The *Pulse* of Long Island

November 1, 2004 - Vol. 54 No. 9

Chairman's Message

By Christian DiFranco
c.difranco@ieee.org

Each month I tell myself I'm going to devote this column to a topic other than economic policy as it pertains to the technology industry. However, in times such as these it seems impossible to ignore the events going on around us, the impact of which will be so great in the coming years. I hope this period in history will be remembered as a point where our nation realized that business as usual no longer applied in the world, and we began to make the changes necessary to sustain the strength and prosperity of America.

Many interesting articles regarding economic and technology policy have crossed my path over the last few weeks. The EE Times published an article about chip manufacturing startups in China, the number of which has increased to over 600. Although the future of these companies is unclear, it is clear that China is aggressively pursuing a piece of the high technology pie. US Biotechnology companies are now beginning to outsource some R&D overseas. Mexico is pursuing a full, open-border agreement with the US. India is planning on pursuing the same type of policy with the US, where American companies would have freedom to operate in India (India would roll back existing licensing and investment restrictions for US companies). Surely, there are many exciting opportunities abroad.

What have we done to strengthen high technology and the engineering profession at home? You may recall a column I wrote earlier this year discussing the proposed Federal R&D budget for 2005. As of this writing, the House Appropriations Committee has passed the budgets for NASA and the National Science Foundation, cutting funding for both. What is the future of long term R&D, manufacturing and high tech at home? Where are we without these things? What future does a nation hold that ceases to produce their own goods? On September 29, the CNN program "Lou Dobbs Tonight" aired the following quote by Thomas Jefferson: "Shall we make our own comforts or go without them at the will of a foreign nation? He, therefore, who is now against domestic manufacture must be for reducing us, either to dependence on that foreign nation or to be clothed in skins and to live like wild beasts in dens and caverns. I am not one of these."

Don't get me wrong. I have nothing against any of these other nations for pursuing growth and prosperity. Who among us would not do the same? Who among us would not like to see all people on earth enjoy a better life? All of us in the world would be better for it. However, I sometimes wonder if we are taking the right steps to secure our own future. If we are not, we can only blame ourselves. I do not hear any calls from the halls of our government to inspire young Americans to reach higher. Sadly, I have heard government officials on more than one occasion imply that Americans have become lazy and aren't interested in pursuing a career in technology. Boy, does that make my blood boil! Tell the people what we need to do and the people will rally. Show the next generation the value and reward for choosing a career in science and technology, and they will meet the challenge.

Best Regards,
Christian DiFranco, Chairman
(c.difranco@ieee.org)

The PULSE is now available on-line!

To get the on-line PULSE and get up-to-date information about the Section, visit our web site at: **www.IEEE.LI**

You can also register for IEEE LI Section events online at this web site!

Official Ballot - 2005
IEEE Long Island Section

Check the box next to name or enter the nominated candidate below:

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☐ ***Daniel Rogers*** ***Other*** _____

FIRST VICE CHAIR

☐ ***David Wolff*** ***Other*** _____

SECOND VICE CHAIR

☐ ***Ted Pappas*** ***Other***_____

SECRETARY

☐ ***TBD*** ***Other***_____

TREASURER

☐ ***Bill DeAgro*** ***Other***_____

****If you are interested in the position of Secretary, please contact Christian Di-Franco at c.difranco@ieee.org.***

*****In order to validate the nomination, the envelope must have the member's name and his/her membership number. Please send completed ballots to from now until December 1st, 2004 to:***

John Peterson
50 Dennis Street
Garden City Park, NY 11040-5043

The LONG ISLAND MUSEUM of SCIENCE and TECHNOLOGY

LIMSAT is now under construction in Mitchel Field's Museum Row next to the Cradle of Aviation Museum and IMAX Theater. When it is fully developed, Long Island will, at long last, have a world-class, "hands-on" science center comparable to those to be found in all the major cities of the world. Its principal purpose is to excite the imagination and curiosity of young people and to encourage their pursuit of science education and related careers.

LIMSAT invites all members of the technical professions to participate in its development. To learn more about this exciting project, please contact Dave Mesecher at d.mesecher@ieee.org.

