriott parking lot. From the west on Route 7, turn right onto Old Gallows Road just opposite the Marriott, proceed around to the left until you have completed almost a full circle, and turn left into the Marriott parking lot. Free parking.

More Info: We will network and exchange marketing ideas. Please come prepared to discuss your ideas.

Contact: Sai Chiang at 703-203-0771 or creativesystem@ieee.org.

Wednesday, October 12, 2005 Northern Virginia Section Administrative Committee Meeting

Time: 6:30 pm

Place: Corner 7 Cafe, Tysons Corner Marriott, 8028 Leesburg Pike, Vienna, VA

Directions: From the east or I-495, take Route 7 West, turn right on Towers Crescent Drive, then immediately right into the Marriott parking lot. From the west on Route 7, turn right onto Old Gallows Road just opposite the Marriott, proceed around to the left until you have completed almost a full circle, and turn left into the Marriott parking lot. Free parking.

More info: All interested IEEE members are invited to attend.

Contact: Jackie Hunter at 703-803-8701 or nca-admin@ieee.org. Please include the term IEEE in the subject line of your e-mail.

Tuesday, October 18, 2005

◆ Novel Self-Adaptive Applications Strategies Using Smart Satellites

Sponsor: Geoscience and Remote Sensing Society, Washington and Northern Virginia Chapter

Speaker: Richard B. Gomez, George Mason University, School of Computational Sciences

Time: 3:30 pm

Place: Showcase Room 237, George Johnson Center, George Mason University, Fairfax

Directions: See <http://www.gmu.edu/vcenter>.

More Info: See Diamond story, p. 5.

Contact: James C. Tilton at james.c.tilton@nasa.gov.

Wednesday-Friday, October 19-21, 2005

Applied Imagery Pattern Recognition Workshop: Multimodal Imaging

Sponsor: IEEE Computer Society Technical Committee on Pattern Analysis and Machine Intelligence

Time: 8:30 am (See the workshop program at www.aipr-workshop.org for program event times and other information.)

Place: Cosmos Club, 2121 Massachusetts Ave. NW, Washington, DC

More Info: The AIPR Workshop brings together researchers from government, industry, and academia in an elegant setting conducive to technical interchange across a broad range of disciplines. The papers span a range from research to fielded systems and provide, to managers and developers alike, a broad vision of the applicability of image analysis technologies.

Contact: Send email to Al Williams, general chair, at chairman@aipr-workshop.org.

Thursday, October 20, 2005 Facility Tour Preparation Meeting

Sponsors: Power Engineering Society, Northern Virginia and Washington Chapter; Industry Applications Society, Washington and Northern Virginia Chapter

Time: Social hour at 5:45 pm; snacks at 6:00 pm, speaker at 6:30 pm

Place: KEMA Consulting, 4400 Fair Lakes Court, Fairfax, VA

More info: This meeting is required for participants in the October 22 facility tour (see below). Refreshments will include assorted sandwiches, potato chips, dessert, coffee, tea and soda.

Cost: Free for members (including student members), \$10 for guests.

Contact: RSVP by October 19 at 5:00 pm to Sirak Belayneh at sbelayneh@ieee.org.

Saturday, October 22, 2005 Facility Tour

Sponsors: Power Engineering Society, Northern Virginia and Washington Chapter; Industry Applications Society, Washington and Northern Virginia Chapter

Time: TBD

Place: TBD, either Manassas Broadband over Power Line (BPL) or DC Water and Sewer Authority (DCWASA).

Cost: Free for members (including student members), \$10 for guests

More Info: Participants must attend the Facility Tour Preparation Meeting on Thursday, October 20 (see above).



DIAMOND STORIES



Thursday, September 15, 2005 Preparing for the CISSP Exam

Security is an important concern in most organizations today. Increasing your security consciousness and becoming more savvy about security issues could have a positive effect on your career prospects. In this presentation, Dr. Le will review the body of knowledge covered by the CISSP (Certified Information Systems Security Professional) certification exam. The content of each of the 10 domains of knowledge covered by the exam will be summarized, and the requirements to qualify for the certification and exam will be discussed. Study recommendations and the requirement to maintain the certification by obtaining Continued Professional Education Credits will also be covered.

