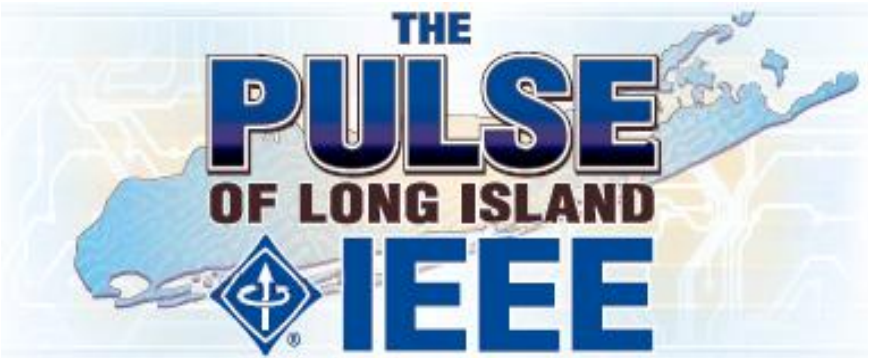

http://www.IEEE.LI/pulse/ VOL. 60 NO. 1 JANUARY 2010

Chairperson's Message by Jon Garruba, chairman@IEEE.LI

On behalf of the Long Island Section Executive Committee, I would like to wish everyone and their families a happy, healthy, successful and productive New Year. I am honored to serve as your Section Chairman for 2010. I would first like to thank all members for their support. This year we will provide new, exciting opportunities and I plan to make the most of these to build and expand on the successes of last year. I would like to congratulate the Past Chair Sandy Mazzola and the rest of the Executive Committee for an outstanding 2009. Special thanks go out to Nick Golas for his dedication and efforts as the Editor of the Pulse. It has been a pleasure to work with such a talented and dedicated group. First I'd like to share some highlights from last year:

- LISAT 2009 Conference – Last year marked the fifth annual LISAT (Long Island Systems, Applications, and Technology) Conference. It was a resounding success. If you haven't attended this Conference in the past, please consider it this year. The LISAT Conference will be held on May 7th at SUNY Farmingdale.
- Globalization Forum – "Outsourcing and Offshoring Impact: Reversing the Flux of Technical Leadership and Engineering Jobs on LI" As the world continues to evolve with increased economic and political interdependencies, understanding the causes and effects of Globalization is essential for everyone, especially those involved in technological industries. This innovative new event provided an informative discussion about Globalization's impacts and solutions for Long Island.
- New Societies – During 2009, the section formed several new local societies including Product Safety Engineering Society (PSES), Power and Energy Society/Industrial Applications Society (PES/IAS).
- New Affinity Groups – Last year the section formed the Women in Engineering (WIE) Affinity Group and was granted approval to start a Life Member (LM) Affinity Group.

As engineers, we all share a common goal, improvement. Whether we work on products, processes, or services we all strive to improve things in our niche. As members of the IEEE it is important to keep in mind its vision: "Foster technological innovation and excellence for the benefit of humanity." While it may be difficult to see how some of our everyday tasks contribute to this goal, it is important to take a moment and reflect. As you go to work each day, I encourage you to consider the implications of your work, and their possible effects.

In addition to completing the founding of the LI Chapter of the Society on Social Implications of Technology (SSIT), the Executive Committee would like to continue all the great work that was done last year at our section's Globalization Forum. Due to the highly complex and technical nature of nearly everything in today's world it is essential that engineers actively participate in discussions that influence policy. What better way is there to accomplish this goal than to host these forums? The executive committee is in the planning stages of a second Globalization Forum for 2010. More information on this will follow as it develops.

For this year I recommend you take advantage of all your membership has to offer by becoming more involved. I personally have found the most rewarding benefit of being a member of the IEEE has been the contact with other members during events. I encourage all members to participate in Section activities by attending a lecture, joining a Society of interest, or simply stopping by during one of our monthly Executive Committee meetings. Numerous fascinating lectures are held every month from a multitude of societies. Please check our website for the 2010 Calendar of Events at: http://www.IEEE.LI/calendar/

Remember, the Executive Committee is always looking to expand and improve our Section's services. The best method we have for this is direct communication from our members. If you have any suggestions, contributions, or if you would like to become more actively involved, please contact me at chairman@IEEE.LI. At this time there are many opportunities for involvement. A list of open positions is available on the Section website at: http://IEEE.LI/open_positions.htm. Please bear in mind all volunteers are welcome, even those who can only volunteer a few hours of their time. 2010 is looking to be a very prosperous year for both the IEEE and the IEEE Long Island Section and I look forward serving as your Chairman

Regards,

Jon Garruba, Chair IEEE Long Island Section
chairman@IEEE.LI

CALENDAR OF IEEE EVENTS

JANUARY 2010

6 **Long Island Consultants Network Meeting**
Topic: ***Software Patentability***
Speaker: **Gerald Bodner**
Location: The Great Room, Briarcliffe College, Bethpage, LI Time: 7:00 PM

20 **MTT Society Meeting**
Topic: ***3-Dimensional Technology for RF/Microwave Components & Modules***
Speaker: **Jean-Marc Rollin**
Location: Telephonics, Farmingdale, LI
Dinner 6:00 PM, Lecture 6:30 PM

25 **ExCom Meeting**
Location: Telephonics, Farmingdale, LI
Dinner 5:45 PM, Meeting 6:15 PM

27 **Power & Energy Society Meeting**
Topic: ***Optimizing Fossil Plant Asset Value Within Today's Market Constraints***
Speaker: **Tony Munisteri**
Location: NYIT, Old Westbury, LI
Refreshments 6:00 PM, Lecture 6:30 PM

28 **Circuits and Systems Society Meeting**
Topic: ***A Systems Approach to Epidemiology***
Speaker: **Aaron Kershenbaum**
Location: BAE Systems, Greenlawn, LI
Refreshments 6:00 PM, Lecture 6:30 PM

FEBRUARY 2010

17 **Power & Energy Society Meeting**
Topic: ***Nuclear Power Plants & Future Energy Needs***
Speaker: **Howard Sobel**
Location: TBA
Refreshments 6:00 PM, Lecture 6:30 PM

22 **ExCom Meeting**
Location: Telephonics, Farmingdale, LI
Dinner 5:45 PM, Meeting 6:15 PM

APRIL 2010

8 **Long Island Section Awards Banquet**
Location: Hyatt Regency, Hauppauge, LI
6:00 PM - 10:00 PM

Contents:

THE PULSE OF LONG ISLAND

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PULSE CONTACTS

Nikolaos Golas, Editor
Alison Rubin, Associate Editor

LET US HEAR FROM YOU

The PULSE encourages letters to the editor. Members of t IEEE Long Island Section are encouraged to write in abo Pulse articles or about other topics of interest to Long Isla engineers. While the IEEE Long Island Section grea appreciates feedback, we cannot guarantee that all letters w be answered or published. Please direct comments pulse@IEEE.LI or to a Section officer.

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LONG ISLAND SECTION OFFICERS

Chairman

JON GARRUBA
Northrop Grumman Corporation
Office 631-704-4697
jon.garruba@ngc.com

First Vice Chair

NIKOLAOS GOLAS
Telephonics Corporation
Office 631-755-7059
n.golas@ieee.org

Second Vice Chair

SUSAN FRANK, Ph.D.
SUNY Stony Brook
Office 631-361-8667
sfrank@ieee.org

Treasurer

BRIAN QUINN
Verizon
Office 212-856-1354
brian.j.quinn@verizon.com

Secretary

ROBERT BERGER
National Instruments
Office 516-507-7001
robertberger@ieee.org

Junior Past Chairman

SANTO MAZZOLA
BAE Systems
Office 631-262-8367
mazzolas@ieee.org

Senior Past Chairman

WILLIAM C. DEAGRO
Northrop Grumman Corporation
Office 516-575-6217
w.deagro@ieee.org

Membership Development

For information on membership in the Long Island Section of the IEEE contact:

NIKOLAOS GOLAS
Telephonics Corporation
Office 631-755-7059
n.golas@ieee.org

Consultant's Network of LI

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IEEE Consultants Network of Long Island
PO Box 411,Malverne NY 11565-0411
www.consult-li.com

GOLD Affinity Group

KRIS WAAGE
L-3 Communications
Office 631-231-1700
kris.waage@l-3com.com

Life Members Affinity Group

LOU LUCERI
l.a.luceri@ieee.org

Student Development / Activities

MICHAEL J. CO
Parker Hannifin Corporation
Office 631-231-3737 ext. 2123
michael.co@ieee.org

Women in Engineering (WIE)

CHRISTINA NICKOLAS
Hearst Corporation
wie@IEEE.LI

2009, A Year in Review for the IEEE Long Island Section

by Sandy Mazzola, Junior Past Chairman IEEE Long Island Section

In 2009, the **IEEE Long Island Section** had a very good year.