Address All Correspondence to:
PULSE EDITOR
Babak Beheshti
101 Caffrey Avenue
Bethpage, NY 11714-1435
Phone: 516-939-0249
Email: b.beheshti@ieee.org

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The PULSE of Long Island
phone: (800) 678-IEEE
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PULSE Deadlines
For Dec. 2004 11-5-04
For Jan. 2005 12-5-04

IEEE Long Island Section Calendar

(No membership requirements, no registration, no fees at meeting unless otherwise noted.)

Please visit our website at www.IEEE.LI and click on the calendar for online registration (as available) and for listing updates

November 3, 2004 - LI Consultant's Network at 7:00 PM at Briarcliffe College. For more details see Announcement on page 4.

November 9, 2004 – IEEE Communications Society Long Island Chapter and the NY State Center for Excellence in Wireless and Information Technology (CEWIT) all-day conference on Advances in Wireless and Information Technology at the Crest Hollow Country Club, Woodbury, New York. Contact Dave Mesecher at d.mesecher@ieee.org for registration information.

November 15, 2004 – "Multi-Sensor Data Fusion", Dr. Pramod Varshney, Distinguished Lecturer of the AESS and IEEE Fellow. A lecture, sponsored by the IEEE AES Society, will be held at Telephonics Corporation, 815 Broadhollow Road (Route 110), Farmingdale, NY. Registration and refreshments at 6 PM and the lecture begins at 6:30 PM. The lecture is open to the public, but registration is required- see the announcement in this issue for details. For additional info, contact the lecture coordinator, Rich Pierro at rspierro@optonline.net or 516-628-3156.

November 29, 2004 - Long Island Section Executive Committee (ExCom) meeting at 6:00 PM, Telephonics Corp. on Route 110 in Farmingdale- This meeting is OPEN and FREE TO ALL IEEE members- Please contact Chris DiFranco for reserving a space in the meeting (c.difranco@ieee.org).

Dec 1, 2004 - LI Consultant's Network at 7:00 PM at Briarcliffe College. For more details see Announcement on page 4.

Dec 1, 2004 - "Voice Over IP (VOIP)" by Tushar Saxena of Verizon. A lecture, sponsored by the IEEE Communications Society, will be held at Telephonics Corporation, 815 Broadhollow Road (Route 110), Farmingdale, NY at 6:00 PM. The lecture is open to the public, but registration is required- see the announcement in this issue for details. For additional info, contact the lecture coordinator, Brian Quinn at brian.j.quinn@verizon.com.

December 6, 8, 2004 - "Microcontrollers and Embedded Systems Design Seminar" by Babak Beheshti. A seminar sponsored by the Computer Society. Location TBD in Farmingdale, NY 6:00—9:00 PM. See the announcement in this issue for details. For additional info, contact the lecture coordinator, Babak Beheshti at b.beheshti@ieee.org or 516-686-7437.

Dec 13, 2004 - "Trustworthy Software Systems " , by Larry Bernstein , 6:00 to 8:30 PM, located at Telephonics Corporation on Route 110 in Farmingdale, New York. Please register via internet in the computer society section of www.ieee.li. Contact Daniel Rogers, Computer Society Chair of the IEEE LIS for more info at drogers@ieee.org.

December 14, 2004 – 'The Legal Aspects of Regulatory Compliance", by Terry Mahn, Managing Principal of Fish and Richardson P.C.'s Washington D.C. office. A lecture sponsored by the Long Island IEEE EMC Society and Underwriters Laboratory will be held at Underwriters Laboratories Inc, Melville New York facility at 6:30 PM on Tuesday December 14, 2004. The facility is located at 1285 Walt Whitman Road, Melville just north of the LIE. Refreshments will be served beginning at 6:00 PM. The lecture is open to the public but registration is required. To register please visit the calendar page of the IEEE Long Island website, WWW.IEEE.LI, click on the registration link for the meeting and fill out the form. For additional info contact the lecture coordinator, Sandy Mazzola at santo.mazzola@baesystems.com or 631-262-8367.

