



September 2004
(VOL 52, NO. 6)

The  **IEEE**

MONITOR

PUBLISHED BY THE NEW YORK SECTION OF THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS



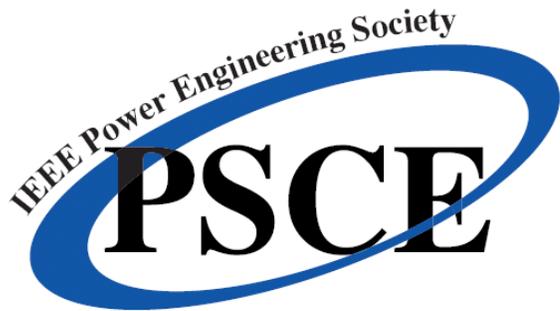
IEEE Lightwave Technologies in Instrumentation & Measurement Conference
October 19 & 20, 2004

Sponsored By

IEEE Metropolitan Sections Activities Council, IEEE Region 1*, IEEE Lasers & Electro-Optics Society, and the IEEE Instrumentation & Measurement Society

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**PERIODICAL
TIME SENSITIVE
MATERIAL**

Chairman's Column



Our Section needs volunteers to help with tasks such as planning meetings, creating newsletters and web pages, tracking finances and producing reports, etc. But recruiting and retaining volunteers is difficult.

According to one expert (“Volunteers: How to Get Them, How to Keep Them” by Helen Little; Panacea Press, Inc. Naperville IL., 1999), there are 12 basic needs that all volunteers share:

1. A specific manageable task with a beginning and an end.

Have a job description available so you can let your potential volunteer know exactly what they are being asked to do and approximately how much of their time it will take. If you wait for people to offer their services, it may not happen, so ask them! You will get best results with a one-on-one contact. Don't limit yourself to friends and current volunteers. Refer to resources such as meeting attendance sheets and results of interest surveys.

2. A task that matches the interests and reasons for volunteering.

Individual motives for volunteering are varied. Motives can include fulfilling social needs, looking for a challenge, self-improvement, or even being bored with the line-up of programs on television. Try to identify their interests and find the tasks that satisfy them.

3. A good reason for doing the task.

A task is more likely to be completed and on time when your volunteers know that their contribution is important and that others are counting on them. So let them know the importance of what they are doing and how the job fits into the Section's goals

and organization. And be sure to let them know that they were selected because they are the best people for the job.

3. Written instructions.

Written instructions can be helpful for both recruiting volunteers and retaining new volunteers. If you have a simply written job description available when you approach someone to invite him or her to volunteer, he or she may be more likely to agree if they have a clear idea of what they are being asked to do.

4. A reasonable deadline for doing the task.

It is important to set a specific due date, or end date, when assigning a job to a volunteer. This allows the individual to prioritize volunteer work with other commitments. It also lets them know that the job will eventually end.

5. Freedom to complete the task when and where it is most convenient for the volunteer.
6. Everything necessary to complete the task without interruption.
7. Adequate training.
8. A safe, comfortable, and friendly working environment.
9. Follow-up to see that the task is completed.
10. An opportunity to provide feedback when the task is finished.
11. Appreciation, recognition, and rewards that match the reasons for volunteering.

The success of our mission at IEEE is dependent on the many volunteers that help us. If you recruit volunteers, then you should apply these principles to help you. If you are a volunteer, or are thinking about becoming one, than you should expect your needs to be addressed.

Get involved, be involved and stay involved!

Sincerely,
Benjamin Schall

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Postmaster: Send Address change and returns to the IEEE MONITOR, c/o Membership Services, IEEE Service Center, PO Box 1331, Piscataway, NJ 08855 (ISSN 0164-9205)
Published monthly, except for June, July and August, by the New York Section of the Institute of Electrical and Electronics Engineers, Inc., c/o Michael A. Miller, Con Edison room 1208. Phone (212) 460-4911, Fax (646) 654-3083. IEEE Corporate Office, 3 Park Avenue, 17th Floor, New York, NY 10016-5997
Annual subscription: \$4.00 per member per year (included in annual dues) for each member of the New York Section: \$10.00 per year for non-IEEE members
All communications concerning The IEEE MONITOR should be addressed to: The IEEE MONITOR, c/o Michael A. Miller, Con Edison room 1208, 4 Irving Place, NY, NY 10003 or e-mail: MillerM@ConEd.Com
Responsibility for contents of articles, papers, abstracts, etc. published herein rests entirely with the authors, not the editor, Publication committee, IEEE or its members.
Periodicals Postage Paid at New York, NY and additional mailing offices.

RECRUITING AND RETAINING VOLUNTEERS, PART VIII

What volunteers need: “the freedom to complete the task when and where it is most convenient for the volunteer*.”

IEEE Section meeting statistics show that 21.8% of Section meetings in 2003 were administrative. While administrative meetings are important for the optimum running of a Section, it should be kept in mind that if they are always held in the same place and same time, it might exclude some potential volunteers. Those that travel for their jobs, have family commitments, or long commutes may need more flexibility in time and location of their volunteer responsibilities.