This year marked the fifth annual **Long Island Systems, Applications, and Technology Conference** (LISAT). This endeavor has been a huge success and continues getting better every year. It is on its way to being a premier technical conference. The credit goes to the many volunteers who work hard on making **LISAT** a success. I urge all of our membership to continue to support it. Come attend the conference and see what you're missing.

The IEEE Long Island Section Annual Awards Banquet continues to be the highlight of the year. In 2009, **Suffolk County Executive Steve Levy** was the **Keynote Speaker**. The Banquet was an unqualified success as it was well attended. We continue to win the lion's share of the Region 1 (Northeast USA) awards winning 9 out of the 30 Region 1 awards granted. This is a testament to the huge talent base we have here on Long Island and to the extraordinary work that both our **Awards Committee Chairman Jesse Taub** and our **Awards Committee** members are performing. They solicit and help prepare regional and local award nominations for consideration.

2009 also marked the 125th **Anniversary of the IEEE**. The very successful **Region 1 Southern Area Industry Day** celebrated **125 Years of Engineering the Future**. The event was free of charge to all IEEE members and a contingent of Long Island Section IEEE members attended an extremely well run event. Congratulations to the **New Jersey Coast, North Jersey, and Princeton–Central Jersey IEEE Sections** for a tremendous conference.

In April 2009 at Farmingdale College, the IEEE Long Island Section sponsored **A Globalization Forum – "Outsourcing & Offshoring Impact: Reversing the Flux of Technical Leadership and Engineering Jobs on LI**." The forum was very well attended and brought on a lot of stimulating and challenging discussions. Look for more IEEE Long Island Section efforts on this front in the future.

In June of 2009 the IEEE Long Island Section co-sponsored **TI Tech Days** with Texas Instruments, and was able to offer free attendance to a terrific one day technical seminar to all Long Island Section IEEE members. Over 50 Long Island Section IEEE members took advantage of this opportunity.

In November of 2009 the IEEE Long Island Section co-sponsored the **NI Technical Conference** with **National Instruments**. The conference offered information on emerging industry trends within a valuable networking forum and product exhibition. The conference was offered to all Long Island Section IEEE members at no cost. The meeting was a success with over 75 Long Island Section members attending the two tracks of presentations. They earned 0.6 **Continuing Education Units** (CEUs) taking advantage of this opportunity.

In November and December the Section in conjunction with Ameriprise Financial offered its members two **Professional Financial Seminars**. The November seminar titled "**Regain Control Over Your Financial Life**" and covered many ways to invest your savings safely and securely, how to get back on track toward reaching your goals, and uncover gaps in your financial plan. The December financial seminar was titled "**Define Your Retirement Goals and Plan to Reach Them in Today's Changing Market**" where you learned to discover the ideal retirement and plan to save and invest for it.

In 2009 the IEEE Long Island Section was able to start the following Technical Societies and Affinity Groups:

- **Product Safety Engineering Society** (PSES) with **Tom Lanzisero** as Chair
- **Power and Energy Society** (PES) and **Industry Applications Society** (IAS) with **Steve Rubin** as Chair
- **Women In Engineering** (WIE) **Affinity Group** with **Christina Nicholas** as Chair
- **Life Members Affinity Group** with **Lou Luceri** as Chair

The reason we have been able to offer all of these opportunities is that we have had very capable IEEE members stepping up and taking on these positions.

We have also been able to increase our activity in some of our existing societies. This is because of the efforts of new volunteers. All in all it was a very good year. We are only able to supply these services based on the hard work of our **Executive Committee** (ExCom) volunteers. I would like to thank every one of the **ExCom** for all of the hard work that was put in this year.

There is a saying that the "Best Is Yet To Come". I truly believe in that. I think it is a good way to live life and for the IEEE Long Island Section it will be true.


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A New IEEE Technical Tour Offered to Life Members

by Lou Luceri, Life Members Affinity Group Chairman

The IEEE's History Center's *Milestones* celebrate technological breakthroughs or turning points around a number of which the IEEE Life Member Committee (LMC) is organizing technology-themed tours. The first of these IEEE Tech Tours will be of the Panama Canal, with further opportunities to experience the environment and culture of Panama itself.

The Milestone is for the Panama Canal Electrical and Control Installations of 1914. The dedication event was held on April 3, 2003, under the auspices of the IEEE Panama Section.

The Panama Canal Project included one of the largest and most important electrical installations in the world early in the 20th Century. The use of 1022 electric motors with an installed capacity of 28,290 horsepower largely replaced the steam and water powered equipment then in use. Reliability and safety were also engineered into the innovative electrical control system, enabling remote lock operation from a central location.

The tour will be held from 3-10 March 2010 in Panama. The 8-night 7-day itinerary includes a partial transit of the Canal, a visit to the Miraflores Visitor Center, a special presentation by canal personnel, and a special visit to the ordinarily restricted Control House at the Miraflores Locks. In addition, members will have the opportunity to experience the environment and culture of Panama itself.

Additional information is available on the LMC web page, at:
http://www.ieee.org/web/volunteers/mga/home/life members committee/panama canal tech tour.html

Ship Passes through the Miraflores Locks

Panama Canal Electrical & Control Installations

French engineers broke ground in 1880 on the canal that would cross the Isthmus of Panama, but the first ship didn't pass through its locks until 1914. By 1884 there were as many as 19,000 workers on site. Funding problems and mosquito-borne diseases caused by poor sanitation devastated the work force and in 1889 all activity ceased.

The United State canal construction began in 1904, after it acquired the French company's assets and concessions. Sanitation was one of the first issues to be addressed and solved. Communications were improved with new telegraph and telephone systems. It was estimated by John F. Stevens, Chief Engineer that it would take a minimum of 8 years to complete a lock canal in 1914.

Electric power was chosen as the most dependable and economical form of power for the operation of the construction plants for the locks, with their cement mixers, stone crushers, cranes, cable ways, automatic locomotives, pumps, etc. Electrical engineer Edward Schildhauer, AIEE Fellow (1913), designed the powerful gate operating mechanism. Each 20 foot diameter gate is powered by an electric motor. Lock operations required over 1,000 electric motors, as all controls were electric.

The Panama Canal continues to provide highly uninterrupted and reliable service due, in large part, to its electrical equipment.

LEGAL AFFAIRS

by Steve Rubin, Legal Affairs Chairman

In December, the Patent and Trademark Office announced a pilot program to accelerate review of certain "green" technology patent applications. These types of applications are defined as those technologies that materially contribute to the discovery or development of renewable energy resources, energy efficiency, or greenhouse gas reduction. The current estimated processing time for final disposition of such applications (before the program) is 40 months. The first 3,000 previously filed patent applications that apply for, and qualify for the program, will be entered. If successful, the program may be expanded to more applications.

