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On the cover

Top photograph: The first prize model. **Middle photograph:** The First prize and best essay team from left to right Michael Ahrendt, Bryan Jarmusch and Alicia Henneberry. **Bottom photograph:** Award ceremony with Stephan Destin - DMJM Harris, Judith Vihonski – teacher, Bryan Jarmusch, Michael Ahrendt – students, Noel Kriftcher, Polytechnic University, Alicia Henneberry - student, Karen C. Armfield - Event Coordinator, DMJM Harris.

Calendar of Events

(mark your calendar)

Thursday, September 7, 2006 - 6:00pm - 8:00pm**Women In Engineering** Meeting: Rachel Geisler on "Google Maps"**Location:** Google's NY Office, 1440 Broadway, 21Fl., New York NY 10018, between 40 & 41 Street**RSVP required:** by Sep. 5, contact drivera938@yahoo.com**Wednesday, September 13, 2006 — 5:30pm - 7:30pm****IEEE Communications Society** NY Chapter, Presentation on "Network Security"**Location:** Polytechnic University, 6 Metrotech Center, Brooklyn NY 11201**By Subway:** Jay Street-Borough Hall (A,C,F), Borough Hall (2,3,4,5)**For registration** and last minute details go to: <http://www.comsoc.org/~nyc>**Tuesday, September 19, 2006 — 6:30 pm - 8:00 pm****Tappan Zee Sub Section** Meeting: Aaron Prazan on "Stray Voltage Mitigation at Con Edison".**Location:** Polytechnic University, Westchester Campus, 40 Saw Mill River Rd, Hawthorne NY 10532**For last minute details** visit our website: http://www.ewh.ieee.org/r1/new_york/tz**Thursday, September 21, 2006 — 5:00 pm – 7:00 pm****PACE/GOLD:** Professional & Educational Event/Activity**For location and last minute details** visit our website: http://ewh.ieee.org/r1/new_york/gold/**Tuesday, October 17, 2006 - 6:00pm - 8:00 pm****Women In Engineering** Meeting: Dr. Wenli Huang on

"Analysis and Design of Error Diffusion Neural Networks for Digital Halftoning"

Location: MTA, 2 Broadway, New York NY 10004**By Subway:** Bowling Green (4,5), South Ferry (1), Broad St (J,Z), Whitehall St, South Ferry (W)**RSVP required:** by Oct. 11, contact drivera938@yahoo.com **No walk-ins allowed for security reasons!!****Tuesday, October 17, 2006 — 6:30 pm - 8:00 pm****Tappan Zee Sub Section** Meeting: Tour of the Entergy's Indian Point Energy Center.**Location:** Entergy Nuclear Northeast, Indian Point Energy Center, 450 Broadway, Buchanan NY 10511**RSVP required:** spchang@us.ibm.com or bobbellegrino@ieee.org**For updates,** go to: http://www.ewh.ieee.org/r1/new_york/tz**Thursday, October 19, 2006 — 6:00pm - 8:00pm****Vehicle Technology Society** Meeting: VTS Technology Forum, two presentations on Rail Transportation**Location:** Cisco, One Penn Plaza, New York NY 10119**For updates** visit our website: <http://www.ieee.org/vtsny>**Wednesday, October 25, 2006 — 5:30 pm - 7:00 pm****NY Section Consultants Network** Kickoff: A Presentation on Public Relations**Location:** Con Ed, 4 Irving Place, New York NY 10003**For information** on attending or volunteering, contact Hemant Vora: pacesetter@ieee.org**Thursday, November 9, 2006 — 6:00 pm – 8:00 pm**'Signals' Networking Mixer - **WIE/GOLD:** Meet IEEE NY Executive Committee members and colleagues**Location:** Pourhouse. 64 Third Avenue, Corner of East 11 Street, New York NY 10003**RSVP:** gold-nyc@ieee.org, Drivera938@ieee.org**Tuesday, November 14, 2006 — 6:30pm - 8:00pm****Tappan Zee Sub Section** Meeting: Robert Gezelter "Safe Computing in the Age of Ubiquitous Connectivity".**Location:** Polytechnic University, Westchester Campus, Rm 23, 40 Saw Mill River Rd, Hawthorne NY 10532**For updates** go to: http://www.ewh.ieee.org/r1/new_york/tz

DISTINGUISHED SERVICE AWARD

presented to

ROBERT M. PELLEGRINO

for

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to the

IEEE NEW YORK SECTION

and the

IEEE TAPPAN ZEE SUBSECTION

K. E. VOUGHT, CHAIR NEW YORK SECTION, 2006

Message from the Editor

As we start out the new season with the NY Monitor, we are looking for articles, book reviews, website reviews and reports. The monitor always can use original material that is of interest to our readers. So we ask you to contribute a review or report on a meeting you attended. If you want to share photographs that are of interest to NY IEEE members, please do not hesitate to contact us.