December 20, 2004 - Long Island Section Executive Committee (ExCom) meeting at 6:00 PM, Telephonics Corp. on Route 110 in Farmingdale- This meeting is OPEN and FREE TO ALL IEEE members- Please contact Chris DiFranco for reserving a space in the meeting (c.difranco@ieee.org).

2005 January 26, MTT Lecture "Spectral Domain Techniques for RF System Analysis", at Telephonics in Farmingdale. Refreshments at 6:00 PM, Lecture at 6:30 PM. There is no cost for this lecture, but online registration is required at www.IEEE.LI. See announcement in this issue for details.

January 31, 2005 - Long Island Section Executive Committee (ExCom) meeting at 6:00 PM, Telephonics Corp. on Route 110 in Farmingdale- This meeting is OPEN and FREE TO ALL IEEE members- Please contact Daniel Rogers for reserving a space in the meeting (drogers@ieee.org).

MEETING NOTICE

On the **First Wednesday of each month** at 7 PM, the IEEE Consultants Network of Long Island will Meet. The program will be held at Briarcliffe College, 1055 Stewart Avenue, Bethpage, NY. Admission is free (no charge). No pre-registration is required. For last minute announcements and updates visit: **www.consult-li.com**

On Wednesday, Nov. 3, 2004 at 7 PM, the **IEEE Consultants Network of Long Island** will host a dual lecture, **"Optical Coatings"**, presented by Anthony Pirera of the Optical Society of Long Island and "The Unseen Universe" by Irwin Weitman of The IEEE Consultants Network of Long Island. The program will be held at at Briarcliffe College, 1055 Stewart Avenue, Bethpage, NY. Admission is free (no charge), and no pre-registration is required. For information, contact John Dunn at (516)378-2149.

The Long Island Chapter of IEEE Electromagnetic Compatibility Society is presenting a lecture titled:

The Legal Aspects of Regulatory Compliance

on Tuesday, December 14, 2004, 6:30 PM

WHO SHOULD ATTEND? Individuals concerned with the legal ramifications of regulatory compliance on a domestic and international basis.

SPEAKER: Terry Mahn, Managing Principal of Fish & Richardson P.C.'s Washington, DC office.

ABSTRACT: Legal issues involving domestic and international product standards development, harmonization, and compliance in the areas of EMC, electrical safety, RF emissions, telephony, and RF safety. FCC issues including equipment approvals.

LOCATION, TIME, AND REGISTRATION: The lecture will be held at Underwriters Laboratories Inc, Melville N.Y. facility at 6:30 PM on Tuesday December 14, 2004. The facility is located at 1285 Walt Whitman Road, just north of the LIE. Refreshments will be served beginning at 6:00 PM. If you wish to attend, you must register no later than 10 December. To register please visit the calendar page of the IEEE Long Island Website, WWW.IEEE.LI, click on the registration link for the meeting, and fill out the form.

A lecture, sponsored by the IEEE Communications Society

"Voice Over IP (VOIP)"

by Tushar Saxena of Verizon

TIME: Dec 1, 2004
PLACE: Telephonics Corporation, 815 Broadhollow Road (Route 110), Farmingdale, NY at 6:00 PM.

The lecture is open to the public, but registration is required- see the announcement in this issue for details.
For additional info, contact the lecture coordinator, Brian Quinn at brian.j.quinn@verizon.com.

Abstract:

In this talk, we will introduce VoiceWing, Verizon's first residential VoIP offering.

Voice over Internet Protocol, or VoIP, is a technology that allows you to make telephone calls using a broadband Internet connection instead of a regular (or analog) phone line. In the last decade, VoIP matured from a curiosity of the techno-geeks in university labs to a viable telecommunications technology that promised a low cost, feature-rich alternative to PSTN. Many small startup ventures rushed in to take VoIP's promise to the lay customer by offering innovative VoIP-based telephony services with unique new features, unheard of in the regular PSTN world.

However this year's rollout of VoIP-based products VoiceWing and CallVantage from telecom behemoths Verizon and AT&T marks a coming-of-age for telephony over the Internet.