Van B. Le is currently an enterprise architect at Blueprint Technologies, Inc. Before joining Blueprint, Dr. Le was employed by Keane Federal Systems as their chief architect and chief scientist. He holds a M.S. in computer science from George Washington University and a Doctorate of Sciences in grid computing security and high-parallel computing from the University of Franche-Comté.

Monday, September 26, 2005 EDS Distinguished Lecture

Hans Stork is senior vice president and chief technology officer for Texas Instruments. As director

of the silicon technology development organization, his primary responsibilities are the development of advanced CMOS, packaging and mixed signal process technologies.

Before Dr. Stork joined Texas Instruments in 2001, he directed the Internet systems and storage lab at HP Laboratories, Hewlett-Packard, in Palo Alto. The IS&S Lab focused on highly scalable, dynamic, federated computer and storage systems. From 1995 to 1999, Dr. Stork held the position of director of HP's ULSI research lab, where researchers developed a high performance 0.18 um CMOS technology with Al/low-k interconnect, and developed and transferred the world's lowest dark-current CMOS image sensors and technology to Agilent's image component division. The ULSI Research Lab demonstrated the world's smallest FRAM cell feasibility jointly with TI and Applied Materials in 1999.

Dr. Stork started his career in 1982 at IBM's T.J. Watson Research Center, researching advanced bipolar technology and circuits. In 1987, he established and managed an exploratory devices group, which demonstrated SiGe HBTs, resulting in new speed records at device and circuit level. Within 10 years, this SiGe technology was transferred to manufacturing and established IBM's entry in high-speed communication technologies. Later, he managed the bipolar devices group, and led one of the task forces on high-end computing that resulted in IBM's change in mainframe strategy. From 1992

to 1994, he managed managed research teams that demonstrated CMOS process technologies at 0.1 um channel lengths with world record speed performance, supported by an extensive E-beam lithography facility.

Dr. Stork has written or co-authored more than 90 cited papers and holds 11 US patents. He was elected IEEE Fellow in 1994 for his contributions to SiGe devices and technology. As a member of the Electron Devices Society, he has helped organize a number of conferences and symposia.

A native of The Netherlands, Dr. Stork received the Ingenieur degree in electrical engineering from Delft University of Technology, and holds a Ph.D. from Stanford University.

Tuesday, September 27, 2005 The Life of James Clerk Maxwell

James Clerk Maxwell stands shoulder to shoulder with Newton and Einstein, yet even those of us who have spent decades working with Maxwell's equations are almost totally unfamiliar with his life and times. This presentation, from the viewpoint of a microwave engineer, draws on many sources in providing an understanding of James Maxwell himself.

What was Maxwell like as an infant? What was

DIAMOND STORIES
continues on page 5

Local Junior High School Teams Need Mentors for Future City Competition

By Saj Durrani

The DC Council of Engineering and Architectural Societies (DCCEAS) is looking for volunteers to serve as mentors for junior high school teams participating in the annual Future City Competition.

Teams of students from all over the country first compete in the Future City Competition at regional levels, then advance to the national competition held in Washington, D.C. every February during National Engineers Week. Students use their imagination, as well as science, math and other skills, to design and build their vision of a city of the future. As they complete their Future City projects, they learn about the many disciplines of engineering, and strengthen their problem-solving, teamwork and time management skills.

DCCEAS helps teams in the Metropolitan Washington Region by providing mentors, awards,

meeting space, and other assistance. The region boundaries are fairly flexible; currently they include Washington, D.C. and several neighboring counties in Maryland and Virginia. The IEEE Northern Virginia and Washington Sections are DCCEAS members and support many of its activities; Murty Polavarapu and I are delegates of the two Sections to the council.