The following guidelines are adopted for the Monitor from the guidelines, written by Kit Brown, the editor of the IEEE Professional Communication Society Newsletter. You can find the original at:

www.ieeepcs.org/newsletter/pcsnews_article_guidelines.php

Article Submission Guidelines

Submit articles by the 19th day of the month, **two** months before publication. For book and website reviews, we refer you to

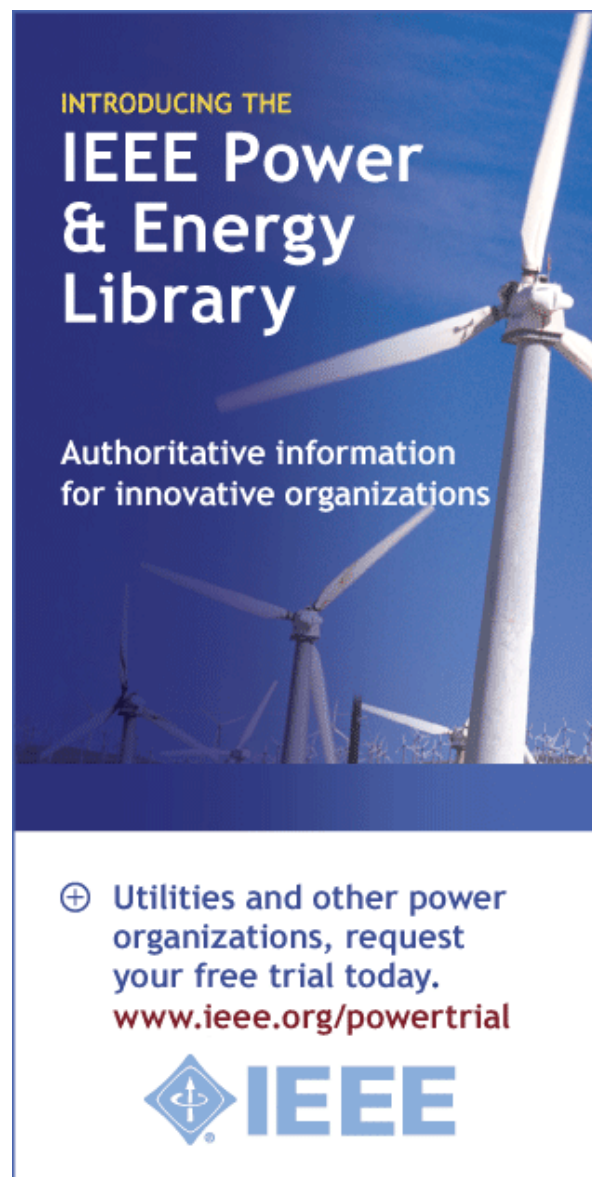
Kit Brown's book and website review guidelines at: www.ieeepcs.org/newsletter/pcsnews_book_web_review_guidelines.php

If you have questions, comments, or suggestions, contact: nymonitor@ieee.org

- **Writing Tips:** If you aren't sure how to construct the article, try using the 5-paragraph essay method. (Note: The 5-paragraph concept can be expanded to longer formats, so don't be overly literal about the five paragraphs.)
- Identify your theme and three main points in the introductory paragraph. This lead paragraph should draw readers in and make them want to read on.
- Use each of the three body paragraphs to discuss the one of the three main points you identified in the first paragraph. (discuss them in the order that you listed them in the introduction). Show, don't tell. Give examples. If you express an opinion, back it up with evidence.