What can you do? Ask your potential volunteers if they prefer to work alone or in a group and then assign tasks accordingly. Try to avoid time-consuming and wasteful meetings. Make use of conference calls and communication technologies. Limit conference calls to one hour. If you will be meeting in person, poll your volunteers to see what time and location is best for that particular group.

Section “tried and true solutions”: in 2002, the IEEE Binghamton Section officers found that worked best for their group at that time was to hold evening meetings for the Section committee, sometimes at a local restaurant. Topics are discussed and decisions made at a high level, with details worked out at breakfast meetings with the people who were working on the particular projects. The Huntsville Section has found that lunchtime meetings work best for them.

(*from “Volunteers: How to Get Them, How to Keep Them” by Helen Little; page 47, Panacea Press, Inc. Naperville IL., 1999

Editorial – Your Vote Counts !

America needs a leader who will address the pressing needs of the engineering profession, their families, and especially jobs. We have become entangled in a war that seems to have no end. A war brought on by deception and false information. A war that draws the resources we need for protection. We have suffered for many years with tax cuts for the wealthy and rewarded corporations for taking American engineering jobs overseas. It is time for those who built this country to take it back. A nation that doesn't work for all its citizens no longer deserves to be called the land of opportunity. Engineers and their families need the support of a President who values their contribution to American society. Now is the time to stand together to fight for job creation, address the issue of health care, drug costs, and education. We need balanced economic policies that safeguard for our seniors. Insuring the election of a social and environmentally conscious president is of the highest priority. The damage that has been done by increasing the national dept puts our social security and life fabric at grave risk. Outsourcing of American engineering and manufacturing jobs and the falling enrollment of engineering students will leave this country strapped in the future. In all these areas: jobs, healthcare, education, employment, income, national security, international relations - are we better off today than 4 years ago?

Professional Activities Information Page

This page dedicated to member professional activities information

I hope you all had an enjoyable summer and had some time to relax. It's time to start our section programs again and resume our IEEE business that of providing the New York Section members support and programs for their professional career. The PACE Network is a function of IEEE-USA. The Professional Activities Committees for Engineers (PACE) is a grassroots network of IEEE volunteers and committees organized at the section and chapter level in the US with support from regions and IEEE-USA. The network promotes the professional interests of IEEE's US members and provides a mechanism for communication of member's views on professional needs.

PACE activities include the following:

Career Enhancement, including continuing education, professional development, professional training and career maintenance;

Employment Assistance including resources for career transition and seeking employment;

Government Relations including position papers on issues affecting IEEE members, Congressional activity by staff members in Wash, DC and supporting Congressional Visit Days by IEEE members;

Member Professional Activities

Conferences; Pre-Education Projects;

Student Professional Awareness

Conferences.

Peter Greco PACE Chairman

Tel.: 212-614-3357 Fax: 212-529 5237

email: p.j.greco@ieee.org

Calendar of Upcoming Events: The following are proposed Section activities. Dates and locations will be announced in future issues when they become available.
September 8: General Meeting
October 13: General Meeting
October TBD: Financial Seminar
November 10 General meeting

IEEE-USA EMPLOYMENT ASSISTANCE

IEEE-USA's Job Service Site:

<http://jobs.ieeeusa.org/jobs/services/>
The IEEE-USA's Job Service Web Site brings together number of job-search resources in a single location. The site includes the following:

IEEE Job Site: This highly rated job listing service was replaced by a new internet-based job site, and is sponsored by IEEE-USA and IEEE Spectrum. The site allows the active and passive job seeker more control over the recruiting process. For more details go to: www.ieee.org/jobs

IEEE-USA's New Resume Referral Service:

Put your resume for maximum exposure! IEEE-USA in cooperation with Resume-Link has established a members-only Resume Referral Service which IEEE members may register, FREE of charge via web registration or by hard copy. Your resume will stay on file for six months (with an option to renew the listing up to a year). For hard copy registration forms, contact Resume-Link at 614-923-0600 or [<socmember@resume-link.com>](mailto:socmember@resume-link.com).