Dr. Stanley Onye, director of the Science and Engineering Center of the School of Engineering and Applied Sciences at the University of the District of Columbia is coordinating DCCEAS's outreach activities to encourage and support Future City Competition teams.

According to Dr. Onye, last year 41 middle schools in the region geared up for the competition, but only 12 teams remained active until the end. The main reason for the high drop out rate was a lack of mentors. Many teachers shy

away from technical issues and feel that they are not qualified to advise the students. Thus, the teams have to look for guidance from mentors outside the faculty, and they drop out if no one is available.

Ideally, a mentor is a parent who has a child in the school and who can spare a few hours each month advising the team, from September to February. This is a great opportunity to get students interested in engineering topics before they enter high school. We hope that many of you will come forward and volunteer to serve.

For more information, please visit www.futurecity.org. If you are interested in becoming a Future City Competition mentor, please contact me at s.durrani@ieee.org or Murty Polavarapu at murtyp@ieee.org, and we will pass on the information to Dr. Onye. We look forward to hearing from you soon!

DIAMOND STORIES

continued from page 4

the tragedy at eight years old that profoundly influenced his life? What unique means of transportation did young Maxwell use to escape a cruel tutor? What memorable event occurred on his first day of school? When did he publish his first papers, and what were they about? What did Maxwell have to do with the rings of Saturn? Why did he lose his job as a professor? Why did he have a hard time getting another job? What was his wife like? What is Maxwell's legacy to us? The answers to these questions provide insight into Maxwell the person and add an extra dimension to those four simple equations we have studied ever since.

James C. Rautio received a B.S.E.E. from Cornell University in 1978, a M.S. in systems engineering from the University of Pennsylvania in 1982, and a Ph.D. in electrical engineering from Syracuse University in 1986. From 1978 to 1986, he worked for General Electric, first at the Valley Forge Space Division, then at the Syracuse Electronics Laboratory. During that time, he developed microwave design and measurement software, and designed microwave circuits on Alumina and on GaAs. From 1986 to 1988, he was a visiting professor at Syracuse and Cornell, and he is currently an adjunct professor at Syracuse.

In 1988, Dr. Rautio began working full time with Sonnet Software, a company he founded in 1983. In 1995, Sonnet was listed on the Inc. 500 list of the fastest growing privately held U.S. companies, the first microwave software company ever to be so listed. Located in North Syracuse, N.Y., Sonnet is the leading vendor of 3-D planar high frequency electromagnetic analysis software.

Dr. Rautio was elected a Fellow of the IEEE in 2000 and received the IEEE MTT Microwave Application Award in 2001.

This lecture is one of the Distinguished Microwave Lectures sponsored by the IEEE Microwave Theory and Techniques Society.

Tuesday, October 18, 2005

Novel Self-Adaptive Applications Strategies Using Smart Satellites

This talk presents self-adaptive application strategies to operationally process and exploit spectral information on-board smart remote sensing satel-

lites in real time. The goal is to greatly increase onboard processing capabilities and reduce data volumes for hyperspectral systems by incorporating this intelligent-based approach. The approach focuses on the future development of hardware and software methods using an architecture based on Reconfigurable Computers that work more like the human brain and body. These smart satellites will be self-sensing, self-repairing, and self-adaptive. If something is not exactly right, the smart satellite will not need a signal from ground control. The spacecraft itself will take the necessary action to address the problem.

This is a revolutionary means to process and exploit huge amounts of hyperspectral data on board, without the need to have an expert spectral analyst in the loop. NASA has recognized the value of using a hyperspectral sensor flying with or slightly behind of the imaging sensor platform to identify features of interest to be processed.

Richard B. Gomez is an internationally recognized expert in the field of hyperspectral remote sensing. He has worked in industry (Texas Instruments and ANSER), in federal government, and in academia. At George Mason University, he is a Research Professor with the School of Computational Sciences and Principal Scientist at the Center for Earth Observing and Space Research. He teaches introductory and advanced quantum computing and hyperspectral imaging graduate courses.