- Summarize your thoughts in the conclusion paragraph and provide the reader with any actions that you want him/her to take. (The conclusion should not introduce new information, but should encapsulate what was said in the article and provide recommendations if appropriate.)
- **Guidelines:** Please review the following information when submitting articles or regular columns to the newsletter:
- Submit articles electronically in MSWord or RTF format to nymonitor@ieee.org. These formats are more easily available to us than other word processing applications.
- **Provide articles that are 200-1000 words in length.** People tend to scan rather than read in an online environment. Short, well-written and relevant articles will be more beneficial to the audience than longer ones.
- **Provide a short bio (~25 words) and contact information.** Readers want to know about you. At a minimum, write a bio that tells your name, company, primary job title, email address and why this topic is of interest to you or what experience you have in the area you wrote about. (This doesn't count as part of your word count.)
- **Indicate whether the article is time sensitive.** Because of size considerations and editorial schedule, newsletter articles may not be published immediately upon submission, unless it is date critical (e.g., information about the upcoming conference or an article about a current event that relates to technical communication.)
- **Indicate copyright information if applicable.** If you own the copyright for an article, indicate this with your submission so that we can provide appropriate attribution. If you don't own the copyright, but think an article is interesting, provide the article, along with the contact information for the copyright holder and the name of the publication where it was originally published.
- **Insert the URL into the text so that we can easily create the link.** For example, if you want to reference the W3C, you would say "refer to the W3C (<http://www.w3c.org>) guidelines". Don't create the hyperlink in Word.
- **Provide complete bibliographic information for references.** Include author(s), title, date of publication, publisher, page numbers or URL, ISBN number.
- **Use a friendly, casual tone.** We want to invite people to read and to make the information as accessible as possible.
- **Use 1-inch (2.54 cm) margins; don't indent paragraphs.** We have to reformat the text so it's better to minimize the formatting you include. Instead of indenting, put an extra line between paragraphs.
- **Avoid using lots of formatting within the text.** We will have to format the articles for the online environment, so don't put lots of bold and italic in the text.
- **Use subheadings generously.** Subheadings help the reader identify the information that is important to them. Subheadings are especially helpful in orienting the reader in the online environment.


(Continued on page 6)



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- ## Event Submission Guidelines

- Contact Person email address & phone number
- Name of Society or Group(s) sponsoring event
- Name of Event
- Date of function (indicate tentative or firm)
- Time of Event
- Location (FULL address)
- Location directions (subway, etc.)
- Presenter details (if applicable)
- Event abstract (if applicable)
- Pre registration/RSVP requirement and instructions
- Cost to attendees (if any)
- CEU/PDH credits & cost information (if applicable)
- Refreshments
- Society/Group Website location for further information
- email information to: NYMonitor@ieee.org

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Future City Competition

With reports by Matt Nissen and Balvinder Blah

At the April IEEE New York Section Executive Committee meeting, the American Society of Civil Engineers (ASCE), presented members Darlene Rivera - WIE Chair (Berger Lehman Associates, P.C.), Balvinder Blah - Student Activities Chair (Con Edison), and Matt Nissen - Professional Activities Chairman (EME Group) with an award in recognition of their participation as judges at the 2006 Future City Competition.

The IEEE will be a major sponsor for the 2007 Future City Competition which is no surprise if you consider that the essay theme for the 2007 Competition will focus on Fuel Cells and how they are incorporated into the cities that the students design.

Matt's report on

2006 Future City

I strongly encourage IEEE members to volunteer at events or as mentors, because several of the schools in the outer boroughs participated without the help of a mentor – and thus we have a great opportunity to support, nurture, and encourage growth of our local engineering talent.

I got involved because I am interested in urban planning and when I saw the flyer on the contest that was sent to the NY ExCom I thought; “what better way for the PACE Chair to co-sponsor Pre-College Activities.” I did not mentor or sponsor a school, but that is something I would like to do in the future.

The four phases of the competition are: design of the future city, writing an essay on a specific component of the project (2006 topic was *Using Engineering to Solve an Important Social Need*), building a scale model, and presenting the project to a panel of judges. The competition is team-based and teams

are composed of three students, a teacher sponsor, and an engineer mentor. The entire team participates in the first two phases, but only the student members build the scale model and present the project to the judges.

The 2006 New York Metropolitan Regional competition was a huge success, with approximately two hundred volunteers, students, journalists and supporters. The projects, submitted by twenty six teams from the New York Metropolitan region, showed a high degree of originality, technical sophistication and urban planning skills. In addition to first, second, and third place prizes for overall city scores, special awards were given for best communication system, consideration of environmental impact on health, transportation, materials, infrastructure, futuristic design, power generation, safety and popularity.

I served as a computer map judge (SimCity3000™) prior to the competition, which involved grading SimCity3000 maps according to ten criteria for a total of eighty points. In the Regional Competition morning session I served as a scaled city model judge (designed and built by student teams) with my fellow judges, Polytechnic Alumnus Peter Mancuso (*Parsons Brinckerhoff Quade & Douglas*), and Connie Crawford (*Senior VP NYCTA and IEEE WIE 2005 Woman Engineer of the Year Award Recipient*). In the afternoon session, teams of competition volunteers judged the teams' presentations. Notable volunteers were professionals from *DMJM Harris*, *Siemens*, *Bechtel Telecommunications*, *Langan Engineering*, *Polytechnic University*, and *Hazen and Sawyer*.