How The Pros Do It: 10 Tips for Smart Investing

by



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- 1. Develop a good source of financial advice and information.** Investing is not an art; it is a science born of considerable research and historical trends analyzed over a long period of time. The firms that do their homework typically have the most consistent long-term performance records.
- 2. Determine your risk tolerance.** Only when you identify how comfortable you are with taking investment risks, can you make smart, informed decisions about your portfolio. A financial consultant can help you with that process.
- 3. Diversify your holdings.** Not all types of investments, markets and industries perform in tandem with one another. Diversifying your assets among several types of investments, rather than just one or two, may help you reduce the risk inherent in any investment portfolio.
- 4. Set reasonable expectations for return on your investments.** In the current market environment, earning have been greatly reduced from the historical 10%+ high.
- 5. Invest in quality securities.** Stay with solid companies that have stood the test of time. They generally do well during periods of market strength, and recover more quickly after periods of market weakness.
- 6. Never let a low price per share be your only reason to buy a particular stock.** The one or two low-priced stocks that jump significantly in a year are overwhelming exceptions.
- 7. Before investing, designate funds for short-term and long-term use.** Don't invest money you need to keep liquid; otherwise you may be forced to sell out of an interim dip in the market. Remember, investing is a long-term process. Real money is made over years, not months.
- 8. Allow dividends to compound over time.** The income you earn from stock dividends can add up over the years. Brokerage firms often offer free dividend reinvestment programs that use a company's dividends to purchase more shares of the underlying stock. Ask your financial consultant how you can participate.
- 9. Learn all you can about companies in which you invest.** Read the annual reports and earnings summaries you should receive as a stockholder. And ask your financial consultant about current company research. The better an understanding you have of a company's strategic focus and business direction, the less you'll be swayed by fluctuations in its stock price.
- 10. Live within your means.** Americans are saving less and less, and spending more. Keep your spending habits within the limits of your income and invest wisely for the future by maximizing your contribution to your retirement plan at work



Wilson M. Miliam

This month the Monitor is featuring Wilson M. Milian, Computer Society Chair. Wilson has taken a down-trodden half alive group and with inspiring leadership and hard work created a viable organization much to his credit. Ever since the height of the dot COM era and its downfall not many have ventured into these sacred grounds. Perhaps Wilson is a visionary of things to come, especially with the public offering of GOOGLE, scheduled to make it another multi-billion dollar capitalized entity.

Mr. Milian's career reads like the hard worker he is: Over 16 years of project management experience in large, complex and new technology projects with new signal systems and software development. Wilson's education includes an MBA in General Management from Dowling College and a BSEE from New York Institute of Technology. Wilson is a Software Engineering Institute (SEI) Certified SCE Evaluator and is SEI certified in CMM Methodology. His expertise is in Software Engineering Best Practices, EMI, Fiber Optic Design Oracle 8, 8i, Dbase, MS-Access, C++, Visual Basic, Linux, Novell Netware, and Windows NT among others.

Wilson has passed part I of the NY Professional Engineer Exam and is currently pursuing part II for his PE License.

Currently, Wilson is a Computer Specialist, level III, at NYCT where he serves as a

Software Project Manager for the Intelligent Transportation Systems group, where he is responsible for acquisition, testing and acceptance of the software systems for the Communication Based Train Control (CBTC) Project. As a Lead Software Engineer he has directed software teams in conducting factory acceptance testing for software functionality and reliability at the contractors facilities. He was responsible for maintaining the configuration management and version control and supervised installation and Site Acceptance Testing at NYCT field locations where he investigated system timing, availability and maintainability problems. He is responsible for the review and acceptance of all Software documents and deliverables.

In another life he was a Systems Manager responsible for designing and building an MIS system using a centralized database on a LAN for five NYCT offices to track project data and budgets. This and being the Network Administrator for a Token Ring Network serving sixty users proved to be a full time job. He also supervised technical staff members in the operation and maintenance of the LAN and PBX systems. He was responsible for recommending hardware and software equipment and applications and writing technical contract specifications. He is experienced in risk management, quality assurance and construction safety monitoring and reporting systems. He brings all of this experience to the Computer Society.

Among his many hobbies, Wilson is avid amateur astronomer and volunteers for a local community group. He enjoys traveling with his wife and two children.

AC Versus DC and the Triumph of AC

By Melvin I. Olken - Historian

The basic problem of power distribution by low-voltage direct current was dictated by power as the product of EI and power loss as I^2R . Since customer voltage was fixed, there was no opportunity to reduce the line losses by raising the voltage. The reduction of resistance (R) required a major investment in copper conductors and was also not a viable option.

On the other hand, in an ac system, transformers could be used raise the transmission voltage and reduce the line current, lowering the line loss. At or near the customer's premises, using other transformers, the voltage supplied to the customer could be that required by the load.

Gaulard and Gibbs demonstrated an ac power system using transformers in London in 1881, and George Westinghouse acquired the US rights in 1885. However, there was a problem in the Gaulard and Gibbs application; they placed the primary windings of several transformers, feeding a group of incandescent lamps in series across the transmission line. Hence, the voltage at the loads varied erratically as the lamps were connected to or disconnected from the transformers. William Stanley made the first American application of alternating current at Great Barrington, Massachusetts in 1886.

He placed the primary windings in parallel across the transmission line, avoiding voltage changes, and his installation was an immediate success. That same year, the Westinghouse Electric and Manufacturing Company was founded and it sold several ac lighting plants.

Thomas Edison could have taken a position in ac power distribution, for in 1886 his company secured an option on the patents of a Hungarian transformer design. But Edison was so firmly against ac that he persuaded his companies to drop the option. It seems odd that Edison worked so hard to develop a high resistance lamp filament to reduce line losses, and contrarily resisted so strongly the ac method by which line losses could be reduced.