In this talk, we will describe in technical detail how VoIP works, and then introduce VoiceWing. We will demonstrate the major attractions and features that make VoiceWing a unique telephone service. We will describe the major steps in developing a VoIP service, and offer insights on the regulatory, legal and technical hurdles that need to be overcome for a successful VoIP roll-out. We will also delve into some architectural and technical decisions underlying VoiceWing. We will share, from our experience, what a typical VoIP customer today is looking for, as well as the common complaints. On the flip side, we will describe the market forces that make it so difficult for a service provider to generate positive cash-flows with VoIP. Finally, we will present some key open issues that VoIP is still struggling with, and make an argument why it may be too early to predict PSTN's demise.

The Long Island Chapter of the IEEE Aerospace & Electronic Systems Society Presents:
(details Available on our website)

"MULTI-SENSOR DATA FUSION"

A Lecture by Dr. Pramod Varshney,
Distinguished Lecturer of the AESS and IEEE Fellow

Time: **Registration and Refreshments at 6 PM.**
Lecture at 6:30 – 8 PM.

Location: **Telephonics Corporation**
815 Broadhollow Road (Route 110)
Farmingdale, NY

Lecture Content:
Multisensor data fusion refers to the acquisition, processing and synergistic combination of information gathered by various knowledge sources and sensors to provide a better understanding of a phenomenon. It is a fascinating and rapidly evolving field that has generated a lot of excitement in the research and development community. These concepts are being applied to a wide variety of fields such as military command and control, robotics, image processing, air traffic control, medical diagnostics, pattern recognition, and environmental monitoring. This talk will present a brief overview of the field and will illustrate its potential by means of some examples. In addition, current research activity of my research group in the areas of distributed radar target detection and recognition, distributed sensor networks, image fusion, and visualization will be described.

Lecture Coordinator:
Rich Pierro, IEEE Long Island Section Aerospace & Electronic Systems Society Chapter Chairman.

Registration:
The lecture is free and open to the public, but registration is required. If you wish to attend, please register via the internet on the AESS web page of www.ieee.li. You may contact the coordinator, Rich Pierro, by e-mail at rspierro@optonline.net or by telephone at 516-628-3156. The lecture is wholly the responsibility of the IEEE Long Island Section and the speaker.

The IEEE Long Island Section Computer Society presents a seminar titled:

Trustworthy Software Systems

by: Larry Bernstein, IEEE Distinguished Visitor

Industry Research Professor, Stevens Institute of Technology
Monday, December 13 2004 6PM
At Telephonics in Farmingdale, NY.

HOW TO REGISTER: If you wish to attend, please register via internet in the computer society section of www.ieee.li.

Abstract:

Software system development is too often focused solely on schedule and cost. Sometimes performance and functional technical requirements become an issue. Rarely is trustworthiness considered. Not only must software designers consider how the software will perform they must account for consequences of failures. Trustworthiness encompasses this concern. Trustworthiness is a holistic property, encompassing security, safety and reliability. It is not sufficient to address only one or two of these diverse dimensions, nor is it sufficient to simply assemble components that are themselves trustworthy. Integrating the components and understanding how the trustworthiness dimensions interact is a challenge. Because of the increasing complexity and scope of software, its trustworthiness will become a dominant issue. It is unethical to produce software whose trustworthiness is unstated.

The seminar will be presented from 6:00 to 8:30 PM Monday, December 13, 2004 located at Telephonics Corporation on Route 110 in Farmingdale, New York. Refreshments will be provided. The seminar is free and open to all. If you wish to attend, please register via internet in the computer society section of www.ieee.li. You may contact the coordinator Daniel Rogers by email at drogers@ieee.org. The seminar is wholly the responsibility of IEEE Long Island Section and the speaker.

IEEE Long Island Section and the Computer Society Present

Microcontrollers and Embedded Systems Design Seminar

December 6,8 - 2004 6:00—9:00 PM

Overview

The Long Island Section of IEEE is presenting a two session (3 hours per session) training course "Microcontrollers and Embedded Systems Design Seminar".

Who Should Attend

This course is intended for individuals with a basic understanding of microprocessors. Familiarity with any particular microprocessor is not required. Example applications of microcontrollers, use of on and off chip peripherals, programming examples and real time considerations are discussed.