An interesting decision last year that is expected to be appealed to the Supreme Court in 2010 is *Cardiac Pacemakers Inc. v. St. Jude Medical Inc.* In general, you can infringe a United States Patent only by acts in the United States. There is a section of the Patent Act that defines an act of infringement relating to acts outside the U.S. It is an act of infringement if you supply the components of an invention inside the United States so that when those components are combined outside the United States, the combination would infringe. Think of exporting parts of a car where the parts alone do not infringe a patent but when combined to form a car, the resultant car would infringe. In Cardiac Pacemakers, the question before the court was whether a patent on a method or process could implicate this particular exportation type infringement statute. Can you export pieces of a process (e.g. software) so that when those pieces are combined outside the U.S., the combination would be an act of infringement of a U.S. patent? The Patent Appellate court said method claims do not implicate this statute. An appeal to the Supreme Court is anticipated.

Steve Rubin srubin@dilworthbarrese.com

LECTURES & SEMINARS

Long Island Section Microwave Theory & Techniques Society, are presenting:

"3-Dimensional Technology for RF/Microwave Components & Modules"

Wednesday, January 20, 2010 at 6:30PM

Refreshments will be served at 6:00PM. This seminar is free & all are invited.

Speaker: **Dr. Jean-Marc Rollin**, technical staff member and program manager for Nuvotronics

Abstract: Polystrata microfabrication technology facilitates the production of miniature, dense and complex 3-dimensional components. This process was initially developed as part of the DARPA 3-Dimensional Micro-Electromagnetic RF Systems program, where the technology was optimized for low-footprint phased-array designs in SATCOM applications. Air-filled rectangular coaxial transmission lines can be fabricated, using the Polystrata™ microfabrication technology that is highly-shielded, low-loss and purely TEM. Microfabrication technology offers superior electrical performance while reducing size, weight and cost.

Speaker Bios: Since 2006, Dr. Rollin has led the successful development of the 3D-MERFS research program at Nuvotronics, which is designed to improve and reduce the cost of phased array data links. Jean-Marc is currently involved with a GaN Disruptive Manufacturing Technology program, a MAGMEMS program and a NASA program on Long Range Space Telecommunications. He is also leading the effort on the commercialization of PolyStrata™ and is designing the first Millimite™ discrete microwave components (0.5 to 40 GHz range) to be packaged and sold commercially

Dr. Jean-Marc Rollin received his undergraduate degree in material science from Universite d'Orsay and his PhD in physics from the University of Bath, UK. He began his career working on packaging and flip-chip assembly technology for high-speed optoelectronic devices at the Corning Research Center in France. He then moved to the department of physics in Bath, UK where he worked on the design and fabrication of sub-millimeter-wave receivers for the British National Space Center.

Seminar Coordinators: James Colotti, Chairman of the IEEE Microwave Theory and Techniques Society, LI Section and Eric Darvin, Vice Chairman of the IEEE Microwave Theory and Techniques Society, LI Section.

Location: Telephonics Corporation, 815 Broad Hollow Road, Farmingdale.

Registration: Required. Register by visiting the Calendar page of the IEEE Long Island Section webpage at:

http://www.IEEE.LI/calendar/

INDUSTRY NEWS

Telephonics Receives Multi-Year Contract for Follow-On Interim Contractor Support for AN/APS-147 Radar/IFF Systems

. Telephonics Corporation announced that its Radar Systems Division received a requirements contract from Lockheed Martin for support of the AN/APS-147 Multi-Mode Radar (MMR) and Identification Friend or Foe (IFF) Interrogator System installed on the U.S. Navy's MH-60R Maritime Strike Helicopters. The Indefinite Delivery, Indefinite Quantity contract provides for repair of radar components at firm fixed prices over a five year period. The contract has an estimated value of $17 million.

The principal mission of the MH-60R multi-mission helicopter is to protect the fleet from submarines and surface vessels and provide a maritime strike capability. The radar affords the helicopter long-range search, imaging, and tracking capabilities for surface vessels and includes an advanced periscope detection mode.

The IFF identifies cooperative targets in the area of operations and enables rapid sorting and prioritization of targets of interest

"Telephonics is dedicated to the support and sustainment of these radar systems for the U.S. Navy's Maritime Strike squadrons. This contract will ensure high mission capable rates and optimum combat readiness for the U.S. Navy's MH-60R fleet", said Joseph Battaglia, President of Telephonics.

http://www.ieee.org/renew

LECTURES & SEMINARS

The Long Island Section Power & Energy and Industry Applications Joint Societies are presenting a seminar titled:

Optimizing Fossil Plant Asset Value within Today's Market Constraints

Tuesday, January 26, 2010 at 6:30 PM

Refreshments will be served at 6:00PM. This seminar is free & all are invited

Speaker: Tony Munisteri, Director of Asset Optimization for Sigma Energy Solutions Inc

Abstract: This lecture will cover the three main areas that an operator has under their control: efficiency, flexibility, and reliability. Discussed will be the integrated process successfully utilized at numerous fossil fueled generating assets around the world over the past ten years. Results obtained from implementing recommendations are shared for units in both regulated and unregulated markets. Also discussed are products developed specifically for quick implementation in the areas of efficiency, flexibility, and reliability.

Speaker Bio: Tony Munisteri is Director of Asset Optimization for Sigma Energy Solutions Inc., a wholly owned subsidiary of Alstrom Power. Previously, he held positions as Director, Engineering and Regional Operations Manager. Mr. Munisteri is a registered professional engineer with over 20 years of experience in the power industry and holds a Bachelor of Science degree in Chemical Engineering from The Cooper Union and an MBA from Adelphi University.

Seminar Coordinator: Steven Rubin, Chair of the Long Island Section Power & Energy and Industry Applications Joint Societies. Mr. Rubin can be reached at srubin@dilworthbarrese.com

Location: New York Institute of Technology, Northern Blvd., Old Westbury, NY.

Registration: Is required. Register by visiting the Calendar page of the IEEE Long Island Section webpage at:

http://www.IEEE.LI/calendar/

INDUSTRY NEWS

Northrop Grumman's E-2D Advanced Hawkeye Program Demonstrating Continued Success

Northrop Grumman Corporation marked the 45th anniversary of the maiden flight of the C-2A Greyhound -- the U.S. Navy's premier platform for Carrier-on-Board Delivery (COD) to Carrier Strike Groups throughout the U.S. Navy fleet.

"This is a significant milestone for Northrop Grumman and the C-2A Greyhound Program," said Jim Culmo, vice president of Airborne Early Warning and Battle Management Command and Control Programs for Northrop Grumman's Aerospace Systems sector. "Since taking its first flight in November 1964, and entering service with the U.S. Navy in 1966, Carrier Strike Groups have depended on the Northrop Grumman-built Greyhound to provide the critical logistics support they need to be mission ready at all times."

In addition, the C-2 acts as the critical "first impression" of the United States when transporting foreign dignitaries and heads of state in support of U.S. engagement and foreign policy overseas. A derivative of the E-2 Hawkeye, the C-2 Greyhound's primary mission is to transport high-priority cargo, critical aircraft parts, mail and passengers to deployed Carrier Strike Groups.

The C-2A delivers up to 10,000 pounds of cargo over distances in excess of 1,000 n.m. without refueling. This capacity and range allows Carrier Strike Groups greater maneuver space and flexibility across a full range and type of operations. With a flexible interior configuration adaptable to accommodate cargo, passengers or both, the Greyhound can operate safely and seamlessly during carrier launch and landing cycles. The C-2's folding wings allow it to minimize the amount of deck space it occupies when parked on the carrier deck and its on-board auxiliary power unit allows it to start its own engines and operate its electrical systems without outside assistance. These capabilities provide versatility not found in other cargo aircraft and help ensure carriers have the parts, supplies and personnel they need when they need them.

During a typical six-month deployment, a two-aircraft C-2 detachment will transport more than one million pounds of cargo, 5,000 passengers and accumulate approximately 1,000 flight hours.

SAVE THE DATE!!!