Dr. Gomez received his B.S. degree in physics from Texas Western College in 1963, his M.S. degree in physics from the University of Texas at El Paso in 1965, and his Ph.D. in physics from New Mexico State University in 1976. He worked for the federal government for many years, reaching the level of senior executive service with the U.S. Army Corps of Engineers.

He created, organized, and chaired several times, the highly successful International Symposium on Spectral Sensing Research (ISSSR) that is still held every 18 months. He currently serves on the IEEE-USA Committee on Transportation and Aerospace Policy as vice chair for its Defense Aerospace activity. He has also served as vice chair of its Remote Sensing activity.

INTELSAT

continued from page 1

the satellites. Some antennas are also used for broadband data links (at C-Band, Ku-Band, and Ka-Band). A crew of two station engineers, rotated on round-the-clock shifts, runs the facility operations. Most of the network and services operation is managed at Intelsat's operations centers. This includes the work of orbit dynamics engineers who maintain spacecraft Tracking, Telemetry, Control, and Monitoring (TTC&M) functions. Internationally, Intelsat maintains six TTC&M earth stations interconnected by a high-speed fiber network.

Although the Clarksburg station carries communications traffic, the primary role of the facility is to monitor and control the Intelsat satellites. As our guides reminded us during the tour, "when you lose reception of a satellite's telemetry, it's like talking with a teenager."

Our second guide of the day, Joe Gorzelnik, outlined the technology supported by the Intelsat system. He described satellite coverage areas (global, hemi, zone, or spot beams), transmission services (single channel per carrier, internet broadband, TDMA), fiber networks and satellite classifications.

Intelsat's Clarksburg lease has been renewed through 2012, after which county development plans may claim this historical site. Communications traffic is being migrated to the new Intelsat Mountainside Teleport facility in Hagerstown, Maryland. With 15 satellite antennas deployed there since 2003, and the capacity to deploy 30 additional dishes, the new Teleport facility represents the company's strategic direction.

Meanwhile, there is plenty to do at the Clarksburg station. Intelsat's latest satellite, an Americas IA-8, was launched the week of our tour.

After the station tour, we gathered for refreshments and an opportunity to meet some career professionals in the satellite industry. Joining Lynn Rector (40 years) and Joe Gorzelnik (20+ years) were former COMSAT employees Dan Swearingen and Louis Pollack. We were also introduced to Bruno Pattan, senior technical analyst at the Federal Communications Commission and author of three textbooks on satellite communications.

To learn more about Intelsat and the Clarksburg site's 40 years of operation, go see www.intelsat.com/resources or www.comsat-legacy.org.

Candidates for Northern Virginia Section Elections (ballot on page 8)

The ballot for the election of Northern Virginia Section Officers and Directors for 2006 appears on page 8. Candidates' bios appear below and at <http://iee-nova.org> and www.ieee-communities.org/nca.

Please take a few moments to vote and mail the ballot no later than October 15, 2005 to Jackie Hunter, P.O. Box 220521, Chantilly, Virginia 20153.

Syed Ahmed

Syed Faisal Ahmed received his B.S. in electrical engineering (EE) from George Mason University, Fairfax, Virginia in 1994, an M.S. in Information Systems (with certificate in Information Engineering) also from GMU in 1999. His interests include Wide Area Networking communications protocols such as OSPF, BGP, MPLS and RSVP. Syed currently works for MCI where his group designs, implements and deploys the hardware and software for Very High Backbone Networking Services (vBNS) Internet backbone. Currently, Syed holds professional certifications from Cisco Systems (CCNP) and Juniper Networks (JNCIS). He was the chair of the Graduates of the Last Decade (GOLD) affinity group of the Northern Virginia Section for approximately two years.



Chuck Baldi



Chuck Baldi is a technical director at Nextel/Sprint where he is involved with the architecture and strategy of OSS tools and systems for wireless and data networks. He has also been involved in a number of different areas including digital video transmission, predictive dialing applications, and web services. He received his B.S.E.E. degree in 1993 from George Mason University and has been an IEEE member since 1990. At present Chuck serves as chair of the Graduates of the Last Decade (GOLD) affinity group of the Northern Virginia Section and has been active with GOLD for three years.