The 2006 winning team was **Tchiaq Shishmaref**, from Valley Middle School in Oakland, New Jersey. Their project was a futur-



istic city (as good as science fiction). In addition the team had a great presentation; it was really a well rehearsed performance, with brochures, charts and media. I did not have the pleasure of grading their city but it was interesting how parts of their (and other teams) presentation and description were clearly impossible to simulate using Sim-City3000 - they had to improvise by stretching the imagination.

The debate amongst judges was on how to grade different teams – the goal was to reward effort, knowledge, research and ingenuity. Some teams were very informed but the models were not really impressive, some models were impressive but the team's presentation was lacking. Some teams were neither informed, nor were their models impressive, but we felt they put a lot of effort into the project either through research or facets of their model city.

All in all the experience was very rewarding and I strongly urge fellow engineers to participate in the 2007 Future City Competition. The competition was very well organized, and many enthusiastic students proudly displayed their scale models and gave presentations. It would be great if the NY IEEE community would ensure that during the 2007 Future City Competition every team in the New York Metropolitan region has a sponsor and a professional mentor.

Balvinder's report

I was informed about the future city competition by IEEE and I enjoyed being a judge at the competition. Even though I did not get a chance to mentor this time, I enjoyed speaking with students from different schools. It is amazing to see the creativity of students at that age and how our encouragement can help them. I had the opportunity to judge the environmental aspect of the cities built by students. Since I was judging along side Darlene Rivera, I also had the chance to hear about the communications aspect of every city. The teams amazed me with their new and innovative power generation methods. I saw cities powered with the old traditional method of wind energy to the new and state-of-the-art tidal energy. Some cities were built under water while others were on different planets. Most cities were modeled

with multi-levels, where lower levels were assigned to transportation channels. I am looking forward to the 2007 Future City competition and I would love to help out in any way possible.



Sharene Hawthorne, Isaias Garcia and Jose Ortega from, the team from "Phillipa Schuyler, I. S. 383" Brooklyn, with their project model of "My Paradise".

Future City 2007 competition.

In an e-mail conversation with the Regional Future City Competition coordinator, Karen Armfield, P.E., Deputy Geotechnical Department Manager at DMJM Harris, the Monitor learned that there is a great need for local Electrical Engineers who are willing to volunteer some time to act as mentors, especially in the Boroughs of Brooklyn, the Bronx and in Queens. Mentors are a key part of the experience for the students involved. Since the focus is on energy and fuel cells this year, electrical engineers would be perfectly suited to mentor the students. Teams will be matched with mentors starting in early September. You can sign-up to be a mentor at the National Future City Website (www.futurecity.org) or contact the Regional Coordinator, Karen Armfield at karen.armfield@dmjmharris.com or at 212-701-2808

Also, for those of you with children in middle school; 7th or 8th grade students who would like to find out more about engineering or forming a Future City team can ask their teacher to register their school on the National Future City website. The regional competition is open to all schools, public or private, from the New York City Metropolitan

Area; the five boroughs, Westchester, Long Island and New Jersey. Registration is open from now until October 15, 2006.

Information links

For an overview of the Future City Competition go to the national competition website: www.futurecity.org

To find out more about what it takes to sponsor or mentor a team go to the NY Metropolitan regional competition website: <http://sections.asce.org/metropolitan/futurecity/>

2006 teams of the New York Metropolitan region: <http://www.poly.edu/davidpackard/futurecity/index.php>

If you are interested in volunteering as a mentor, committee member, as a judge, or volunteer at the regional competition (January 20th, 2007) or if you have any questions please contact Karen Armfield at karen.armfield@dmjmharris.com or at 212-701-2808. ■

IEEE Women in Engineering

&

Google NY

present

Rachel Geisler

Thursday - September 7

6:00pm-8:00pm

at

Google's New York Office

1440 Broadway - 21st Floor

(between 41 & 42 Street)

New York NY 10018

Food and drinks will be provided as well as a few other goodies!!!

RSVP by Wednesday September 5th, 2006 to drivera938@ieee.org

Rachel Geisler works on the Maps team at Google. A summa cum laude graduate of Barnard College, she has an MS in computer science from Columbia University's Fu Foundation School of Engineering and Applied Science. She is a published author in the field of Educational Robotics and she has brought robotics to the New York public school system.

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IEEE Standards Process and the RTVISC Working Group 2

By Jean Redmond and Dr. Alan Rumsey

The IEEE is the world's leading professional association for the advancement of technology. The IEEE has achieved this position in part by being a leading developer of standards that underpin many of today's products and services, particularly in telecommunications, information technology, power generation and other, emerging technologies.

Developing consensus standards requires two critical components. First, a clearly defined set of procedures that provides an open, balanced and controlled process. Second, volunteers who donate their time and experience to network with industry peers to broaden their understanding of the industry and the technology, and contribute to the development of the standards in which they are involved.

As an ANSI-accredited Standards Development Organization (SDO) with an active portfolio of nearly 1,300 standards and projects in development, the IEEE has a proven and effective process for standards development.

The IEEE Standards Association (IEEE-SA) administers all standards projects and issues the initial Project Authorization Request (PAR). A PAR defines the scope, the purpose and the contact points for new standards projects and is the official authorization of development of standards projects. The PAR also defines the type of document to be produced. There are three types of IEEE Standards documents, namely: a standard, a recommended practice, or a guide. A standard is primarily made up of mandatory requirements; a recommended practice defines suggested procedures; a guide offers guidelines to follow. The compliance level of the type of standard is shown by the use of particular "standards verbs" – "shall" for requirements, "should" for recommendations, and "may" for guidelines.

Every IEEE standards project requires a sponsor, a working group chair, and a sufficient number of volunteers. The sponsor,

made up of one or more IEEE Societies, provides oversight and takes responsibility for the technical accuracy of the content of the document. The working group chair provides leadership and guidance during the standards development process by planning the meetings, organizing the work, and facilitating the completion of the finished standards.

An important principle in the standards process is openness. Openness means that everyone with a legitimate interest shall have access to the standards development process. This principle must be adhered to during the development of the standard itself, and also during the balloting process, although balloting is limited to members of IEEE-SA, with some exceptions, which is the final step in approving a new standard.

For example, for a draft standard to be approved, 75% of the members of the balloting group must return their ballots and 75% of the returned ballots must approve the proposed standard. This process meets the requirement for consensus - meaning agreement among more than the majority. Negative ballots must be submitted with detailed reasons, such that a change in wording in the standards document may persuade the disapproving voters to change their vote to "approve". If there are substantive changes to the document because of negative comments, the standard is re-balloted. If it passes, the standard goes to the IEEE Standards Board for final approval.

So, how does this process actually work in practice? To gain some insight into the world of IEEE standards development, consider the history and functioning of one typical standards working group, namely Working Group #2 (WG2) of the Rail Transit Vehicle Interface Standards Committee (RTVISC).

RTVISC was formed under the auspices of the IEEE Vehicle Technology Society to act as the sponsor of all IEEE rail transit standards. This sponsor committee was formed

in 1996 with the assistance of funding provided by the Transit Cooperative Research Program sponsored by the Federal Transit Administration (FTA). The objective was to design a process for developing consensus standards for the system and subsystem interfaces of elements of light rail, heavy rail and commuter rail vehicles. The committee initiated various working groups, including WG2 that was given the task to develop standards for an emerging train control technology called Communications Based Train Control (CBTC). The chair of this working group is Dr. Alan Rumsey, Vice President of Rail Systems Programs with Parsons Transportation Group.

To achieve the principle of openness in its standard development work, the RTVISC and each of its working groups includes: "users" (transit agencies and their consultants), "producers" (vehicle or vehicle subsystem suppliers and their consultants) and "other" general interest members (regulatory agencies, federal and state transportation departments, academics.) To find volunteers - with an interest in the subject - who are prepared to work on the standards, the formation of the RTVISC was announced at industry events, in industry publications and in technical conference proceedings. The committee also contacted heads of industry organizations directly.

To achieve openness and balance at the balloting stage, RTVISC has specified that no one group ("users", "producers" or "other") may have more than 50% membership of the ballot group. Further restrictions include that no more than 2 people in the ballot group can be from the same organization, and members should be IEEE-SA members, (although exceptions may be made to this last requirement under extraordinary circumstances.)

Unlike the ballot group, the working group is not restricted by membership make-up and size. The group meets several times a year. While WG2 has a core group of some 10 -15 members, a typical working group meeting can attract twice that number of attendees. The dynamic and diverse nature of the WG2 has the advantage of generating many different points of view and perspectives concerning standard details. This more than outweighs any disadvantage of inefficient use of working group meeting time since not everyone participates at all meetings.

The initial scope of WG2 was to establish voluntary consensus standards for the train-to-wayside and wayside-to-train interfaces for the CBTC systems. WG2 brought together the major train control system suppliers, users, and potential users of this new train control technology to openly discuss and share information on their respective systems and on developing standards for the evolving CBTC systems. Progress was made on identifying key similarities and differences with current CBTC systems and systems under development. However, in reference to the initial scope of the working group, two problems arose that prevented consensus on the standard from being reached, one commercial and one technical. Dr. Rumsey explains the problems:



WG2 Group meeting on March 14, 2005. Dr. Alan Rumsey at the head of the table

"From the commercial perspective, suppliers who already made significant investments in developing CBTC systems were reluctant to commit to further investments to modify their

systems to comply with an IEEE consensus standard without some assurance that there was a reasonable opportunity to obtain a return on this investment.

From a technical perspective, attempting to establish interface standards, without having first establishing some degree of standardization on CBTC system performance and functional requirements, and some degree of standardization on basic CBTC system architectures, also proved to be difficult. Specifically, even if the suppliers could establish a consensus on certain interfaces between wayside and train-borne CBTC subsystems, there would be no assurance that this interface definition was indeed necessary and sufficient to meet the operational needs of the various transit agencies."

As a consequence, in 1997 WG2 re-examined the initial scope of their work and using feedback from an ad-hoc CBTC peer group, consisting of representatives of various transit agencies and the Federal Transportation Association, re-defined the scope and purpose of the standard. This effort resulted in WG2 revising its scope to focus on the performance and functional requirements for CBTC systems and the PAR was modified to reflect these changes in the scope of the working group.

With this revised scope, WG2's first standard, IEEE Std. 1474.1-1999 was completed, successfully balloted and issued in 1999. It set the standards for operational objectives and established the requirements for performance of CBTC technology, including functional requirements for train detection, train separation assurance, over-speed protection and interlocking functions of Automatic Train Protection (ATP). The standard also addressed optional Automatic Train Operation (ATO) and Automatic Train Supervision (ATS), establishing functional requirements for speed regulation, programmed station stopping, train door control, performance level regulation, automatic vehicle identification and train tracking, automatic routing and dispatching control, schedule/headway regulation (automatic train regulation), energy management and system performance monitoring.

Having completed IEEE Std. 1474.1, WG2 turned its attention to other potential areas of CBTC standardization. In determining the scope of a new CBTC standards project, WG2 adopted the following criteria:

Any new CBTC standard should add value to the industry - for both users and suppliers. The development of any new CBTC standard should be achievable within a reasonable period of time (i.e. ~ 2 years). The scope of any new CBTC standard should be within the general mandate of the RTVISC and the WG2.

In 2003 WG2 issued a second CBTC standard: IEEE Std. 1474.2-2003, establishing standards for user interface requirements in CBTC Systems. In parallel, the IEEE Std. 1474.1-1999 standard was revised and updated to include performance and functional requirements for CBTC technology for driverless transit applications and was issued as IEEE Std. 1474.1-2004 in December, 2004.

WG2 is currently working on its third CBTC standards project, developing an IEEE recommended practice for CBTC system design and functional allocations. This effort again builds on the work of IEEE Std. 1474.1, and is intended to reflect the current state-of-the-art in CBTC technology and to capture best industry practice. In addition, this recommended practice will provide a clear overview of CBTC system architectures and its principles of operation for interested parties.

Developing consensus standards requires time, energy and effort from many individuals. But with this commitment by volunteers, and the leadership and support of a professional organization such as the IEEE, standards can be developed that will enable an industry to evolve and mature, and also protect the interest of users and the environment.

For more information on IEEE standards, go to: <http://standards.ieee.org>. ■

Jean Redmond has over 14 years engineering experience in the building controls industry. She has been an IEEE member since 1998 and an active volunteer with the IEEE New York Chapter Communications Society since 2005.

Dr. Alan Rumsey is the Chair of the IEEE Rail Transit Vehicle Interface Standards Committee, Working Group #2, responsible for establishing performance and functional requirement standards for Communications Based Train Control (CBTC) systems, and is also the US representative on the IEC TC9 Working Group #40 developing standards for Urban Guided Transport Management Systems. Dr. Rumsey is a Fellow of the Institution of Railway Signal Engineers (FIRSE) and a professional engineer, licensed in Ontario, Canada.

View us online at <http://www.ieee.org/nymonitor>

The following article, the second of two, has been excerpted and edited by Melvin Olken from an article, which appeared in the January/February 2006 issue of IEEE Power & Energy Magazine. The permission to do so has been granted by the author T. Blalock and the Editor-in-chief of the magazine.