Key Benefits

- Learn the terminology and fundamental key concepts of any microprocessor based system
- Understand sufficient amount of the technology to be able to do further study on your own
- Understand what software and hardware tools are the minimum requirements for a successful development
- Be able to make trade-off decisions about a design before start of the project

Content

What you will learn: Review of fundamentals, focus on Intel 8051 Micro controller, registers, pin out, on-board peripherals(UART, Timers, A/Ds), ROM, RAM, EEPROM. Review of instruction set. Hardware design and interfacing, digital I/O: interfacing with switches, relays, and LEDs; analog I/O, design considerations. Design examples with software drivers. Interrupts and their role in real time applications. Basic concept of an interrupt. Interrupts in 8051, interrupt service routine setup and considerations. When to use interrupts. Background intensive implementations. Interrupt latency and priority. Software examples will be covered. Use of on-board peripherals: timers, and asynchronous serial communications. Sample programs and applications to interface to the RS-232 line. Where to use micro controllers: how to decide between strictly hardware solutions vs. Micro controllers in a product, system design cycle and its implications, where to use hardware peripherals vs. software implementation of it , software/hardware trade-off, future trends, concluding remarks.

Seminar Coordinator and Instructor

Professor Babak D. Beheshti is a faculty member in School of Engineering and Technology, New York Institute of Technology. He has thought many courses on the topic of microprocessors, and in his consulting activities he has many years of microcontroller based products and systems design experience.

Location and Times

The seminar will be given in Farmingdale, 6:00 to 9:00 PM. Registrants will be advised of the exact location and receive an acknowledgment by mail shortly after registration. The seminar is wholly the responsibility of IEEE LIS and the instructor. For further information contact Prof. Beheshti via email at b.beheshti@ieee.org or by phone at 516-686-7437.

Fees will be refunded in full if the seminar is canceled or the registrant cannot be accommodated due to capacity limitations. Other refunds will be considered.

Registration Fees

Payment if paid by	IEEE Member	Non-IEEE Member
November 25, 2004	$250	$300
December 5, 2004	$300	$350

Registration Form

Microcontrollers and Embedded Systems Design Seminar
Dec 2004

Make checks payable to "IEEE Long Island Section". Send form to Babak Beheshti, 101 Caffrey Avenue, Bethpage, NY 11714-1435

Name: _____

Address: _____

City and Zip: _____

Hphone: _____Bphone: _____

email: _____

Company: _____

Member #: _____ Grade: _____

Amount enclosed: __$_____

Professional Activities Report for September 2004

By: Irwin Weitman, P.E., PACE Chairman

If you are **Employed** or **Unemployed**, or a **Consultant** you can find very useful information, TIPS, and LINKS to IEEE-USA and other web sites that would be helpful to your career. ON the Long Island Section web site: www.ieee.li you can click on "Employment Assistance Committee" for good ideas.
This is an excerpt from a letter sent by IEEE-USA to the U.S. Congress last February. The wheels "**grind**" very slowly. The subject is Electric Transmission, Distribution to Improve Reliability, Prevent Future Black-outs.

WASHINGTON (19 February 2004) - The Administration and Congress should restore $26 million in funding for Department of Energy (DOE) base programs into research and development on electricity transmission and distribution in FY 2004, according to a coalition of energy organizations, industry leaders and experts coordinated by IEEE-USA.

Further, in an open letter to Congress and the Administration, the group urged identifying grid-related research as a clear national priority, warranting research funding "commensurate with the importance of the task of revitalizing the nation's power grid."

Despite growing recognition of the need for grid investment in the wake of August 2003's major American and Canadian blackout, final FY 2004 congressional budgetary actions resulted in an effective 33 percent cut in funding for DOE base research program related to the electric grid.

"The August blackout was a clarion call to increase, not decrease, investment in infrastructure and R&D to modernize and upgrade the power grid," IEEE-USA President John Steadman said. "The nation's economy and national security depends on a reliable and affordable supply of electricity to consumers and industry."

"Electricity reliability is critical to the nation's economy, security and sustenance of modern life," the coalition noted. Given the difficulties associated with expanding the grid using conventional approaches, it urged increased funding for "new technologies and control strategies that can increase the capacity of existing pathways."

According to IEEE-USA, necessary investments to assure reliability and avoid future blackouts requires not only the construction of additional power lines and generating plants, but also innovation and the development of new technologies and control strategies to improve system reliability.

You may contact me with questions or comments at i.weitman@ieee.org or (631)266-2651.

PACE:

Is working on a presenting a presentation that will be informative and useful to both employees and consultants careers. Watch this column for details.

Consultants Network:

The November 3, 2004 meeting will held in the Great Room, at Briarcliffe College at 7:00 PM. The speaker, Jerry Brown will present "Properties of Infra-Sound and ways to measure it". All are welcome and registration is not required.

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Ad

The Long Island Chapter of the IEEE Microwave Theory & Techniques Society is presenting a lecture titled:

Spectral Domain Techniques for RF System Analysis

Mr. Randy Rhea – Eagleware

(This seminar is free and all are invited. Appetizers/snacks/beverages will be served at 6:00 PM.)

Time: Wednesday, 2005 January 26 at 6:30 PM
Location: Telephonics Corporation , 815 Broad Hollow Road, Farmingdale.

Appetizers, snacks & beverages will be served starting at 6:00 PM, and the presentation will begin at 6:30 PM. (Please try to join us early and enjoy networking with your colleagues before the seminar begins.) The seminar is expected to last 60 -90 minutes. **The seminar is free and all are invited, however registration is required. Also photo ID is needed to enter the facility.**

Abstract:
RF system design often begins with a spreadsheet analysis of gain, noise and intermodulation characteristics. This approach is error prone because only the expected signal paths are analyzed, filtering effects on noise and intermodulation are difficult to consider, and data must be transferred among tools. Although time domain analysis is well proven, certain RF system characteristics are poorly managed using this approach. This lecture describes a spectral domain approach to RF system analysis that accurately estimates noise and intermodulation, and automatically identifies all spurious signals generated by conducted paths within the system. This technique is applicable in a variety of RF systems including receivers, transmitters, communication links, phase-locked loops, multiple-loop synthesizers, feed-forward amplifiers, non-linear amplifiers and signal control devices. The integration of spectral domain methods with circuit synthesis, circuit analysis and measured data is also illustrated.

Registration:
Registration is required, and is available online only. Please visit the calendar page of the IEEE Long Island Website http://www.ieee.li/calendar.htm, click on the registration link, and fill out the form.

Special Notice: If you own any of Randy Rhea's books, please bring them. Randy has graciously agreed to sign his books after the lecture!

30 YEARS AGO *By: Rod Lowman, Historian*

With two Mars rovers now crawling around the surface of Mars it is interesting to note that 30 years ago the Section jointly with the Aerospace and Electronic Systems Group invited Cary Spitzer of NASA to bring us up to date on the Viking Project which was to be the first soft lander on Mars. In fact, it was to be America's first scientific laboratory in another primary planet in our solar system.

As part of NASA's continuing planetary exploration program, Viking's mission was to conduct scientific investigations of the planet with special emphasis on the search for life. Sounds familiar, we are still searching.

With knowledge gained from the photographs from the flights of Mariner 2 in 1965, Mariner 6 and 7 in 1969 in their flyby on route to other missions and those of the orbital flights around Mars by Mariner 9 in1971 and 1972, NASA now planned an actual soft landing on the surface.

Cary Spitzer, from the Viking Program Office, described the 13 planned experiments: beginning with three on orbit, one during the atmospheric descent, 8 on the surface and the last resulting from careful analysis of radio and radio waves at specified times during the mission. He explained that to be sure of results, two flights were planned.

Cary, a graduate of the Virginia Polytechnic Institute in 1958 and with an MS in Management from George Washington University, was most enthusiastic about the plans for the mission. As well he should be for history shows that both flights were successful.

On July 20, 1976, Viking 1 landed in a desert like section near the equator; Viking 2 landed farther north on September 3, 1976. Both transmitted high quality close up photographs of the Martian surface. I feel certain that these results were most useful in planning the present Mars Missions. Although not mentioned specifically, I would guess that several L. I. Companies had equipment on those missions.

As you can see, the Long Island Section likes to keep you informed on what is going on in electronics around the world, or in this case around the solar system.

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P.O. Box 1331
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