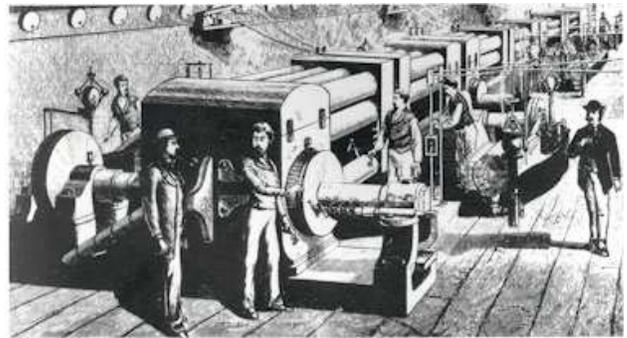
George Westinghouse (1846-1914)

Following the initial Westinghouse successes, the Edison companies recognized that they had serious

competition. Their problems were accentuated in 1887 when a syndicate cornered the world supply of copper leading to a doubling of the price of that commodity. Also, the small size of dc generating stations resulted in higher costs.

In 1888, the Edison companies went on the offensive. They emphasized the advantages of dc over ac as the following:

- 1) Greater reliability, since generators could operate in parallel, a method not then worked out for ac.
- 2) Lack of an energy meter for ac.
- 3) Lack of an ac motor.
- 4) The suitability of dc for electroplating and battery charging.
- 5) The "absolute" safety of the low voltage dc systems; the higher ac voltages would "kill a horse."



Dynamo Room at Pearl Street DC Station
(Artists sketch)

The lack of an energy consumption meter meant ac stations had to be larger in generating capacity, as ac customers paid by the lamp and had no need to turn them off. However, in 1888, a magnetic disc meter was developed by Westinghouse that was superior to Edison's electrolyte dc meter. Thus was eliminated one Edison argument.

Also in 1888, a polyphase ac motor was patented and described before the AIEE by Nicola Tesla, a recent Serbian émigré.



Nicola Tesla (1856-1943)

In that same year, Westinghouse purchased the patents and hired Tesla. Although it took until 1892 to solve some of the problems of the induction motor and to develop the two or three phase system for distribution of ac power, the promise of an ultimate solution removed the second major argument of the dc proponents. The motor

problems were solved by a Westinghouse team, which led to the evolution of the squirrel-cage design.

Tesla's AC induction motor (1888)



Then the Edison interests focused on the fifth argument, safety. One Harold Brown, a self-taught engineer, appeared on the scene as a dc advocate. (It now appears that Edison people aided him.) Brown made many appearances before legislative bodies in support of dc and described ac as "no adjective less forcible than damnable." Edison personally stated that he wanted to entirely prohibit alternating voltages of more than 300V. He felt that the hazards associated with ac were such that the increased costs of land and conductors in the dc system were worth the expense. Harold Brown demonstrated the lethal nature of ac by publicly killing animals. Brown was also instrumental in having New York State adopt ac electrocution as its method of capital punishment. The first electrocution used an alternator with poor voltage regulation, an event that seems to have been a rather grisly affair.

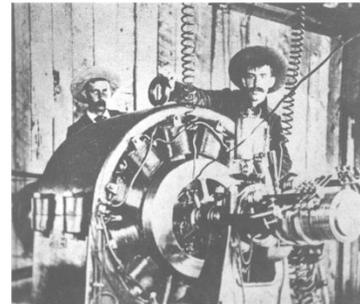


Thomas Edison (1847-1931)

At Telluride, Colorado, the gold mining industry was to be shut down due to the depletion of cheap steam power. All timber in the area had been cut for fuel and mining timbers. DC electric power and other forms of power transmission had proven to be ineffective for the 2.6 mile distance of transmission. AC power was judged to be the only workable solution to the economic problems of the mining industry.

The Ames Hydroelectric Plant was built during the fight between Westinghouse and Edison as to the use of ac or dc electric power. In the summer of 1890 a generator and a motor were received from the Westinghouse Company and installed. The generator for the power plant, and the motor for the mill, were identical single-phase alternators of 100 horsepower operated at 3,000 volts, 133 cycles per second - the

largest manufactured at the time. The separately-excited generator was housed in a rough cabin and was belt-connected to a six-foot Pelton water wheel under a 320-foot head.



Ames Generator (ca 1890)

The transmission line was three miles long from the valley floor to the mine above the timberline. It was constructed of Western Union cross-arms with insulators carrying two No. 3 bare copper wires. The cost of the wire was about US\$700, being only 1 % of the cost estimated for a direct-current line.

The Ames Station was designated an IEEE Milestone in 1998.



Ames Power Line (ca 1890)

The age of ac transmission had arrived. In 1892, Edison merged his companies with the Thomson-Houston Company to form the General Electric Company, based in Schenectady, New York, which actively entered the competition for ac business. Even though he was named a director of the combined company, Edison's interest waned and, from that time on he exercised little influence in the electric power field.