Amarjeet Basra

Amarjeet Basra is a project engineer with the Fairfax County government. He has extensive experience in electrical design, manufacturing, and construction of projects. He is licensed as a Professional Engineer in the Commonwealth of Virginia and Wisconsin. Amarjeet received the B.S.E.E. degree from Howard University, Washington, D.C. and the M.S.E.E. from Marquette University in Milwaukee, Wisconsin. Amarjeet is the immediate past-chair of the Northern Virginia Section and has been appointed the PACE chair of the section for 2005. He also serves as the current chair of the Industry Applications Society chapter of the Washington and Northern Virginia Sections. Amarjeet became a Life Senior Member of IEEE in 2005.



Monica Mallini-Rourke



Monica Mallini-Rourke is a B.S. graduate in mechanical engineering and electrical engineering of Texas A&M University. She holds the M.E.S. degree in electrical engineering from Lamar University in Beaumont, Texas. She has worked in the electric power and petrochemicals industries, was a full-time electrical engineering faculty member at Lamar University, and is currently working toward a Ph.D. in electrical engineering at the VT-Advanced Research Institute in Arlington. Monica joined IEEE in 1986 and has been a Senior Member since 1999. Before moving to Virginia in 1997, Monica was an active member of the IEEE Beaumont Section, where she served as newsletter editor (1995-97) and chair (1996-97). Under her leadership, Beaumont Section won

the "Small Section of the Year" Award from Region 5 in 1997. Monica was an invited speaker at Sections Congress '99, where she presented a talk on maintaining the vitality of small sections. Monica is a member of the Power Engineering Society, the Society on Social Implications of Technology, and the Industry Applications Society, in which she currently serves as vice-chair of the Washington and Northern Virginia chapter. Monica is a registered professional engineer, and she lives in the Mount Vernon area with her husband Robb and five children.

Timothy F. Settle

Dr. Timothy F. Settle earned his bachelor's degree from the Milwaukee School of Engineering in Milwaukee, Wisconsin, and his master's and doctorate degrees from Purdue University in West Lafayette, Indiana, all in electrical engineering. He has more than 20 years of engineering experience covering design development and research. Tim holds one patent and has several patents pending. He has worked for Texas Instruments, Thomson Multimedia, Pathfire, and most recently Science Applications International Corporation (SAIC). He is a senior research engineer for SAIC where he leads research in signal processing and communications. Tim is also the current chair of the Northern Virginia Chapter of the IEEE Signal Processing Society.



Charles F. Sisung Jr.

Charles F. Sisung Jr. is a senior engineer at E.K. Fox and Associates. He received his B.S. in electrical engineering from Michigan Technological University in 1990. He is currently the vice chair of the Northern Virginia and Washington Chapter of the IEEE Power Engineering Society.



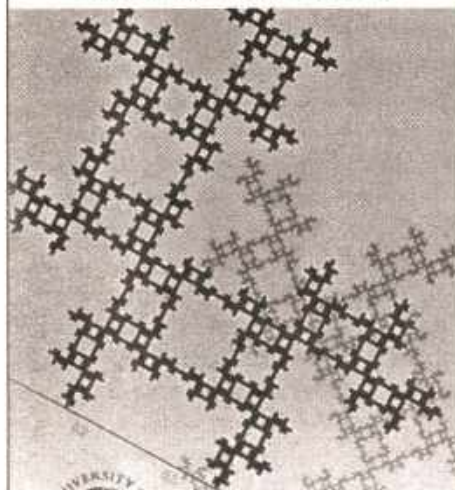
Barry Tilton

Barry Tilton is a senior systems engineer with Integrity Applications Incorporated (IAI). He joined IAI on August 1 after completing a 20-year career with the U.S. Air Force. Most recently, Barry served as chief engineer for space and ISR systems with the National Geospatial-Intelligence Agency (NGA) in Chantilly. He has served as a test engineer, acquisition program manager, systems planner, and design engineer for efforts within the Air Force space program, the strategic defense community, and the intelligence community. Barry is a Senior Member of the IEEE, currently performing committee work in the Northern Virginia Administrative Committee. Barry has an M.S. in electrical engineering from Northrop University in Los Angeles. His undergraduate degree is also in electrical engineering, from the University of Southern California, Los Angeles. Barry and his family live in Oakton, Virginia.



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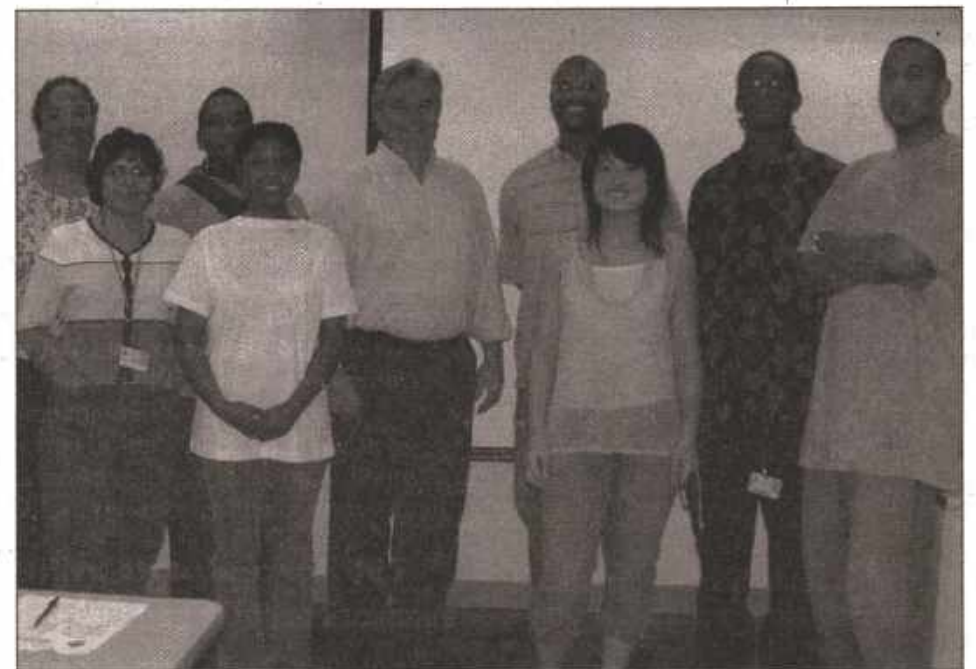
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Career Planning – In July, DeVry University's Student Chapter invited Fred Seelig (center), secretary of the Northern Virginia Section, to give a presentation on "How to Prepare for Your First Job." Students attending included (left to right) Rosemarie Crawford; Harita Rao, secretary; Vernon Dickerson; Nachay Johnson; Aubrey Humphrey, president; Lin Zheng, vice-president; Michael Quarles; and Charles Scott. Seelig's talk covered several aspects of the hiring process and various paths a new graduate can take to ensure a successful career in engineering. (Photograph by Kathy McCarroll, webmaster)

September Workshop Will Focus on Managing Career Transitions

The one-day workshop MPAC 2005 Workshop on Active Career Management (see p. 1) includes presentations by six speakers, as described below. Biographical information and a workshop program are available at <http://ewh.ieee.org/r2/capitalarea/eSCANNER/nw05mpac.html>.

1. Career Enhancement through Project Management

(presented by Doug Holly)

Attendees will be introduced to the fundamentals of project management to help themselves and their groups accomplish their objectives, whether at work, in IEEE, at home, or in the community. Participants will learn basic project management techniques, and most importantly, how to apply them in real life without excessive paperwork or overhead! The workshop will provide participants with a number of tools, as well as techniques and a bit of philosophy that they can use to make their next project more fun and successful.

2. Resumes Inside and Out

(presented by Leann Kostek)

The perceived better and worse methods to write and present a resume to a prospective employer will be reviewed. We will discuss the views of headhunters, human resources folks, and this audience. Each attendee is encouraged to bring a resume for show-and-tell.

3. The Importance of Networking and Tapping into Your Network

(presented by Kerry Hartman)

You will be introduced to the importance of networking with respect to personal and company relationships. The first steps towards building a network will be presented. The presentation will include demonstrations and exercises in which attendees will practice the "Art of Networking."

4. Career Shift: Dealing with Rapid and Progressive Changes in the U.S. Workplace

(presented by Amarjeet Basra)

Change is stressful, especially when it involves our job. Our career is our source of livelihood. When our job goes away, or changes, we experience megastress! What do you do when you find yourself in this situation? To a great extent, it is a function of where you are in life and your career. An EE with less than five years experience needs to be on a different track than a 55-year-old engineer with 30 years of experience. The "one-size-fits-all" outplacement, or career counseling, that we receive is not enough. Instead, as EEs we need to think of our careers as if they are our businesses, and we shouldn't let anyone else run them for us!

5. Career Defense in the Face of Globalization

(presented by Adeeb Hamzey)

This presentation traces the development of the outsourcing movement, and the growth in the movement of information technology work offshore. The trend started with call centers and business operations, but the skill level of work sent abroad has gradually increased to include software development and engineering design. While the trend has been accelerating and is likely not reversible, we will discuss ways that IEEE members can direct their own careers to minimize their vulnerability to being displaced by outsourcing.

6. Career Transitions

(presented by Don Herres)

Any working engineer today who does not face significant transitions in the workplace in the next five years is probably going to retire by then. The initial changes of the "downsized" (or "right-sized," or "re-engineered") corporation have become a continuous process of evolution and turbulence.

Northern Virginia Chair's Column

By Murty Polavarapu



Murty Polavarapu

I hope the beginning of the autumn season finds you re-energized to take part in the full round of IEEE activities that are being planned. Our highlight for this season is the MPAC workshop, which will offer proven techniques and skills that will enable you to "actively" manage your career (see story, p. 1).

This June, the IEEE Board of Directors met in Chantilly, Virginia, and I had the opportunity to attend Regional Activities and Educational Activities meetings. I came away impressed with the dedication and commitment of IEEE volunteers at all levels, all around the world.

Over the last few months, I also had the opportunity to attend several chapter meetings in our section. Chapter meetings are critical in providing forums for technical presentations and interactions for our members. As we plan for leadership transitions

In many cases, engineers now must initiate a move to change the workload and stresses of the new corporate world into a manageable structure. With the disappearance of the traditional support structure, engineers must take charge of their careers in an environment where the only priorities seem to be this week's deadline, and where long-term planning is no more than one business quarter.

to 2006, I urge you to consider taking a more active role in your local chapter activities. The leadership positions in local chapters will enable you to develop relationships with leaders in your technical field. If there is no local chapter for your technical society, consider forming one with a few

like-minded colleagues. If you need assistance in this regard, contact me at murtyp@ieee.org. I also ask the chapter chairs at the chapter meetings to communicate activities at the section-level to their members and to encourage non-members to join IEEE.

I am also pleased to report that we have received approval for the formation of an IEEE Club at Woodson High School in Fairfax, Virginia. A formal kick-off of the club's activities will take place in early fall. If you are interested in mentoring the students at Woodson or if you have children there who might be interested in taking part in the club activities, contact me at murtyp@ieee.org.

On p. 8 of this issue, you will find a ballot for the election of section office-bearers for next year. I would like to thank Amarjeet Basra, chair of the nominations committee, for his efforts in forming the slate, and to thank the candidates for their willingness to be part of the 2006 section leadership. I am confident that the Northern Virginia Section will be in capable hands next year!

EDS Chapter Hosts Nanotech Meeting

By Murty Polavarapu

Dr. Jimmy Xu of Brown University delivered a thought-provoking talk on "Nanotube Electronics: An Enabling Platform for Beyond-CMOS Technologies" at a June technical meeting of the Northern Virginia and Washington Chapter of the Electron Devices Society (EDS). The meeting was held at George Mason University.

Dr. Xu, who is an IEEE Electron Devices Society Distinguished Lecturer, highlighted the pressing problems of the current CMOS technology, such as wiring and power

dissipation, and pointed out how carbon nanotubes could enable technology advances into new areas such as bioelectronics and molecular sensing and actuation.

The EDS chapter is currently seeking members who can take leadership roles in the chapter activities next year. Such positions will put you in touch with leaders in your discipline and enhance your network of contacts. The chapter chair will also be an ex-officio member of the Electron Devices Society Administrative Committee. If you are interested, please contact me at murtyp@ieee.org.

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Daniel Benigni Receives Haraden Pratt Award for his Leadership in Shaping Today's IEEE

Daniel R. Benigni, a member of the Washington Section, received the 2005 IEEE Haraden Pratt Award sponsored by the IEEE Foundation, for his "sustained leadership on Institute major boards and committees, including transforming and transitioning Regional Activities, IEEE-USA, and Standard Activities into their current organizations."

Benigni, a senior analyst at the National Institute of Standards and Technology (NIST) of the U.S. Department of Commerce in Gaithersburg, Maryland, has made significant contributions toward shaping today's IEEE. He has served on more than 25 boards and committees, including the IEEE Board of Directors, Executive Committee, Regional Activities Board, IEEE-USA Board, and Publication Services and Products Board. He was instrumental in transforming the US Activities Board into the IEEE-USA.

As general chairman of the IEEE 2002 Section Congress in Washington, D.C., he helped to influence the IEEE Foundation's financial support for the well-received core leadership educational program. He also created the operating and finance committees of the Regional Activities Board, thus establishing clear responsibilities in these areas.

Benigni began his career with the U.S. Department of Defense, designing large data management systems for interactive ship designs. He has been at NIST since 1982, developing ANSI and ISO stan-



Haraden Pratt Award—Daniel Benigni (in tuxedo) is congratulated by (left to right) Chuck Sisung, Mike Cardinale and Murty Polavarapu at the IEEE Honors Ceremony in June.

dards for computer graphics and product modeling. In 1998, he became NIST's first Acting Chief Information Officer and is currently responsible for its IT strategic, operational and architecture planning.

An IEEE Senior Member, he has received the IEEE Third Millennium Medal and the National Engineering Award, the highest award given by the American Association of Engineering Societies.

Benigni received the Haraden Pratt award on June 18 at a gala banquet held in connection with the IEEE Board of Directors Meeting in Chantilly, Virginia. In his acceptance remarks, he acknowledged the mentorship and guidance he received from Tom Doepfner and Jim Strother, two long time IEEE leaders in the National Capital Area.

Congratulations to These New Senior Members!

Sirak Belayneh (NV)
Margaret E. Daube-Witherspoon (NV)
Michael C. Fu (W)
Chris W. Hicks (W)
Lek K. Len (W)
Charles F. Sisung (NV)

If you need assistance with advancing to Senior Member level, please contact Michael Cardinale cardinal@ieee.org for Northern Virginia (NV) Section members, or Howard Needham at howardn@ieee.org for Washington (W) Section members.

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Northern Virginia Section Ballot

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1. Vice Chair and Chair-Elect:

Chuck Sisung _____
Write in _____

2. Secretary:

Monica Mallini-Rourke _____
Write in _____

3. Treasurer:

Barry Tilton _____
Write in _____

4. Directors (Choose Four)

Syed Ahmed _____
Chuck Baldi _____
Amarjeet Basra _____
Tim Settle _____
Write in _____
Write in _____
Write in _____
Write in _____

INFORMATION SESSIONS

All sessions are 6 pm to 7:30 p.m. in Room 204.

Monday
September 12, 2005

Wednesday
October 5, 2005

Thursday
October 27, 2005

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