Powering the New Yorker Hotel (Nikola Tesla at the New Yorker)

The Introduction of ac Power

As early as 1933, the need to have ac available for some purposes in the hotel had arisen. Exhibitors using the special exhibition rooms for industrial shows and other meetings and events had begun to complain about the lack of ac power to operate their often-motorized displays. Accordingly, a Building Engineer's report of that year recommended the purchase of a 100-kW motor-generator set to be used backwards; that is, it would consist of a dc motor driving an alternator to supply ac power for such special uses. It was estimated that such a set could be purchased new for \$4,500, or used for \$1,500.

It is not known whether such a motor-generator set was actually purchased, or whether it was decided to "bite the bullet" and install an ac service for such purposes. By that time, the United Electric Light and Power Company was distributing 60-Hz ac power throughout midtown Manhattan, and the New York Edison Company had also begun to supply some 60-Hz power in addition to its still significant dc power load.

There are indications that substantial ac services were installed in the hotel by the late 1930s or early 1940s. In any event, by the 1960s, the need to provide hotel guest rooms with such amenities as air-conditioning and television (although television sets once were available for operation on "110-v dc"!) led to the extensive use of ac power throughout the building. Larger chillers, which allowed for the air-conditioning of individual rooms in addition to the public areas of the hotel, were installed in 1951.

During the late 1960s all of the steam engine driven generating units were retired and scrapped. The diesel generating unit, however, remains in place today, presumably due to its immense size and weight which would make removal very costly. The dc switchboard is slated for removal, although there are plans to save select portions of it for historical purposes. The old generating room now houses the solid-state rectifier units which supply 240-V dc to remaining dc motors throughout the building.

The dc steam engine generating units were still in use in November 1965 at the time of the great northeast blackout (at 5:28 pm, 9 November 1965) when virtually all of New York City went dark. The New Yorker Hotel was one of the few buildings in the city which still had electric power during that event.

Ironically, the New Yorker Hotel is back in the co-generation business today. The original steam boilers have been replaced with modern units, and these provide steam for the operation of four 600-kW, 60-Hz turbo-generators. These units are induction type generators which means that existing Con Edison ac service must be maintained in order to provide the necessary magnetization for the in-house generators. Eventually, additional synchronous type generators may be installed, which would make it possible, once again, for the hotel to be electrically self-sufficient.

Tesla at the New Yorker

A fascinating aspect of the history of the New Yorker Hotel is the fact that electrical power pioneer Nikola Tesla lived for the last ten years of his life in two of the hotel's ad-

joining rooms (Nos. 3327 and 3328). Tesla's life and work have been well documented. He was born in 1856 to Serbian parents in the town of Smiljan which later became part of Croatia. In 1884, he came to the United States to work for Thomas Edison.

By that time, however, Tesla had already formed his opinion as to the superiority of ac over dc for the distribution of electric power. Since Edison was firmly and unalterably attached to the use of dc, he and Tesla soon parted ways.

A presentation by Tesla before the American Institute of Electrical Engineers in 1888 caused George Westinghouse to become interested in Tesla's concepts for the use of ac. Accordingly, Tesla joined with Westinghouse to develop his ideas for ac generation, distribution, and utilization. The ac induction motor, which has been the workhorse of industry for over one hundred years, was originally known as the "Tesla motor". The adoption of the ac three-phase system for power transmission and distribution is directly attributable to Tesla's early work.

However, throughout most of the twentieth century, Tesla's name was relatively obscure in electric power circles. It certainly did not have the familiarity of names such as Edison

and Westinghouse. The reason for this had to do with Tesla's rather reclusive personality. Unfortunately, in spite of his monumental contributions to the field of electric power, he was often dismissed as an eccentric or "oddball" by his contemporaries.

While living at the New Yorker, Tesla's reclusiveness increased to the point that his primary emotional attachment in life became his intense interest in a flock of pigeons that frequented his hotel room windowsill.



Tesla at the New Yorker Hotel

Epilogue

Tesla died, while still a guest at the New Yorker, on 7 January 1943 at the age of 86. In July 2001, a commemorative plaque honoring Nikola Tesla was installed on the façade of the New Yorker Hotel. The ceremony dedicating this plaque was co-hosted by the Tesla Memorial Society, the New Yorker Hotel, and the IEEE.

The Tesla Memorial Society was represented by William H. Terbo, a grand-

nephew of Nikola Tesla.

This plaque had actually been installed years earlier, but it was removed when the hotel was closed in 1972 during a change in ownership. The hotel reopened in 1994. The plaque was returned to the IEEE at the time that the hotel closed, and it resided in the



Tesla in a posed photo which caused a sensation at the Chicago Exposition (1893)

archives of the IEEE History Center until 2001.

It is interesting to speculate whether Tesla, while living at the New Yorker Hotel, ever ventured down to the fourth sub-basement to inspect the massive generating plant in operation there. It is certainly ironic that he spent the last years of his life residing in a building which was being illuminated and powered primarily by dc!

Further Reading


"Power services everywhere," *Power*, vol. 70, no. 22, pp. 819–869, Nov. 26, 1929.

J. Romano, "A push to unplug d.c. power," *NY Times*, Real Estate Section, Mar. 18, 2001.

J. Rasenberger, "Fade to Black," *NY Times*, sec. 14, p. 3, Jan. 2, 2005.

J.W. Lieb, "Edison and United Companies' System," *Electr. World*, vol. 81, no. 21, pp. 1192–1195, May 26, 1923.

J.J. O'Neill, *Prodigal Genius: The Life of Nikola Tesla*. New York: Ives Washburn, 1944, pp. 317–318.



IEEE
Tappan Zee Subsection
Getting Connected & Staying Connected

Presents

Indian Point Energy Center

ABSTRACT

Entergy Nuclear Northeast is part of Entergy Corporation, a global energy company based in New Orleans. Entergy owns, operates and manages ten nuclear generation plants that are among the safest and most professionally operated energy facilities in the United States. Entergy owns and operates the Indian Point Energy Center, located in Buchanan, N.Y., Westchester County. Indian Point provides power to millions of homes, thousands of businesses, and hundreds of critical transportation, health and municipal systems.

Nuclear energy is a price-stable energy source and does not fluctuate like natural gas prices or other fossil fuels. For New York State's electrical grid, closing Indian Point would reduce the amount of power available by 11 percent. Resulting blackouts will cost area businesses an additional \$3 billion.

Tuesday, October 17, 2006
7:00PM - 8:00PM
(Refreshments at 6:30 PM)

Location:
Entergy Nuclear Northeast
Indian Point Energy Center
450 Broadway
Buchanan, NY 10611

Advance reservation required, please contact Robert M. Pellegrino rbpellegrino@ieee.org or Shu-Ping Chang spchang@us.ibm.com

For directions and more information, please visit the IEEE Tappan Zee Subsection website, http://www.ewh.ieee.org/r1/new_york/tz/

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IEEE
Tappan Zee Subsection
Getting Connected & Staying Connected

Presents

Safe Computing in the Age of Ubiquitous Connectivity

By Robert Gozetter

Distinguished Visitors Program
IEEE Computer Society
e-mail: gozetter@rlgsc.com

ABSTRACT

Ubiquitous Internet access has accelerated this trend, with many parks, bookstores, and coffee shops acting as virtual extensions of the office. Employees are connected to their firm and its customers by a combination of wireless Internet access, Virtual Private Networks, wireless devices, and mobile telephones.

We will explore the privacy, security, and integrity issues raised by universal connectivity; and how technologies like wired and wireless networks, both public and private, can be used to un-tether employees from their desks while preserving the security and integrity of the systems they use.

Tuesday, November 14, 2006
7:00PM - 8:00PM
(Refreshments at 6:30 PM)

Location:
Polytechnic University, Westchester Campus, Room: Z3
40 Saw Mill River Road
Hawthorne, NY 10532

For directions and more information, please visit the IEEE Tappan Zee Subsection website, http://www.ewh.ieee.org/r1/new_york/tz/

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Tappan Zee Subsection
Getting Connected & Staying Connected

Presents

Stray Voltage Mitigation at Con Edison

By **Aaron Prazan**

Engineer
Secondary System Analysis group
Con Edison
e-mail: PRAZANA@coned.com

ABSTRACT

Mr. Aaron Prazan will discuss Con Edison's 5-point approach to Stray Voltage Mitigation. The Company's efforts to learn about the root causes of stray voltage and electric shocks in its secondary network system have led to advances in detection technology, better understanding of the real hazards present, and dramatic reductions in the number of electric shocks in the last two years.

Tuesday, September 19, 2006
7:00PM - 8:00PM
(Refreshments at 6:30 PM)

Location:

Polytechnic University, Westchester Campus, Room: 23
40 Saw Mill River Road
Hawthorne, NY 10532

For directions and more information, please visit the IEEE Tappan Zee Subsection website, http://www.ewh.ieee.org/r1/new_york/tz/

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