VTS Technology Sharing Forum: PATH's Lower Manhattan Renewal Program and Radio Interferences in Communications Based Train Control

The April 29, 2003, Technology Sharing Forum presented by the New York Chapter of the IEEE Vehicular Technology Society (VTS) covered the Rebuilding of the World Trade Center Site by the Port Authority of New York and New Jersey and Communications Based Train Control. The Forum was hosted by Cisco Systems, at their Penn Plaza offices in Manhattan, New York.



Jack Buchsbaum, PANYNJ, Left
Ramdane Benferhat, VTS Vice-Chair, Right

The events of 9/11 and the immediate effect on the World Trade Center (WTC) site and the Lower Manhattan transportation network are well known. The situation today is one that is much improved with the full restoration of Port Authority Trans Hudson (PATH) service. How this was accomplished in a short 21 month time frame, as well as the ambitious plans for the redevelopment of the site from a commercial, cultural and transportation network viewpoint was the topic of the presentation by Jack Buchsbaum, P.E., Chief Electrical Engineer for the Port Authority of New York & New Jersey (PANYNJ). He started the presentation with an overview of the events after September 2001. One week after the attack, the planning for restoration of PATH services started and covered the WTC site, Exchange Place station, and the Hudson River Tunnels. A Master Plan was developed, which was approved two months later by the PANYNJ Board at a cost of \$566 million. Work begun in March 2002, and the temporary PATH station at the WTC site opened in June 2003. In addition, it covered the renovation at Exchange Place, with extended platforms for longer trains, and rehabilitation of the entire Hudson River Tunnel, which was rebuilt from the

ground up. Jack Buchsbaum presented a detailed look of the temporary PATH station. Most of what is built in this station will be replaced; only the track and a permanent substation are in their final location. The permanent PATH Terminal will be completed by 2006 and was designed by Santiago Calatravo. It will feature seamless pedestrian connections to the World Financial Center and the Metropolitan Transportation Authority's proposed Fulton Street Transit Center. Lower Manhattan residents, commuters, and visitors will enjoy far faster access to ferry service along the Hudson River, and to 14 Lower Manhattan subway lines. The size of the new terminal will be equal to New York's Grand Central Terminal Station, but will have a unique oval design. The load of the structure will be three times higher than the highest load of the World Trade Center structure. The roof can be opened and closed and represents the wings of a bird. The wing height is 150ft and the floor level will be 60ft below ground.



Dr. Alan Rumsey, Parsons, Right
David Horn, VTS-Chair, Left

The second presentation of the evening by Dr. Alan Rumsey and Mike Fitzmaurice of Parsons Transportation Group discussed the approach taken for Radio Frequency Communications for Communications Based Train Control Systems (CBTC) as employed by New York City Transit (NYCT). Since the start of work on NYCT's Canarsie Line CBTC project, it has become apparent that one of the critical technology elements of any CBTC system is the manner in which radio communications between the wayside and the vehicle is implemented. This wireless link

simultaneously represents one of the CBTC system's greatest strengths and vulnerability. It is the wireless link that permits the communications between train and wayside which underpins the entire concept of CBTC and defines much of the interoperability requirements that will yield further benefits. Yet this same link is the avenue by which extraneous radio interference might present a problem that could limit the system's usefulness.

Dr. Rumsey presented an overview on the history of rail signaling over the last 100 years. While numerous mass transit systems have employed new generation signaling systems, NYCT is just starting to employ the latest generation of Train Control. The CBTC system uses radio communication to continuously locate the train, and it can shorten headways for trains and travel time for passengers. It also reduces a lot of track-mounted hardware. The new trains on NYCT's L line are equipped with CBTC and the first sections will be in service by the end of 2004. This system uses a 2.4 GHz Spread Spectrum radio signal. Future systems, however, such as that proposed for NYCT's Flushing Line, will use a private licensed band or a 5.4 GHz system. Mike Fitzmaurice reviewed the influence of outside RF sources on the radio transmission. He concluded that external interferences, such as Microwave ovens, WiFi Hotspots, and other radio sources are

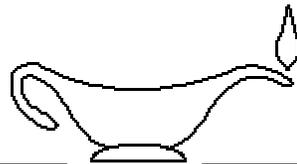
not able to affect the system. This was proven by practical tests in the subway.

For their efforts in fostering Technology Sharing the NY Chapter of the VTS presented Jack Buchsbaum of the Port Authority of New York & New Jersey and Dr. Allan Rumsey and Mike Fitzmaurice of Parsons Transportation Group with Technology Sharing Awards.