LISAT2010

Friday, May 7, 2010

Long Island Systems, Applications & Technology Conference
Farmingdale State University

Sponsored by the
IEEE Long Island Section
Farmingdale State University
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Long Island's Potential IEEE Milestones in Electrical Engineering & Computing (Part 2)

In the December 2009 Pulse Dr. Michael N. Geselowitz, Staff Director of the IEEE History Center covered the IEEE History Committee, the IEEE Global History Network and the IEEE Milestones in Electrical Engineering and Computing program. This month's column will explore some potential Milestones in the area covered by the IEEE Long Island Section.

Long Island has a rich and diverse history of technological achievements and this month we will list just a few Milestones and continue next month. Members are encouraged to submit their own Milestones. Please send your suggestions along with a description of the Milestone to: pulse@IEEE.LI

1881 Lewis Latimer's improved electric lamp/pioneering work as an African American inventor (now in Queen's County)

In 1881, Lewis Latimer was hired as the assistant manager and draftsman for U.S. Electric Lighting Company owned by Hiram Maxim. He was the chief rival to Thomas Edison, the man who invented the electric light bulb. The light was composed of a glass bulb which surrounded a carbon wire filament, generally made of bamboo, paper or thread. When the filament was burned inside of the bulb (which contained almost no air), it became so hot that it actually glowed. Maxim greatly desired to improve on Edison's light bulb and focused on the main weakness of Edison's bulb - their short life span (generally only a few days.) Latimer set out to make a longer lasting bulb and devised a way of encasing the filament within a cardboard envelope which prevented the carbon from breaking and thereby provided a much longer life to the bulb and hence made the bulbs less expensive and more efficient. This enabled electric lighting to be installed within homes and throughout streets.

1901 Tesla Wardenclyffe Lab (Shoreham)

Wardenclyffe or the Tesla Tower (1901–1917) in Shoreham was intended to be a wireless telecommunications tower. It was designed by Nikola Tesla for commercial trans-Atlantic wireless telephony, broadcasting and the demonstration of the transmission of power without wires. It never achieved its primary goal, the wireless transmission of power, and was abandoned when J.P. Morgan withdrew financial support. Architect Stanford White of the famous McKim, Mead and White architectural firm designed the 94-ft by 94-ft brick building. Tesla envisioned the tower as the first step in the achievement of a "World System" which with the perfection of wireless would demonstrate the transmission of power without wires.

1915 Radiotelephone Broadcast to Grand Fork, ND, by Goldsmith (Sayville)

Alfred N. Goldsmith was an Associate Professor in Electrical Engineering at the College of the City of New York where he taught from 1906 to 1923. In 1914 he consulted as a radio engineer for the Atlantic Communication Company, and for the General Electric Company from 1915-1917. His 1915 radio transmission tests between New York and Hoyt Taylor a professor at Grand Fork, North Dakota were the first radiotelephone broadcasts. The signals were sent and received at the City College laboratory about ten or eleven o'clock at night and from there to the Western Union telegraph office about a quarter of a mile away. They broadcasted using a high-power transmitter with multiple amplification and repetition and used the receiving station at Sayville, Long Island.

1919 First RCA Laboratory (Riverhead)

In 1919 when the Radio Corporation of America (RCA) was formed, its first laboratory was located in a tent at Riverhead, Long Island, to develop transoceanic wireless communications. Harold H. Beverage, known for his pioneering research in early radio, along with Phillip Carter, established the first RCA Laboratory. He was the director of radio research and also vice-president in charge of research and development for RCA Communications. From the start the RCA Laboratory was responsible for the invention of the Wave (Beverage) Antenna, and its first reception, Dr. Hansell's development of the first crystal-controlled transmitter and the first 15-meter transmitter. The Lab continued as the center of research in international communications, featuring long and short waves, ultra-short and microwaves. New antenna systems were developed along with high frequency alternators and powerful vacuum tubes were tested on transatlantic transmitters. It made long distance communications dependable at all hours of day and night,

1921 Harding Transatlantic Broadcast Relayed (Rocky Point)

At Radio Central in Rocky Point work was completed and on November 5 1921 the station was officially opened. The first unit of Radio Central was utilized by President Harding to broadcast his message from Washington to 28 countries sent in code over. The message was acknowledged by 19 countries of the world including Japan, Australia and New Zealand. The Radio Central station consisted of a multiple station of twelve units, each one having a complete transmitter and an antenna nearly one and a half miles long, supported by six steel towers, each 400 feet in height.

1929 First Blind Flight by Doolittle at Mitchell Field (Garden City)

During the 1920s there was slow but steady progress in the development of cockpit instruments to assist pilots flying during conditions of low visibility. The instruments available were mechanical and while they could provide altitude, attitude, direction and air speed information, they could not provide position, which is crucial during landing. Position information awaited a radio guidance system whose development began in 1926 by the Bureau of Standards. The first blind flight occurred on September 24, 1929 when U.S. Army Air Force pilot Lt. James Doolittle, who had a Doctorate in Aeronautics from MIT, working with the Guggenheim Foundation's Full Flight Laboratory at Mitchell Field, took off and landed in heavy fog after flying a 15 mile course without ever seeing the ground. Crucial to the success of the flight, in addition to the newly developed Kollsman altimeter and the Sperry directional gyro, was the homing and range beacon low frequency receiver. The receiver was built by Radio Frequency Laboratories probably for the Bureau of Standards and loaned to the Full Flight Laboratory at Mitchell Field. The homing range antenna was installed on the west side of the field and the fan type marker beacon along the leg of the homing range on the east side.

The IEEE Global History Network has a list of potential IEEE Milestones for Long Island. This list is not very exhaustive, but is intended to encourage on-line "discussion" by IEEE members:

http://www.ieeeghn.org/wiki/index.php/Possible_Milestones_for_IEEE_Long_Island_Section

LECTURES & SEMINARS

The Long Island Chapter of the IEEE Circuits and Systems (CAS) Society is presenting a lecture titled:

A Systems Approach to Epidemiology

Thursday, January 28, 2010, 2009 at 6:30PM

This seminar is free & all are invited. Refreshments will be served at 6:00PM

Speaker: **Dr. Aaron Kershenbaum**, Columbia University School of Public Health

Who Should Attend?

Anyone interested in how to use systems analysis to approach epidemiological problems.

Abstract: At the center of epidemiology is the problem of determining relationships between disease and exposure to possible causes. The relationships are complex as there are often many contributing causes and these causes usually interact with one another. This talk will focus on how to use systems analysis to approach epidemiological problems. We will describe typical problems, how they are approached and pitfalls that can arise during the process of analysis.

Speaker Bio: Until 2007, **Aaron Kershenbaum** was a Research Staff Member at the IBM T.J. Watson Research Center in Hawthorne, New York. There he did research in the application of network theory to problems in modeling and analysis of medical and biological data. After retiring for IBM, he joined a research team comprised of epidemiologists and oncologists (and now one electrical engineer) at Columbia University School of Public Health analyzing data from long term cancer studies. Prior to that he was a Professor of Computer Science at Polytechnic University where he also served as Director of the Network Design Laboratory, part of the New York State Center for Advanced Technology in Telecommunications at Polytechnic.

Before that, he was Vice President for Software Development at Network Analysis Corp., which did pioneering work in the field of computer and telecommunications network design and analysis, including the design of ARPANET, one of the first major computer networks. He is the author of over 70 papers and a book and has supervised over 20 Ph.D. theses. He has served as an editor at several major journals and is a Fellow of the IEEE.

Seminar Coordinator: **Arthur Williams** CAS Chairman at awilliams@telebytebroadband.com

Location: **BAE Systems**, 450 Pulaski Road, Greenlawn, NY. The facility is located just east of Park Ave (Suffolk County Rte 35) on Pulaski Road. **Registrants must be US citizens**. Please enter from the main entrance facing Pulaski Road.

Registration: Registration is required. To register please visit the calendar page of the IEEE website,

http://www.IEEE.LI/calendar/,

Click on the registration link, and fill out the form.

Brain Teaser Challenge Solution

by Butch Shadwell

Measurements can be difficult. "… using a multimeter rated at 1000 ohms per volt, set on the 10 volt range, what voltage would I read from the dial if I measured the voltage at the middle node of a voltage divider composed of two 10,000 ohm resistors in series, across a solid 5 volt DC supply? Later I bought a VTVM or vacuum tube volt meter, with a fixed input resistance of 11 megohms."

Many students I meet, and some MS and PhDs as well, sometimes forget that whenever you measure something you have to take some energy from it. Measurement requires interaction with the phenomenon of interest. Before the advent of solid state electronics, portable meters had to function without the benefit of high input impedance amplification

The vacuum tube volt meters discussed last month required connection to the mains and so were considered a bench based measuring technology.

There were several correct answers sent in this month. Adding the meter to the circuit changed the resistor divider from ½ to 1/3 of the 5 volt supply, and that is what would have been seen on the dial. With the VTVM the error would have been less than 1%, assuming the meter had that degree of accuracy in the display (which of course they did not). With these analog meters you rarely got more than two significant digits from the reading. Some of you may remember tapping the meter face trying to get it to settle at the right value.

Brain Teaser Challenge

by Butch Shadwell

Fred Jones was in his last term as an EE undergrad at Whatsamatter U. For his senior project he decided to build a codec that would send 8 bit PCM audio at 2.5 kilobytes per second. It seemed to work pretty well on most male voices, but there was weird distortion with music and some women. Fred may have fallen asleep in his DSP class. What do you think could be his problem? Fred often preferred to be called Stanley Smith for some odd reason, but I am not sure why I am telling you his alternate identification. I have to stop with the clues..

Reply to Butch Shadwell at: b.shadwell@ieee.org
Tel: 904-410-9751 Fax: 904-410-9750
3308 Queen Palm Dr., Jacksonville, FL32250
http://www.shadtechserv.com

Long Island's Electronic History
by Jesse Taub, IEEE LI Section Historian

This month Symbol Technologies (now Motorola) is featured. A summary of their early history, particularly their pioneering efforts in bar code scanning technology is described by Tom Roslak.

Symbol Technologies

Symbol Technologies was founded on Long Island in 1973 by Dr. Jerome Swartz to provide consulting services related to bar code scanning. Dr. Swartz, or Jerry as he liked to be called, was keen to use bar code scanning in retail environments. This created a great opportunity to enhance operational efficiencies and customer service by improving speed and accuracy at the point of sale. Many manufacturing and packaging companies at the time were having difficulties printing bar codes on their packages that could even come close to meeting the standards or practically read for that matter. Symbol started out by focusing on the needs of the manufacturers before the company transitioned to the hand held laser scanning products that are ubiquitous today.

Dr. Swartz and Ed Barkan began to work on a portable version of a bar code verification system. They realized from discussions with their customers that it might be possible to design and manufacture a truly hand held bar code laser scanner. Most people thought this was some kind of Star Trek fantasy, as reading bar codes required the use of large gas tube lasers to illuminate and scan the bar code symbol. These tubes were about ten inches long and would be difficult to deal with in a hand held device. The Symbol team took on the challenge, Jerry conceived a half sized laser tube, which the industry considered impossible and delivered the industry's first hand held bar code scanner using a Helium Neon tube. Solid state lasers and the famous electro-mechanical Mylar engine would follow in later years, developed in large part from the team of Ed Barkan and Dr. Boris Metlitsky.

As with all technology, the more people have at their disposal, the more improvements they desire. Implementing laser bar code scanning at the point of sale improved retail operations dramatically, but what else could be done? Can you imagine reading the little price labels on an item, punching it into a cash register and then not knowing what your inventory level was at the end of the day? That is what retail looked like in the 1970's. Once the tethered bar code scanning was off and running, it seemed obvious to create a mobile device for inventory management. The challenge here was the devices were operating with SRAM – which was extremely expensive and consumed a lot of power. The natural conclusion was to create a mobile device with wireless capability. At the time this type of device did not exist, so the engineers at Symbol created a mobile computer using the NEC V25 and a custom radio card that ran in the 900 MHz ISM band. This was one of the first commercially available IP addressable mobile computers with bar code scanning. This technology opened the doors for real time inventory management, warehouse operations and security. You can see a high level version of all these technologies at Stop and Shop throughout Long Island in the form of the Scan It™, Personal Shopping System, where shoppers scan their items in the aisle and check out automatically.

Today Symbol Technologies is wholly owned by Motorola within the Enterprise Mobility Systems division. Products include bar code scanning, mobile computing, software and management systems, RFID, wireless network, voice and collaboration systems.

January

IEEE Calendar and Historical Events

1: 1939: **William Hewlett** and **David Packard** founded their company, whose first product is an oscillator.

6: 1838: **Samuel Morse and Alfred Vail** conduct the first successful public demonstration of their telegraph system.

11: 1895: Birth date of **Laurens Hammond**, inventor of the electrical musical keyboard.

12: 1864: Birth date of **Benjamin Garver Lamme**, developer of electric power technologies including dc railway motors.

17: 1706: Birth date of **Benjamin Franklin**.

22: 1984: The Apple Computer Co. introduces the **Macintosh**.

22: 22–24 January: **Region 4** meeting in Dearborn, Michigan.

26: 1791: Birth date of **Charles Babbage**, inventor of calculating machines.

26: 1875: Inventor **George F. Green** patents the electric dental drill.

28: 1878: The first telephone exchange goes into service, in **New Haven, Conn**.

Northrop Grumman Names Patricia McMahon as Vice President and Deputy of Aerospace Systems' Battle Management and Engagement Systems Division

Northrop Grumman Corporation has announced the appointment of vice president Patricia McMahon as full-time deputy of its Aerospace Systems sector's Battle Management and Engagement Systems Division. She continues to report directly to Thomas Vice, sector vice president and division general manager. Most recently, she led the Information Operations/Electronic Attack business for the company. As vice president and deputy, she will continue her role as site manager for the division headquarters in Bethpage, N.Y.

"Pat helps lead an organization comprising more than 4,000 employees in three major sites along the east coast and several others across the nation," Vice said.

"She oversees major programs, including the E-2 Hawkeye airborne early warning and battle management system, the E-8C Joint Surveillance Target Attack Radar System (Joint STARS), Broad Area Maritime Surveillance Unmanned Aircraft System (BAMS UAS) and Information Operations and Electronic Attack (IO/EA) programs. In addition, Pat leads our Bethpage site community activities."

McMahon joined Northrop Grumman in 2003 and has successfully managed the Information Operations/Electronic Attack business, which included the EA-6B Prowler ICAP III equipped aircraft and the EA-18G, the Navy's newest electronic attack weapon system.

IEEE GOLD Webinar:
"A Survival Guide for Scientific Writing in the Academic and Professional Environments"

IEEE GOLD (Graduates-Of-the-Last-Decade) is pleased to have Dr. Matthias Reumann, cover the writing process from start to finish. This informative webinar will cover the skills required for scientific writing but you will find that the same methodology can be applied to the writing in a project management environment.

Date: Thursday, 21 January 2010
Time: 11:00AM - 12:00PM ET

Register at:
www.ieee.org/web/membership/gold/events/jan_2010_webinar.html

IEEE WIE Webinar:
"There's No Crying in Business: How Women Can Succeed in Male-Dominated Industries"

This IEEE-USA webinar is co-sponsored by the IEEE Women in Engineering (WIE) Committee Roxanne Rivera shares her lessons for success, including an overview of lessons learned during her years as a female business owner. Rivera will also outline a few tools and strategies contained in There's No Crying in Business book that women can use to be successful in their work environments.

Date: Thursday, 28 January 2010
Time: 2:00 - 3:00PM ET

Register at:
www.ieeeusa.org/careers/webinars/2010/webinar-01-28-10.html

Why Haven't I Been Hired Yet?

by Elizabeth Lions

When unemployed, many feel trapped in an endless cycle of hopping online, looking for jobs, applying electronically and repeating the entire scenario day after day. The process of finding a new job can be very frustrating… and confusing.

Why haven't I heard back?

You may not like this response, but it's the truth: the fact that you haven't been hired isn't necessarily about you.

Think about it from the employer's perspective. To illustrate my point, let me tell you about a friend of mine who is the HR Director or a large privately held manufacturing company. Recently she posted an ad for an engineering position. Her ad response drew 600 resumes.

Yes, I said 600.

Stunned, I asked her what she did with so many resumes hitting her inbox. She told me she decided to hire an intern to go through all 600 and put them into piles to help her organize the candidates. It boiled down to a yes, no and maybe pile of prospective candidates. Most managers wouldn't have taken the time to do this, but she insisted that she didn't want to miss out on a good candidate for the job. Two weeks later, with the help of an intern she was down to 60 resumes.

She won't even conduct interviews for another two weeks.

Perhaps you applied to that ad yesterday.

Do you see my point?

My mother used to say the devil is in the details, so I should paint the rest of the picture. Keep in mind that this ad is for one opening located in Portland, Oregon, where unemployment rivals that of Detroit, sitting at 11.5% with no relief in sight. Granted, due to the geographical area, the job market is nearly impossible, as other states aren't hit nearly as hard.

Stating that it's a tight job market would be a gross understatement. It doesn't seem to matter what part of the country you are in, it's tough, and some days it's downright discouraging.

How can a person get hired, despite the reality of the competition?

Here are a few tips to help you get noticed in today's competitive job market:

Gather Data

Keep an electronic spreadsheet of every job you've applied to, including the company name, the date you submitted your application and the outcome. This allows you to measure your campaign's success in a different way, so at the end of the day, you won't be left wondering if you were productive. Getting a job offer isn't the only measure of success. Some days it's just finding jobs to apply for online that is the positive result. Keep it in perspective. If you are applying and networking, you are doing all that you can.

Follow up

My theory has always been that two business days is more than enough time for a hiring manager to read a resume on their desk. If you are able, connect with the hiring manager and confirm that your resume has been received. If you aren't sure who the hiring manager is, do a quick search on LinkedIn. If all else fails, get connected to someone in Human Resources. Certainly, they can tell you if they received your resume. That's all you need to know — if you're in the pile. Be brave and call — don't just e-mail. Be proactive.

Get feedback

Expect rejection, but if you aren't going to be selected to interview, find out why. Perhaps there is a small misconception about something on your resume that could be cleared up, such as a skill set that you forgot to list. Perhaps they don't feel you are the right candidate but instead of guessing, ask someone in the organization why your application didn't match the position's requirements. Any feedback is good feedback because with that knowledge you can start to control the market's perception. Think of feedback as data and try not to take it personally. Probe a little further to see if there will be future openings in the next two quarters where you would be a fit.

Keep a Schedule

I advise all engineers that I career coach to keep a schedule when in job search mode. Spending all day searching on the internet is very hard on the psyche over long periods of time. I've even had to write 'prescriptions' for clients to take home to their spouse stating they should not be on the job hunt all day long. There is nothing more discouraging than fretting about finding work and then having your significant other come home and ask what you were doing all day. If you are looking for work, try to adhere to a three- to four-hour job search schedule. For example, if you get up at 7:00 am, look for work until 10:00 am or 11:00 am, and then take the lunch hour off. Try to get out of the house, if at all possible. If you can get out and do a networking lunch or coffee that would be an ideal use of time. Doing some sort of exercise is an immensely helpful way to release stress and allow your mind to rest. By late afternoon, plug back in see if you've received any e-mails or traction to your resume submissions. One client I counseled was so frustrated with his job search that I advised him to go paint the house to burn off excess energy. When he broke his job hunting activity into manageable chunks and engaged in other productive activities, by the end of the day, he felt like he had accomplished something besides just looking for work. When the mind is engaged heavily for long periods of time, the best respite is to go engage the body in some other project. People find that they have more answers after they have gotten away from the problem for a short period of time.

Although the market is competitive, there is only one you with your skill set. Remember who you are and what you have to offer an organization.

Elizabeth Lions *is the Author of* ***Recession Proof Yourself!*** *She is a national speaker, writer and career coach who works with people in transition through her private practice. For more about Elizabeth or the book, please visit:*
www.elizabethlions.com

Membership News

by Nikolaos Golas, Membership Development Chairman

The IEEE Long Island Section would like to welcome all the new members that just joined us and the members that moved to our section. The new members should familiarize themselves with what the Section has to offer by visiting the Long Island Section website at: www.IEEE.LI

New IEEE Members

Michael Agustin - S	Daniel DeNoia - S	Ernest Jackson - M	Hugang Ren - G
Theresa Alcia - S	Gregory DiGiacomo - S	William Jahn - S	Donald Rickerson III - S
Fabio Almeida - S	Ambrose DiGiorgio - A	Ruida Jen - S	Eric Robinson - S
Giancarlo Amato - M	Eric Doty - S	Robert Johnson - M	Seymour Rosenberg - M
Rob Aquila - S	David Dunatov - S	Ken Koch - S	Eric Schwartz - M
Loretta Au - G	Ryan Eick - S	Andrew Koenig - S	Dushyant Sharma - M
Juan Bautista - S	Jose Estevez - S	Kevin Kwiatkowski - S	Peter Sheh - S
Robert Bishop - S	Jose Euvin - S	David Lacina - M	Jitendra Shewale - G
Milan Boneta - S	Angel Evans - S	Ko Leon - G	Nicholas Spitaletta - S
Christine Bryce - S	Simon Free - M	Michael Livoti - M	Alexander Stein - S
Paul Calhoun - S	Aron Galonsky - G	Edgar Llanos - S	Greg Stoddard - S
Edward Cartier - S	David Gash - S	Amnon Lock - G	Sean Tallman - S
Joseph Castaldo - M	Vincent Geraci - S	Brian Long - S	John Tedesco - G
Chong Chan - S	Steven Govea - S	Enoch Lu - G	Ye Than - S
Tapas Chandra - G	Patrick Grace - M	Fei Lu - G	Sean Turner - M
Dennis Charaton - S	Kara Greenfield - S	James Maguire Jr - M	Servio Urgiles - S
Caitlyn Chiofolo - M	Zhiyang Guo - G	Justin Mandurano - S	Jonathan Uss - G
Christopher Chow - G	Abhishek Gupta - G	Pam McLauren - S	Murali Vaddigiri - M
Timothy Clark - S	Wendell Harvey - M	Keylah Mellon - S	Jean Victor - S
Patricia Colmer - A	Matthew Henigman - S	Garrett Moskowitz - S	Eric VonFricken - S
Jose Cruz - S	Valleix Herard - S	Vinay Murthy - G	William Walter - S
Eric Curto - S	Hetal Hiresh - S	Solyman Najimi - G	Lenny Wang - S
Lawrence David - M	Daniel Huang - S	Hung Ngo - S	Dennis Wilde Jr - S
Les Davis - G	Daniel Huenger - S	Pooja Parekh - S	Eric Williams - S
Clive Dawkins - A	Shao Hui - S	Manasa Raghavan - M	Edward Yau - S
Giovanni DeLisa - S			

Members Moved into Section

Fahad Aziz - G	Cunhao Gao - G	Shaorui Li - M	Peter Sheh - S
Henry Bachman - LF	Piter Garcia - S	Solyman Najimi - G	Richard Spanbauer - M
Scott Baron - M	John Hennings - M	Magdalena Nawrocka - M	John Stratoudakis - M
Eleanor Baum - LF	Tingbo Hou - G	Aziz Orumbaev - M	Wai Kit Sze - M
Yi-Liang Chen - SM	Teresa Johnson - M	Louis Pasquarelli - M	Howard Tempro - M
Brian Chia - M	Santosh Kulkarni - M	T Petersen - LM	Fengjun Xi - M
Nathan Clark - G	Hayan Lee - A	Sergo Sagareli - M	Jian Yang - SM
Jay DiBattista - G	Jang Ho Lee - M	Artin Sedighi - M	Lingyun Yang - M

Membership Legend

A=Associate Member, AF=Affiliate F=Fellow, G=Graduate Student Member, LF= Life Fellow, LM=Life Member, LS=Life Senior, M=Member, S=Student Member, SM=Senior Member

Welcome to the IEEE and the IEEE Long Island Section

IEEE Fellow Nominations

Jesse Taub Awards Committee Chair

As the **Section's Awards Committee Chair**, I would like to encourage the identification and nomination of deserving members to the grade of **Fellow**. It is one of the highest honors that the **IEEE** can bestow on its members. It recognizes outstanding contributions (usually technical but sometimes managerial) that an individual has made. The nomination process is arduous. The contributions must be documented (typically peer reviewed publications and patents) and certified by at least five references who are **IEEE Fellows**. The nominee's work must be highly rated by one of the **IEEE Societies** (eg. Computer, Signal Processing, Microwave Theory and Techniques, etc.). Each nominee also must be sponsored by a colleague. Some of the most effective sponsors are **IEEE Fellows** because they can be good judges of the likelihood of a nominee's success.

In the early days of our Section, (1950's, 1960's and 1970's) most of the Fellows were employed by companies such as **Sperry, Hazeltine and AIL**. It was an era where publications were encouraged by top management. There was a sense that the positive publicity from publications outweighed any risk of giving away trade secrets. I was a product of those times and while I published extensively, I saw only the good publicity side of the equation.

In recent years, publications from industry in peer reviewed journals have been much less. This has created a situation whereby some excellent engineers who have **Fellow** potential, confine their writing to internal reports. Because of this, the vast majority of recent Fellows have come from organizations such as **SUNY Stony Brook** & **Brookhaven National Laboratory**, where their staff are encouraged to publish.

In my judgment, engineers in industrial organizations need to publish more so as to properly document their original work. It may require more cooperation from their management to give them this incentive. If we can somehow regain a balance as to where **Fellows** come from, the professional stature of our **Section** will be the beneficiary.

For information and **Fellow Nomination Forms** go to www.ieee.org/fellows. You will find links to Fellow forms and other instructions. If you are considering sponsoring someone, please contact me at jjtaub@aol.com. Our **Awards Committee members** and I would be happy to review a draft and offer constructive suggestions. When we are made aware of nominations for worthy candidates, we can offer our support by submitting **Section Endorsement** letters to the **IEEE Fellow Committee**.

Andrew J. Viterbi, Co-Founder of Qualcomm, Named 2010 IEEE Medal of Honor Recipient

IEEE announced that IEEE Life Fellow Andrew J. Viterbi, co-founder of Qualcomm Incorporated and developer of wireless technologies that became the international standard for third-generation cellular phones, has been named the 2010 IEEE Medal of Honor recipient. The Medal of Honor, IEEE's highest award, will be presented 26 June 2010 in Montreal, Quebec, Canada as part of IEEE's annual Honors Ceremony.

Viterbi, who received the National Medal of Science in 2008 (administered by the National Science Foundation and presented by the President of the United States), is being recognized for "seminal contributions to communications technology and theory." In the mid-1960s, while a professor at UCLA, he developed the Viterbi Algorithm, a breakthrough in wireless technology that separated information (voice and data) from background noise. All four international standards for third-generation digital cellular communications as well as most digital satellite communications systems use the Viterbi Algorithm. In 1985, Viterbi co-founded Qualcomm with Irwin Jacobs and helped develop Code Division Multiple Access (CDMA) technology, which applied spread spectrum to cellular phones.

Monitoring Systems and Wearable Devices: The New Era of Healthcare Technology

IEEE members working around the globe to drive healthcare advances to create better quality of life

Technology innovation is a leading driver in making any industry prosper. According to IEEE, the world's largest technical professional association, this rings true especially in the field of healthcare. With over $27 billon spent each year in healthcare research and development globally, technology is playing an increasingly larger role in changing the way we prevent, diagnose and treat patients.

Technology has been utilized in healthcare on several fronts, from electronic patient medical records and monitors within the operating room, to the newer fields of telemedicine and robotic surgery and now wearable monitoring devices. This year, the **Computing Community Consortium** (CCC), through a grant from the National Science Foundation, held workshops to create the CCC Robotics Roadmap, which identifies the future impact of robotics technology on the economic, social, and security needs of the nation, outlines the various scientific and technological challenges, and documents required R&D to address these challenges1. The workshops, which focused on the healthcare market, were led by **Maja Mataric**, IEEE senior member and professor of **Computer Science, Neuroscience, and Pediatrics at University of Southern California**, **Allison M. Okamura**, IEEE senior member and professor of **Mechanical Engineering at Johns Hopkins University**, and **Henrik Christensen**, IEEE senior member and **KUKA Chair of Robotics at the College of Computing, Georgia Institute of Technology**. One topic the group focused on was how sensors and wearable devices will impact the future of healthcare.

- The group's roadmap includes the following projections:
- In five years, a variety of wearable devices should interface wirelessly with assistive robots.
- In 10 years, smaller-scale and lighter-weight wireless wearable sensors providing a range of physiologic data should be available to detect and classify, as well as to some degree, predict user physiologic state such as heart rate or blood oxygen or glucose level.
- In 15 years, off-the-shelf wireless physiologic sensing devices should be interoperable with computer- and robot-based coaching systems to facilitate bio-feedback and other forms of feedback to the user for facilitating sophisticated human-robot, and more generally, human-machine interaction.

"One of the most important factors driving the research and application of sensors and wearable devices is the worldwide aging population, which will rise dramatically in the next two decades," said **Henrik Christensen**, IEEE senior member. "There will be a huge demand for technologies that will help enhance this population's quality of life, in ways like allowing them to remain in their homes while still getting the care and monitoring they need."

ABI Research, a market intelligence company specializing in emerging technologies, predicts that by 2014, there will be 400 million wireless sensors in the market.

"These are very early days for wearable wireless sensors in the healthcare market, but a number of factors are coming together to support strong growth over the next five years," principal ABI analyst **Jonathan Collins** stated in a company press release earlier this year. "Technology and product development, wireless protocol standardization, and the potential already seen in sports and fitness monitoring will help drive investment in the healthcare market." (**Market for Wearable Wireless Sensors to Grow to More than 400 Million Devices by 2014**, July 2009)

IEEE member and director of the **Motion Analysis Laboratory at Spaulding Rehabilitation Hospital** in Boston, **Paolo Bonato** is one of the many IEEE members driving this innovation forward. Dr. Bonato and his team have been studying the use of wearable sensors to detect epileptic seizures, to assess motor recovery in stroke survivors, to detect exacerbation episodes in patients with chronic obstructive pulmonary disease, and to monitor many other clinical conditions. More recently, Dr. Bonato has done extensive work using wearable sensors to facilitate the titration of medications in patients suffering from late stage **Parkinson's** disease.

"The initial results presented in our study provide encouraging evidence for the potential of wearable sensors," commented Dr. Bonato. "Additionally, this research can be used as the foundation for wearable sensor research in a variety of other areas within healthcare such as monitoring chronic disease and rehabilitation – the end goal being better prevention, detection and treatment for all of the world's citizens."
Other members at the forefront of this initiative include:

- **Richard Jones**, IEEE member – detection, and possible prediction of microsleeps
- **Rosalind Picard**, IEEE Fellow and **Ming-Zher Poh**, IEEE graduate student member - sensor earphones and mobile applications for non-obtrusive health monitoring

If you are looking for resources and experts to provide insightful commentary about healthcare trends and topics, please contact IEEE at:

ieee-PR@ruderfinn.com.

Mobile Search of IEEE Xplore ® Digital Library Now Available

IEEE has launched its first mobile version of the **IEEE Xplore Digital Library**. You can now easily perform searches anywhere, anytime of over two million documents via any mobile device with Internet access. IEEE is actively searching for feedback of this new Beta service. Go to http://m.ieeexplore.ieee.org on any internet-enabled mobile device, try the new site, and provide your feedback via the link at the bottom of the Web page.

Using **IEEE Xplore® Mobile Beta**, users can conduct a basic search, display the top 10 results by relevancy, and view abstracts and citations. To view the full-text of an article, the user can email the link to any email address and, if they are a subscriber, view the article directly from the main IEEE Xplore Web site when they are on their personal computer. Non-subscribers can purchase the article or subscribe to the IEEE Xplore digital library.

Other enhancements will debut in 2010 based on feedback from the Beta users.

"The growing popularity of using mobile devices for Internet access was a key motivation driving the development of the mobile version," according to **Anthony Durniak**, **IEEE Publications Staff Director**. "IEEE Xplore users now conduct an average of 200,000 searches a day and in 2008 made an average of seven million downloads a month or 230,000 a day – up 60 percent from 2004. If we are to continue that kind of growth we need to be able to answer our user's questions wherever they are."

In the U.S. alone, use of mobile Internet access more than doubled between January 2008 and 2009, according to Internet market intelligence firm **ComScore**.

Another impetus for the mobile search option is the popularity of IEEE content. In recent studies by 1790 Analytics LLC, IEEE journals and conference proceedings received more than 117,000 patent citations — nearly 3.5 times the number of citations of any other publisher.

Two million engineers, scientists, students and other technology professionals worldwide have access to IEEE's 144 journals, transactions, and magazines through individual and institutional subscriptions. In 2008, a record number of authors contributed 171,000 articles – 82 percent more than in 2004. There are also more than 4,300 customer sites, worldwide, accessing IEEE electronic subscription packages -- three times more than just five years ago.

IEEE emeritbadges.org Launches Updated Web Site

The IEEE ***emeritbadges.org*** project has updated its web site, www.emeritbadges.org, featuring hands-on, pre-college technology educational materials for boys and girls. The updated site will feature information on the program's sponsorship of the **Electricity and Electronics Merit Badge** booths at the 2010 National Scout Jamboree, to be held from 26 July to 4 August, 2010, at Fort A.P. Hill, in Caroline County, Virginia.

IEEE emeritbadges.org, which volunteers have developed and run, provides instructional materials based on the Boys Scouts' Electricity and Electronics Merit Badge requirements. Materials are under development for the **Computer Merit Badge**. A team of emeritbadges.org Jamboree volunteers, recruited from across the United States and around the world, will teach Scouts the basics of electricity and electronics at the **2010 National Scout Jamboree**. Scouts also will learn about technical careers and build a microprocessor-based kit that they can take home. During the 10-day long-event, approximately 100 volunteers will be manning these two booths, using the emeritbadges.org-developed materials to help 1,500 to 2,000 boys learn about electrical fundamentals, simple electronic circuits and microprocessors. The course materials and tests reinforce and supplement the **Boy Scout Merit Badge Pamphlet** requirements and provide the necessary knowledge for the boys to earn these two badges.

Any student, boy or girl can use the program to enhance technical literacy and learn more about viable engineering and other technical career options.

Similar to its counterpart, **IEEE GirlsGoEngineering.org** mission is to energize girls toward careers in engineering, mathematics, and the physical sciences. A major component is a volunteer developed and run website, www.GirlsGoEngineering.org, which provides science and engineering career and instructional programs, activities, materials and web resources of interest to girls, educators, and adult leaders. Other planned activities include participation in Girl Scout events and similar organizations to enlighten girls about careers in science and engineering.

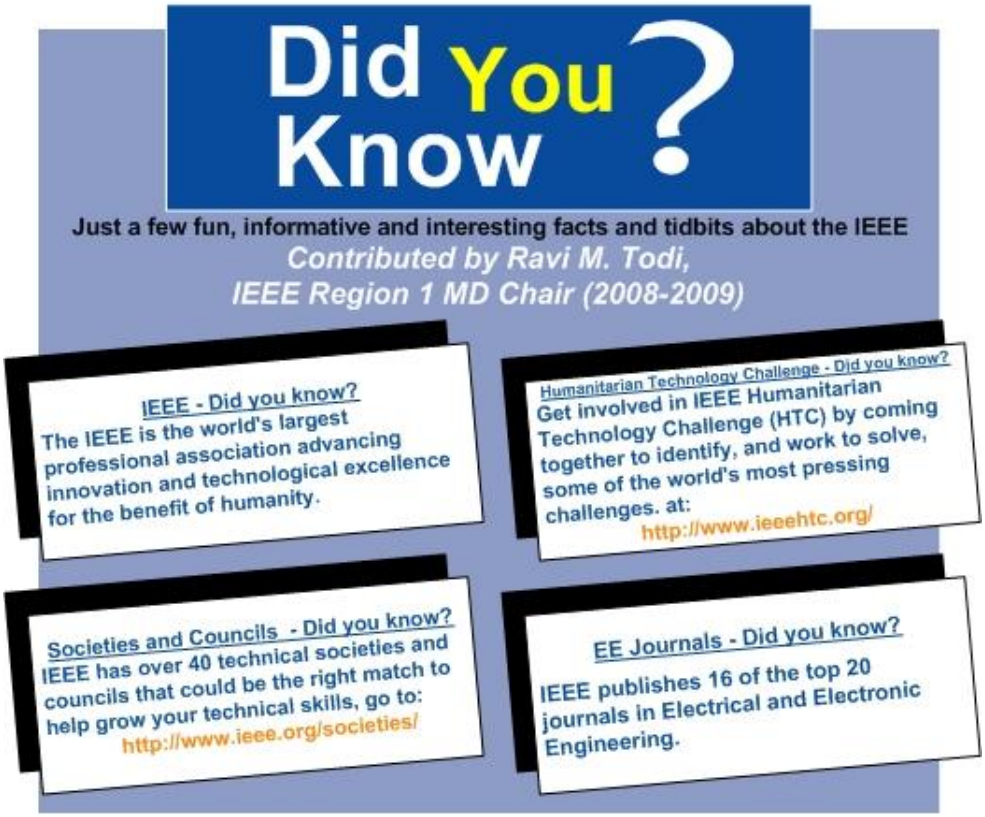
To foster an interest in the engineering profession, IEEE serves students, members and colleges around the world. IEEE realizes that high school student exposure to the accomplishments of engineers is critical to increase engineering enrollment significantly at the university level. Thus, the IEEE created and sponsors the **IEEE Scouting** program, primarily through the **Boy Scout** organization and local **Girl Scout** groups. The program is designed to reach pre-university students and educators to "enhance the level of technological literacy of pre-university educators and students worldwide."

Telephonics Corporation Receives Orders to Provide Wireless Intercommunications Systems for Air National Guard Fighter/Attack Aircraft Ground Operations

Telephonics Corporation announced that its Communication Systems Division received multiple awards from the United States Air Force (USAF) Air National Guard (ANG) for TruLink® Wireless Intercommunication Systems. Three ANG bases have ordered more than $250,000 of TruLink systems to support operations on A-10, F-15 and F-16 aircraft. The TruLink system is being used by ground operation teams to provide clear voice communications between team members and pilots, thereby enhancing safe and efficient maintenance, transport and turn-around of military Fighter/Attack aircraft.

Ground crew operations are critical to conducting successful missions by providing aircraft with services such as launch and recovery, towing, hot refueling, inspection and repair, avionics, hydraulic, and electrical servicing, fuel system overhaul and engine runs. Communication between ground crew members and pilots are conducted in very high noise environments. They have traditionally required hand signals or headsets tethered to the aircraft with long communication cords. TruLink enables the ground crew to move freely around the aircraft, un-tethered by restrictive cords, while maintaining clear voice communication in these high noise environment situations.

"We are pleased to have the opportunity to support the USAF ANG with wireless intercommunications that will enhance the operational safety and capability of missions that include ground operations", stated Phil Nicholas, President of the Telephonics Communication Systems Division. "The TruLink wireless voice communication system is widely used across the Army, Navy and Air Force to enhance the safety of our military personnel while undertaking dangerous and critical operational missions. With this latest order, we are able to extend our already strong market position in the field of secure wireless communications."



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