Mike Fitzmaurice, Parsons, Right
David Horn, VTS-Chair, Left

By:
Joern Fellenberg
Secretary NY-Chapter
Vehicular Technology Society



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Saturday, October 30, 2004 for the Fundamentals of Engineering exam
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Vehicular Technology Society October 14th Technology-Sharing Forum

Join the NY Section of the VTS presenting

Radio Frequency Identification

By Howard Lock of Cisco

&

Vehicle Telematics Applications

By Ralf Hug of Mercedes Benz USA

**October 14th, 2004, 6:00 to 8:00 PM
Refreshments and Registration: 5:30PM**

**Hosted by: Cisco Systems, Inc. 5th Floor
One Penn Plaza, New York City**

The presentation by Howard Lock will focus on a new technology to revolutionize supply chain operations, logistics, healthcare, education, consumer goods, national defense, and a host of other industries, including Transportation. Radio Frequency Identification technology can be utilized beyond asset tracking to enhance security and protect transportation assets such as airports, rail, and seaports. By 2010 it will surpass use of UPC or bar-code technologies.

Ralf Hug will present an insight into today's and future suite of safety, communication and entertainment systems for vehicles. He will cover innovative Telematics systems such as Tele Aid, Hands-free Communication System, Satellite Radio, and other new technology systems.

Advance registration is required for admission.

There is a \$35.00 charge for the forum and refreshments, Checks Payable to IEEE NY Section Registration

Mail to Mr. Chris Pacher

LTK

335 Adams Street, Suite 2702

Brooklyn, NY 11201

Online at <http://www.ieee.org/vtsny>

IEEE Members and non-members may register for the October forum.

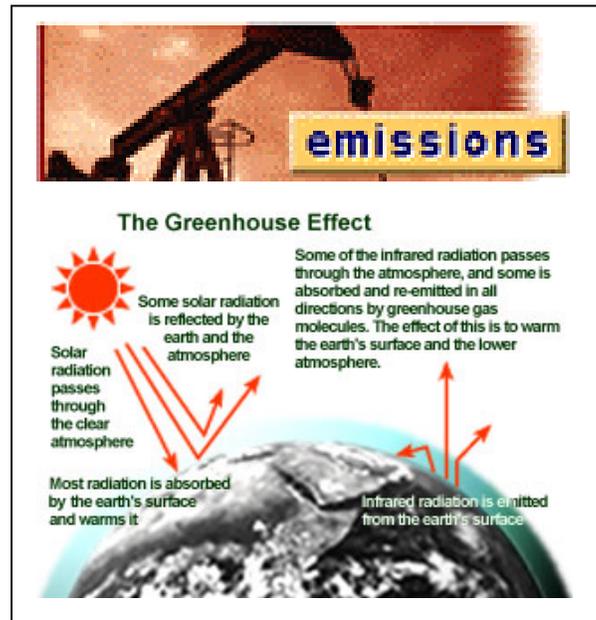
If you are an IEEE member, please provide your membership number.

Program specifics and directions:

Online at the VTS NY Website, or

Contact Mr. Joern Fellenberg at 212-672-4052, joern.fellenberg@ieee.org.

Innovative Student Poster Contest Sponsored by Local Chapter at the 2004 Power Systems Conference & Exposition



The New York/Long Island Chapter of the IEEE Power Engineering Society (PES) is proud to sponsor a new/first-time IEEE Student Member event at the inaugural IEEE Power Systems Conference and Exhibition (PSCE).

Put your creativity to work and enter the ***“Engineering Solutions to Global Warming”*** Poster Contest. No papers to write, but you do have to deliver a message. In doing so, you will increase knowledge of the global effects of emissions, how to produce, conserve, and use energy wisely.

WHAT? Design and produce an illustrated poster no larger than 22x28” that delivers a clear and positive message about an engineering solution to global warming.

WHEN? Your registration form must arrive by Friday October 1, 2004. Posters can be brought with you to display in a clearly designated area at the Poster Session and Reception on Monday October 11, 2004, beginning at 4:30pm.

HOW? Posters must incorporate creative and original artwork and ideas. You are encouraged to be creative and use media over and above computer-generated material.

WHY? The winner receives a prize of \$100 and free IEEE Student Member pre-registration for PSCE 2004.

WHO? Any Student Member of IEEE who is registered for PSCE.

JUDGING: Posters will be judged by local IEEE New York/Long Island Section members on their artistry, creativity, originality, their ability to communicate a clear and positive message, and their compliance with the criteria listed in the Poster Contest Guidelines. The winner will be announced at the PSCE IEEE Student Member Luncheon on Wednesday, October 13, 2004.

**Dr. Nabil Ghaly, P.E., Presented
The Communication Based Train Control Project:
A System Engineering Overview.**

Tuesday, May 11, 2004, Con Edison, Irving Place, New York. IEEE Senior Member Dr. Nabil Ghaly, P.E., a recognized leader in the field of railroad signal and systems engineering, presented the essentials of state-of-the-art Communication-Based Train-Control (CBTC) to a full complement of highly interested engineers and computer professionals.

The well-attended and enthusiastically-received May 11 presentation took place at Con Edison's Irving Place facility, a frequent venue for Computer Society events. (The New York Chapter of IEEE/CS thanks ConEd for its continued support of such events.) As Chief Program Manager of the Signals and Systems Department at MTA/New York City Transit, Dr. Ghaly is leading the effort to develop and implement a new CBTC system for the Canarsie subway line. The Canarsie project is the first of several projected CBTC projects wherein the CBTC technology will comprise both safety-critical (a.k.a. vital) hardware/firmware/software and such non-vital supervisory components as Automatic Train Supervision (ATS) – all working together as an integrated whole.

CBTC is a complex system involving the development of new hardware and software components that provide greater safety and service for millions of subway riders in New York City, by providing (among other things) constant speed monitoring and control, as well as safe and efficient spacing between trains -- thus increasing service to riders by allowing more trains per unit time to run on the line. Wireless digital communication between trains and between trains and the wayside is the technology that enables trains to 1. determine their own locations, and 2. control their own speed; the trains are thus 'intelligent.'

Dr. Ghaly's rich presentation included an overview of CBTC architecture, including the Wayside, the Carborne systems, the data-communication system, and the Automatic Train Supervision components. He also listed and explained CBTC's key design-concepts. Since both CBTC-based trains and conventional trains will be operating, Dr. Ghaly described the possible post-CBTC-deployment operating modes of the Canarsie Line. He also contrasted the new Digital aspects of the technology with the conventional analog track-circuit characteristics, and gave considerable attention to the vital, i.e. safety-critical, aspects of CBTC.

As the meeting-room was filled to capacity, the predictably lively Question-and-Answer session followed Dr. Ghaly's presentation.

IEEE/CS recognized Dr. Ghaly with an award-plaque that reads:



**Award of Merit
Presented to**

Dr. Nabil N. Ghaly, P.E.

In recognition of his service to, and support of, the IEEE Computer Society in its mission to enhance the technical leadership and services provided to the world's computing professionals.

From

The New York Chapter of the IEEE Computer Society

Region 1

May 2004

Dr. Ghaly has in the past chaired the IEEE Rail Transit Vehicle Interface Standards Working Group on interoperability of wayside and carborne systems, and in 2001 was named Engineer of the Year by the NY Chapter of the IEEE Vehicular Technology Society.

Calendar of Upcoming Events

September 23, 2004 (Thursday) – Insurance and the Independent Consultant – Operating without a corporate or employer’s umbrella. Engineers from the Consultants Network of Northern NH will speak on their experiences, 7:30 PM, Aeroflex, KDI-Integrated Products, 60 S. Jefferson Road, Whippany, NJ, entrance at rear of building. For directions / status call Robert Walker, 973-728-0344 or www.TechnologyOnTap.Org, everyone welcome, no registration needed, free admission.

October 2004 – The nominations committee of the IEEE New York Section and the PES / IAS New York and Long Island Chapter are seeking nominations for officers. The election is scheduled for November 2004 and a slate of officers for election will be posted in the next issue.

October 14, 2004 (Thursday) IEEE New York Section – Vehicular Technology Society Sharing Forum: Radio Frequency Identification by Howard Lock of Cisco & Vehicle Telematics Applications by Ralf Hug of Mercedes Benz, 6 to 8 p.m. at Cisco Systems, Inc. 5th floor, One Penn Plaza, contact Joern Fellenberg at 212-672-4052, joern.fellenberg@ieee.org see flyer page 11.

October 10-13, 2004 (Sunday – Wednesday) IEEE PES Power Systems Conference & Exposition at the Grand Hyatt Hotel, New York, NY → See Page 16, back cover for details.

October 19 & 20, 2004 (Tuesday & Wednesday) IEEE Lightwave Technologies in Instrumentation & Measurement Conference, IBM Palisades Executive Conference Center.

The following New York Section members have been elevated to Senior Member.

April: Xiaodong Wang and Babak Ardekani
 May: Ching-Yung Lin
 June: Daniel P.W. Ellis and Haifei Li

The Society of Women Engineer’s – Engineering Awareness Day Speaker – Darlene E. Rivera, P. E. (Our Chairperson)

The Best Part of Being an Engineer

- Understanding how things work and learning from a team of people who have different areas of expertise.
- As a women engineer, becoming involved in professional societies that encourage women in the field of technology (Society of Women Engineers, Women Transportation Seminars, Institute of Electrical and Electronic Engineers-Women in Engineering).

Why Engineering for Me?

- Good at math and science in both grade school and high school.
- Loved that I could get a definite answer in math. It made me feel like I had accomplished something-a real answer.
- I also really liked biology and thought about being a doctor. But when I realized how many years it takes to get through medical school and a residency...engineering looked more inviting.

Why Should You Be an Engineer ?

- Opportunity to always learn because technology is always advancing.
- You can solve problems that are important to society.
- With an engineering degree you can go into management, law, medicine and any other field of interest.



Why Should You Be an Engineer?

- You can work in various disciplines in engineering from communications to construction, from project management to computers, from biomedical engineering to transportation, and on and on.



• Why not?



Contact Information

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What Can I Do To Learn More About Engineering?

- Look for opportunities (and never stop looking).
- In high school I took several Advanced Placement classes and whenever I had a chance to choose an elective I would chose math, science or programming classes.
- In Junior year of high school I attended a week long program at Case Western University where I was introduced to biomedical engineering and research.





**IEEE Lightwave Technologies in Instrumentation & Measurement Conference
October 19 & 20, 2004**

**Sponsored By
IEEE Metropolitan Sections Activities Council, IEEE Region 1, IEEE Lasers & Electro-Optics Society, IEEE Instrumentation & Measurement Society AND
Optical Society of America**

**At
The IBM Palisades Executive Conference Center in Palisades, NY (near New York City)**

**Important Notice
Attendees will be entitled to 0.4 Continuing Education Unit (CEU)**

An education- and application-oriented Lightwave Technologies Conference devoted to applying and developing instrumentation Lightwave technologies implemented with hardware or in conjunction with software are increasingly becoming the primary, sole and/or economic means for monitoring, understanding and controlling industrial, biomedical, and natural events and processes. The conference field of interest and related topics include: instrumentation employed in research and development, applications, related software and concepts.

Please go to <http://www.ewh.ieee.org/r1/metsac/LTWV.htm> for up-to-date conference information including Conference and CEU Registration and Exhibitor Information.

Tuesday, October 19

8:15 –8:30 **Welcome and Introductions Remarks**

8:30 –9:30 **Keynote Lecture**

Mode-Locked Diode Lasers for Ultra-Wideband Communications and Signal Processing

Peter Delfyett, University of Central Florida Trustee Chair Professor of Optics, ECE & Physics, School of Optic, Center for Research & Education in Optics & Lasers (CREOL), Florida Photonics Center of Excellence (FCPE),

1st Session: Tutorial Only

9:30 –10:30 ***A Practical Approach to Understanding Today's Electronic Packaging Issues***

Warren D. Dyckman, Program Manager of High Speed and RF Semiconductor Applications at IBM MD in the Packaging Development Department located at Hopewell Junction, NY

10:30 –10:40 **break**

2nd Sessions: Technical Papers (10:40 –12:10)

12:10 - 1:00 **lunch**

3rd Sessions: Technical Papers (1:00 –2:50)

2:50 – 3:00 **break**

4th Sessions: Technical Papers (3:00 –5:00)

Wednesday, October 20

5th Session: Tutorial Only

9:00 –10:00 ***Merging Traditional VLSI with Photonics***

Alyssa Apsel, Clare Boothe Luce Assistant Professor of Electrical and Computer Engineering, Cornell University

10:00 –10:20 **break**

6th Sessions: Technical Papers (10:20 –12:00)

12:00 - 1:00 **lunch**

7th Sessions: Technical Papers (1:00 –2:50)

2:50 – 3:00 **break**

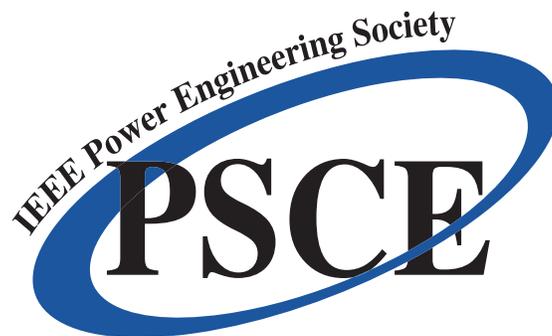
8th Sessions: Technical Papers (3:00 – 4:30)

4:30 – 5:00 **Conference Summary and Plans For Next Conference**



2004 IEEE PES Power Systems Conference & Exposition

October 10 - 13, 2004
New York, NY, USA



www.ieee.org/power



New Solutions for New Challenges

2004 IEEE PES Power Systems Conference & Exposition:

This inaugural power systems event will provide an exceptional venue for discussing issues and developments in the multifaceted field of electrical power systems. The meeting will begin with a timely and valuable plenary session entitled "Balancing the Needs of the Competitive Markets with Confidentiality and System Security," and will also address the lessons learned from the August 14, 2003 blackout in North America. The conference will comprise an outstanding combination of technical sessions, panel sessions and tutorials focusing on the following tracks:

- *Track 1: Planning and Operation*
- *Track 2: Markets, Policies, and Economics*
- *Track 3: Dynamic Performance of Power Systems*
- *Track 4: Real-Time Applications*
- *Educational Track: Understanding Power Systems*

Who Will Attend

Power systems engineers, operators, planners, policy makers, economists, academics, and others working in the areas of planning, operation, implementation, security, and related areas, will greatly benefit from the discussions. Meeting sessions and the exposition will describe, high-light, and demonstrate the most up-to-date systems technologies in the industry. Vendors providing software and hardware systems as well as consulting services can access a large number of leaders in fields utilizing their products and services by participating in the PSCE '04 exposition. Both the conference and exposition of this inaugural event are sure to make this a premier international power systems gathering.

Register now by accessing the meeting website at www.psceexpo.com

Hosted by:

