NJ Control Systems Chapter:

Efficient Simulation-based Stochastic Optimization and Its Application to Network Design & Management

On November 8, 2006, the IEEE North Jersey Section Control Systems Chapter will host a presentation titled "Efficient Simulation-based Stochastic Optimization and Its Application to Network Design and Management." The speaker will be Professor Chun-Hung Chen.

About the Talk

Discrete-event simulation is a popular tool for designing large, complex, stochastic systems, since closed-form analytical solutions generally do not exist for such problems. While the advance of new technology has dramatically increased computational power, efficiency is still a big concern when using simulation for large system design, in which case many alternative designs must be simulated. This presentation gives our new development to address such an efficiency issue. A key component of our methodologies is a new control-theoretic simulation technique called Optimal Computing Budget Allocation invented by the speaker. Another key technique is Ordinal Optimization, which concentrates on finding a subset of good designs by approximately evaluating a parallel set of designs and obtains an exponential convergence rate. We will demonstrate the effectiveness of our approach via a series of network design problems. We will also present an on-going project about efficient simulation and management of the US air traffic network.

About the Speaker

Dr. Chen received his PhD degree in Engineering Sciences from Harvard University. Dr. Chen is an Associate Professor of Systems Engineering & Operations Research at George Mason University, Fairfax, VA. He was an Assistant Professor of Systems Engineering at the University of Pennsylvania before joining GMU. His research interests include stochastic systems modeling and simulation, optimization, network management, systems design under uncertainty, and air traffic management. Dr. Chen currently leads NSF-sponsored research in developing efficient network simulation methodologies, and leads NASA-sponsored research in national air transportation simulation modeling. Dr. Chen won the 1994 Harvard University Eliahu I. Jury Award for the Best Thesis in the field of Control. He is one of the recipients of the 1992 MasPar Parallel Computer Challenge Award and 2003 IEEE International Conference on Robotics and Automation Best Paper Award. He is an IEEE Senior Member and is listed in Who's Who in America, Who's Who in Finance and Business, Who's Who in Science and Engineering, and Who's Who in Education.

Time: 11:30 AM - 1:00 PM, Wednesday, November 8, 2006.
Place: New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Directions are available at http://www.njit.edu/University/Directions.html.
Information: Professor Timothy Chang (973) 596-3519 (changtn "AT" njit.edu) or Professor Mengchu Zhou (973) 596-6282.

First Student Leadership Training Workshop for Fall 2006

A Student Leadership Training Workshop is being held for the Fall 2006 Semester. Remember to send representatives from your branch to take advantage of this great learning opportunity. The Workshop is open to students from all local universities; it is not restricted to students from Stevens Institute of Technology.

- Place: Stevens Institute of Technology, Hoboken, NJ
- Date: Tuesday, November 7, 2006
- Time: 5:00 pm to 9:00 PM (food will be provided)
- Building/Room: Main Auditorium
- Directions: http://www.stevens.edu/main/maps/driving_directions.shtml
- Dress: Code: Informal-Just Show Up
- Questions: northjerseysac "AT" ieee.org

A second Student Leadership Training Workshop is being schedule for the first week in December, 2006 at NJIT, Newark, NJ. Details will be provided shortly.

NOVEMBER 2006

NEWSLETTER STAFF

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Deadline for receipt of material is the 1st of the month preceding the month of publication. All communications concerning editorial and business matters, including advertising, should be sent to the Business Manager via e-mail at *k.saracinello "AT" ieee.org* or to *The IEEE Newsletter, c/o Keith Saracinello, 25 Messenger Ln, Ringoes, NJ 08551*, (302) 683-7162.

IEEE NJ SECTION HOME PAGE
        http://web.njit.edu/~ieeenj/
IEEE NJ SECTION NEWSLETTER HOME PAGE
  http://web.njit.edu/~ieeenj/NEWSLETTER.html

REPORT ADDRESS CHANGES TO:
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The North Jersey Section Executive Committee usually meets the first Wednesday (except holidays and December) of each month at 7:00 PM. Meetings are open to all members. For information on meeting agenda contact Secretary Seth Jakel at (973) 731 1902, sgjakel "AT" comcast.net.

North Jersey SMC Society:
Nano and Industrial Robotics

On Wednesday, November 22, 2006, the NJ Systems, Man & Cybernetics (SMC) Chapter will be hosting a seminar at NJIT on Nano and Industrial Robotics. Dr. Heping Chen, a research scientist at Robotics and Automation Labs, ABB Corporate Research Center, ABB, Inc., will be the presenter.

About the Talk

Nanosensors/devices can be fabricated using nano-robotics based on atomic force microscopy (AFM). AFM has been widely used as an imaging tool since it was invented by Benning, et. al., who won the Nobel Prize because of the invention in 1986. Recently, it has been also used as a manipulation tool to fabricate nanostructures and nanosensors. However, it cannot be used as an image tool and a manipulation tool simultaneously. Therefore, a haptic assisted interface has been developed to manipulate nano objects, such as nanoparticles, nanorods, carbon nano tubes (CNT) and DNA, etc. An automated fabrication methodology has been also developed to facilitate the manufacturing process. The developed system has been successfully implemented to fabricate nanostructures.

Path planning of industrial robots in automotive manufacturing is a challenging research topic. An on-line robot programming strategy based on vision, force and position sensor fusion has been developed and implemented to automatically generate robot tool paths. The developed strategy can be applied in robot programming for de burring, stripe painting, machining, and polishing processes. For a part with a CAD model, an off-line optimal path planning method has been developed to generate robot tool paths. A software package based on the method has been used in production at the Ford Motor Company, Inc., in order to manufacture automotive parts using the spray forming technology. The method can also be used for spray painting, spray forming, and rapid prototyping processes.

About the Speaker

Dr. Heping Chen received a BS degree in Control System Engineering from Harbin Institute of Technology, China, in 1989; an MEng degree in Electrical and Electronic Engineering from Nanyang Technological University, Singapore, in 1999; and PhD in Electrical and Computer Engineering from Michigan State University, Michigan, in 2004. Currently, Dr. Chen is a research scientist at Robotics and Automation Labs, ABB Corporate Research Center, ABB, Inc.

He has published about 40 journal/conference papers and applied for 4 patents. He has received several awards including Quality Salute Award from ABB, Inc., in 2006; the Most Outstanding Graduate Student Award from Michigan State University in 2003; and the Highly Commended Award from the Journal of Industrial Robots in 2002. His research interests include micro/nano manufacturing, micro/nano robotics, industrial automation, and control system design and implementation.

All Welcome!

You need not be a member of IEEE to attend, and there is no charge for admission. Light refreshments will be served starting at 6:45 PM.

Time: 7:00 PM (light refreshments at 6:45 PM), Wednesday, November 22, 2006.
Place: New Jersey Institute of Technology (NJIT), Room 202, ECE Center (Intersection between Warren & Summit Streets), Newark, NJ. Directions are available at http://www.njit.edu/University/Directions.html.
Information/RSVP: Dr. Mike Liechenstein, (973) 471-0721, (m.liechenstein "AT" ieee.org).
Please RSVP prior to the presentation since space is limited, as well as for getting instructions for accessing the secured parking deck at NJIT. Also check electronic newsletter for any possible changes in room, etc.

Looking for a Few New Fellows

Nominations are being accepted for the IEEE Fellows class of 2008. The rank of IEEE Fellow is the institute's highest member grade, bestowed on senior members who have contributed "to the advancement or application of engineering, science, and technology." The deadline for nominations is 1 March 2007.

Senior members can be nominated in one of four categories: application engineer/practitioner, research engineer/scientist, educator, or technical leader.

To nominate an IEEE senior member or to learn more about the Fellow program, visit http://www.ieee.org/fellows.

IEEE North Jersey Section Activities
November 2006

Nov. 1 – "NJ Section Meeting", 6:30 PM, "Executive Committee Meeting" - 7:00 PM, ITT, 100 Kingsland Rd, Clifton, NJ. Seth Jakel at sgjakel "AT" comcast.net.

Nov. 2– "Life Grade Luncheon" - 11:30 AM, Hamilton Park Conference Center, 175 Park Ave, Florham Park, NJ. Ken Oexle (973) 386-1156.

Nov. 7 – **"**Student Leadership Training Workshop", 5:00 pm to 9:00 PM (food will be provided), Main Auditorium, Stevens Institute of Technology, Hoboken, NJ. Russell Pepe (northjerseysac "AT" ieee.org).

Nov. 8 – **"**Theory and Applications of SEM/FIB DualBeam Instrumentation" by Dr. Lucille A. Giannuzzi, EDS/C&S Chapters, 7:00 PM (buffet at 6:15 PM), New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Edip Niver (973) 596-3542 (NJIT), or Dr. Durga Misra (973) 596-5739 (dmisra "AT" njit.edu).

Nov. 8 – "Efficient Simulation-based Stochastic Optimization and Its Application to Network Design & Management" by Professor Chun-Hung Chen, NJ Control Systems Chapter, 11:30 AM - 1:00 PM, New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Professor Timothy Chang (973) 596-3519 (changtn "AT" njit.edu) or Professor Mengchu Zhou (973) 596-6282.

Nov. 8 – "Engineers Meet: IEEE-USA from the Top" - NJ PACE & GOLD, 6:30 – 9:00 PM, Clifton Memorial Library, 292 Piaget Ave, Clifton, NJ. Paul Ward, (973) 790-1625 (PWard1130 "AT" aol.com) or Richard F. Tax, (201) 664-6954 (rtax "AT" verizon.net).

Nov. 15 – "Course - Navigation: Land, Sea, Air and Space" - AES Chapter, 9:00 AM – 4:30 PM, - 3Com Space and Navigation, 450 Clark Drive, Budd Lake, NJ, 07828, (973) 446-4000, www.L-3Com.com/Spacenav. Dr. Naresh Chand, (973) 636-7408, naresh.chand "AT" baesystems.com.

Nov. 17 – **"**Arc Flash Seminar" by Won Kim, NJ PES/IAS, 9:00 AM - 2:00 PM, PSE&G, 80 Park Plaza, Newark, NJ 07101. Ronald W. Quade (732) 205-2614 or RWQuade "AT" IEEE.org.

Nov. 22 – "Nano and Industrial Robotics" by Dr. Heping Chen, NJ SMC Society, 7:00 PM (light refreshments at 6:45 PM), NJIT, 202 ECE Center, Newark, NJ. Dr. Mike Liechenstein, (973) 471-0721, (m.liechenstein "AT" ieee.org).

Upcoming Meetings

Dec. 18-21 – **"**9th International Conference on Information Technology (CIT 2006)", see http://www.citconference.org and http://www.cs.unt.edu/~smohanty/CIT2006.

Jan. 25 – "PSoC Mixed Signal Development" by Chris Mesibov, NJ Consultants' Network, 7:30 PM, Aeroflex/KDI-Integrated Products, 60 S. Jefferson Rd, Whippany, NJ. Robert Walker (973) 728-0344 or www.TechnologyOnTap.org.

Members and Non-Members Welcome
PLEASE POST

Theory and Applications of SEM/FIB DualBeam Instrumentation

On November 8, 2006, the IEEE NJ Section Electron Devices, Circuits and Systems Chapters together with the New Jersey Institute of Technology will host a talk on "Theory and Applications of SEM/FIB DualBeam Instrumentation." The speaker will be Dr. Lucille A. Giannuzzi.

About the Talk

The basic concepts of ion-solid interactions and focused ion beam (FIB) instrumentation and theory will be presented. Examples of basic FIB milling and the uses of gases for chemical vapor deposition and gas enhanced etching will be given. The first uses of FIB in the semiconductor industry for device modification and circuit repair have extending into many applications, materials research, and industrial markets. The applications of FIB and DualBeam usage on multiple material systems in numerous industries have been realized, and examples of FIB milling for many material systems will be shown. Uses of the DualBeam platform for nanotechnology applications will be described, showing that the utilization of such a tool is limited only by one's imagination. FIB milling techniques for specimen preparation for scanning electron microscopy (SEM), transmission electron microscopy (TEM), and other analytical tools will be presented. In particular, the ex-situ lift-out and in-situ lift-out TEM techniques will be presented in detail, and the applications of these specimen preparation methods for many TEM and Scanning TEM techniques will be emphasized. The concepts and advantages of a dual platform FIB and scanning electron microscope (SEM) will be discussed. In particular, the development of the combined FIB/SEM DualBeam instrumentation as a nano-lab and a 3D characterization tool which including microstructure, elemental composition, and crystallographic information will be given. Examples of using the DualBeam as a 30 keV scanning transmission electron microscope will also be presented.

About the Speaker

Lucille A. Giannuzzi received her BE and MS Degrees from SUNY Stony Brook, and her PhD Degree from The Pennsylvania State University. She spent ten years at the University of Central Florida where she was the recipient of an NSF Career Award. As Professor of Mechanical Materials & Aerospace Engineering, her primary research interests included ion/solid interactions and the microstructural evaluation of materials using focused ion beams and transmission electron microscopy. She has been with FEI Company as a field product marketing engineer for FIB/DualBeam systems for the past three years. She is on the editorial board of the journal, Microscopy and Microanalysis and participates as an instructor in the Lehigh Microscopy School. She is active in the local and national chapters of AVS, MSA and MAS. She has been a local affiliate speaker for both MSA and the MAS and is co-editor of a book entitled, "Introduction to Focused Ion Beams."

All Welcome!

You do not have to be a member of the IEEE to attend.

Time: 7:00 PM, Wednesday, November 8, 2006. Free buffet will be starting at 6:15 PM.
Place: New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Directions are available at http://www.njit.edu.
Information: Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Edip Niver (973) 596-3542 (NJIT), or Dr. Durga Misra (973) 596-5739 (dmisra "AT" njit.edu).

NEWS from IEEE-USA:

U.S. IT Infrastructure Not Adequately Prepared for Cyber Attacks, Says IEEE-USA

Washington (14 July 2006) - Because our nation's information technology infrastructure is highly vulnerable to hackers, terrorists, organized crime syndicates and natural disasters, increased funding for cyber security research and development is needed, according to a recent position adopted by IEEE-USA.

"Because of society's complete reliance on information technology and cyber networks, all the critical infrastructures and networks are interdependent and interconnected," IEEE-USA stated. "A cyber attack on one sector's infrastructure may have devastating consequences to another sector. U.S. infrastructure is not adequately prepared to defend against such risks."

Nearly every aspect of life in the United States is tied to computers. Air traffic control systems, power grids, financial systems, public health records and military and intelligence cyber networks, among others, all depend on computer networks. According to IEEE-USA, core Internet protocols such as Internet routing, e-mail and end-user authentication are at risk of cyber attack.

To help mitigate the risk of attack, IEEE-USA recommends that Congress and the executive branch work with private industry to:

- Authorize and appropriate increased and stable funding for cyber security research
- Encourage and support cyber security technology transfer programs
- Facilitate commercialization
- Facilitate development and implementation of cyber security standards
- Support cyber security education programs

"Not only has the government traditionally played an important role in financing such efforts, but IEEE-USA strongly believes that, without the government driving a long-term cyber security vision, industry will most likely continue to make only incremental advances and improvements based on short-term, market-driven and adverse risk factors."

The position is accessible at http://www.ieeeusa.org/policy/positions/cybersecurity.asp.

IEEE-USA advances the public good and promotes the careers and public policy interests of more than 220,000 engineers, scientists and allied professionals who are U.S. members of the IEEE. IEEE-USA is part of the IEEE, the world's largest technical professional society with 360,000 members in 150 countries. See http://www.ieeeusa.org.

Contact: Chris McManes
IEEE-USA Senior Public Relations Coordinator
Phone: (202) 530-8356
E-Mail: c.mcmanes "AT" ieee.org

ENGINEERS MEET:

IEEE-USA from the Top

On Wednesday, November 8, 2006, the North Jersey Section Professional Activities Committee and Graduates of the Last Decade will meet to discuss IEEE-USA. Our guest speaker will be Ralph W. Wyndrum, Jr., President of IEEE-USA.

About the Meeting

The subject will be improving the state of engineering in the USA.

- How can US Engineers succeed in the global environment?
- Is engineering losing its value today?
- What are specific IEEE-USA programs to maintain US leadership in engineering?
- Mastering the Innovation Process.

About the Speaker

Dr. Wyndrum leads Executive Engineering Consultants, consulting in areas of R&D resource allocation and decision sciences targeted at new product and service development. He also teaches a seminar on Strategic Leadership and Decision Quality at Rutgers University. Prior to assuming these positions, he had a long and successful career at Bell Labs and AT&T Labs, beginning in thin film and solid state circuit R&D, and retiring as Technology VP, and then Program Planning and Management Vice President.

During his 36 year career at AT&T and Bell Labs, Dr. Wyndrum was a member of the Technical Staff; Supervisor of Integrated Circuit Development; head of several Transmission Systems and R&D Departments; Director of Systems Analysis; Director of Quality, Engineering, Software and Technologies; Technology Vice President of AT&T Labs; and Program Planning and Management Vice President. In 2000 at AT&T Labs, he was Executive Consultant where he was involved in a wide variety of business-related projects and development of a graduate level Internet Protocol curriculum for AT&T's technical staff. In the 1970s and 1980s, Dr. Wyndrum served as a CCITT (ITU) delegate from AT&T for local Transmission Systems. He led the development for manufacture of several major Subscriber Loop carrier systems now serving millions of customers, and of the early prototype TouchTone ® Telephones. He also taught graduate EE courses at Stevens Institute of Technology as adjunct Professor from 1981-1988, and has advised masters and doctoral thesis students at Rutgers and NJIT.

Dr. Wyndrum is the 2006 President of IEEE-USA and a member of the 2006 ExCom and IEEE BOD. In 2004 he served as IEEE Vice President of Technology Activities and has served as a member of the IEEE Executive Committee, and the IEEE Board of Directors for five years. In 2003, he was VP for Technology Policy of IEEE-USA. He has served on the Boards of Governors of the Communications Society and the CPMT Society, and was the President of the CPMT Society. He has also served as IEEE Publications Vice President, and on the Technical Activities Board (TAB), the United States Activities Board, and as an ABET evaluator.

Dr. Wyndrum holds BS and MS degrees in Electrical Engineering and an MS in Business Administration (Executive MBA) from Columbia University and a Doctor of Engineering Science (Eng.Sc.D.) from New York University. He has published over 40 papers, articles and reviews and is a contributing author to texts published by Wiley and McGraw Hill. He holds six patents in integrated circuit applications, VF receiver design, and voice/data transmission.

All Welcome

Members and students from other professional societies and engineering disciplines are always welcome. We now include members from IEEE, ASME and AEA. For more information about these groups see:

www.aea.org
www.ieeeusa.org
http://web.njit.edu/~ieeenj/
www.asme.org/sections/northjersey
http://ewh.ieee.org/reg/1/

Time: 6:30 to 9:00 PM, Wednesday, November 8, 2006. Refreshments will be served.
Place: Clifton Memorial Library, 292 Piaget Ave, Clifton, NJ, (973) 772-5500.
Information: Paul Ward, (973) 790-1625 (PWard1130 "AT" aol.com) or Richard F. Tax, (201) 664-0803 (rftax "AT" verizon.net).

PES/IAS Leadership Openings

The PES and IAS Chapters are seeking members who are willing to serve in leadership and officer position in these Chapters. Interested candidates should contact Ken Oexle at (973) 386-1156 for more information.

PSoC Mixed Signal Development

On Thursday, January 25, 2007, the IEEE Consultants' Network of Northern NJ is pleased to present "PSoC Mixed Signal Development", by Chris Mesibov.

About the Talk

CNNNJ is pleased to present a technical presentation about Cypress PSoC (Programmable System on Chip) mixed signal IC development. Since its introduction, the Cypress PSoC has made dramatic inroads into embedded systems as a versatile mixed signal microcontroller. The PSoC contains microcontroller, digital and analog functions that provide an embedded engineer a vast set of solution all within a single IC. The discussion will describe what functions can be provided, how they are implemented, why engineers are choosing the PSoC over other micro controllers, and how the PSoC is used. Application examples are examined and demonstrations of the software tools are given that provide insight into the powerful features and development environment available to the PSoC developer.

About the Speaker

Chris Mesibov is President of TechGenesis Inc. His consulting business provides analog and digital design services and specializes in PSoC development. Mr. Mesibov is a Cypress PSoC certified designer/developer and has 20+ years experience designing embedded systems for RF ATE systems for military avionics, cellular / satellite equipment, and power systems for telecom products. His website is http://www.techgenesis1.com and can be reached by email at chris "AT" techgenesis1. com or by phone at (914) 584-2659.

About the Consultants' Network

Founded in 1992, the IEEE Consultants Network of Northern NJ encourages and promotes the use of independent technical consultants by business and industry.

All Welcome!

Everyone welcome. No registration needed. Free admission.
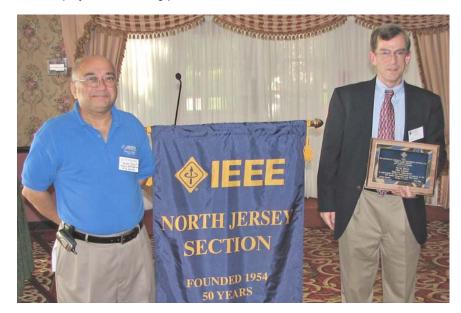
Time: 7:30 PM, Thursday., January 25, 2007.
Place: Aeroflex/KDI-Integrated Products, 60 S. Jefferson Rd, Whippany, NJ. (Entrance at rear of building).
Information: For directions and up-to-date meeting status, call Robert Walker (973) 728-0344 or visit our website at www.TechnologyOnTap.org. To download a map to KDI, go to: http://www.mcekdi-integrated.com/directions.htm.

IEEE North Jersey Section MTT /AP 21st Annual Symposium and Mini-Show

   The IEEE North Jersey Section MTT/AP 21st Annual Symposium and Mini-Show was successfully held on October 5th at the Birchwood Manor, Whippany, NJ, with about 175 attending. During the event consisting of nine lectures and numerous corporate table booth displays, the following pictures were taken.

Kirit Dixit, General Chair, shown with speaker David Bates, Chief Scientist, Dielectric Laboratories

Kirit Dixit, General Chair, and George Kannell, Technical Program Chair

Prospective new member and Peter Donegan, Section MTT/AP Vice Chair 2 and Membership Chair

From left - George Kannell, Technical Program Chair, presenting plaque to Bill McGinn, Application Engineer, Ansoft Corp, along with Kirit Dixit, General Chair

From left - Dr. Richard Snyder, President-RS Microwave and C&S/ED Society Section Chair, Art Greenberg of Lucent Technologies and VT Society Section Chair, Ken Oexle, Technical Program Chair and IAS Society Section Chair, and Dr. James Benjamin, guest speaker from BAE Systems

From left - Wilhelm Schmidt, Section MTT/AP Vice Chair 2 and Life Member Chair, with Arthur Zekis and Denis Rehse, Tekmar, Inc., Sales Engineers

From left - Bob Morrell, Russell Pepe, Technical Program Chair and Section Student Activities Chair, and Pat Nolan, all of Advanced Technical Marketing, Inc.

Reports, Studies Shatter Myth that H-1B Visa Holders are Paid Same Wages as U.S. Citizens

Washington (6 September 2006) - U.S. industry spokespeople say repeatedly that H-1B visa holders are paid the same wages as similarly qualified American citizens. Numerous studies and reports, however, have found this to be untrue.

Tata Consultancy Services (TCS) Vice President Phiroz Vandrevala even admitted that his company enjoys a competitive advantage because of its extensive use of foreign workers in the United States on H-1B and L-1 visas.

"Our wage per employee is 20-25% lesser than US wage for a similar employee," Vandrevala said. "Typically, for a TCS employee with five years experience, the annual cost to the company is $60,000-70,000, while a local American employee might cost $80,000-100,000. This (labour arbitrage) is a fact of doing work onsite. It's a fact that Indian IT companies have an advantage here and there's nothing wrong in that. … The issue is that of getting workers in the US on wages far lower than local wage rate." ("US visas are not a TCS-specific issue," Businessworld (India) magazine, June 2003).

IEEE-USA President Ralph W. Wyndrum, Jr. said proposals now before Congress to raise the H-1B visa cap should be scrapped until significant workforce protections for U.S. and H-1B employees are instituted.

"Not paying market wages to H-1B holders is unfair to both foreign and domestic high-tech workers," Wyndrum said. "H-1B employees are being taken advantage of, and some U.S. workers' salaries are likely suppressed by the influx of thousands of additional job competitors. The wage problem is one symptom of how deeply flawed the H-1B program is."

Findings showing H-1B holders earning less than the market wages paid to U.S. technology workers include:

1) "Immigrant engineers with H-1B visas may be earning up to 23 percent less on average than American engineers with similar jobs, according to documents filed with the U.S. Department of Labor (DOL). Salary data from Labor Condition Applications (LCAs) lends credence to arguments that lower compensation paid to H-1B workers suppresses the wages of other electronics professionals." -- EE Times (June 2006), which calculated average H-1B salaries from LCAs and compared them to the Bureau of Labor Statistics' Occupational Employment Statistics survey of employers. See http://www.eetimes.com/news/latest/showArticle.jhtml?articleID=189401976.

2) "In spite of the requirement that H-1B workers be paid the prevailing wage, H-1B workers earn significantly less than their American counterparts. On average, applications for H-1B workers in computer occupations were for wages $13,000 less than Americans in the same occupation and state."

"Applications for 47 percent of H-1B computer programming workers were for wages below even the prevailing wage claimed by their employers." -- Center for Immigration Studies report (Dec. 2005). See http://www.cis.org/articles/2005/back1305.html (under Key Findings).

3) "Some [H-1B] employers said that they hired H-1B workers in part because these workers would often accept lower salaries than similarly qualified U.S. workers; however, these employers said they never paid H-1B workers less than the required wage." Government Accountability Office report (September 2003). See http://www.gao.gov/new.items/d03883.pdf (p. 4).

According to IEEE-USA Vice President Ron Hira, the concept of "prevailing wages" is worthless as a safeguard for U.S. and H-1B workers.

"Proponents of the H-1B program say that by law H-1B workers must receive prevailing wages, but this is a legal façade so full of loopholes that it is frequently gamed by employers to pay below-market wages," Hira said. "This is another myth of the H-1B program, that prevailing wages are the same as market wages."

A review of the DOL's LCA database for FY 2005 shows some of the well-below-market wages employers have been certified to pay H-1B workers. For example, Teja Technologies received permission to pay a software engineer $10,900. Infosys Technologies was authorized to pay a programmer analyst $20,030. TCS was certified to pay a computer programmer $20,571, and Syntel, Inc., was permitted to pay a computer programmer $31,304.

Under law, U.S. employers have three options for determining an H-1B employee's prevailing wage. According to the DOL, an employer can request a "prevailing wage determination from the appropriate State Workforce Agency;" use a "survey conducted by an independent authoritative source;" or use "another legitimate source of information."

Despite the law's intent, Hira enumerated a few ways companies circumvent the law's prevailing wage requirements when hiring H-1B workers:

1) By selecting a survey source with the lowest salaries

2) By misclassifying an experienced worker as entry level

3) By giving the person a lower-paying job title than one reflective of the work to be performed

4) By citing wages for a low-cost area of the country, then sending an employee to a higher-cost area

One reason it is so easy for employers to underpay H-1B holders is because they know how to exploit the loopholes and have almost no chance of ever being investigated. Even if they were investigated, the loopholes are so large most of the employers would likely be found following the letter of the law. First, DOL's automated review of LCAs is limited to looking for missing information or obvious inaccuracies; no human looks at the applications. Second, if a Department of Homeland Security (DHS) review finds that an H-1B worker's income on the W-2 form is less than the wage on the original LCA, DHS does not have a way to report the discrepancy to DOL.

"It's a self-policing system that is never actually checked," Hira said. "The law itself is written in a way to invite exploitation. It should be no surprise that firms take advantage of the loopholes."

IEEE-USA advances the public good and promotes the careers and public policy interests of more than 220,000 engineers, scientists and allied professionals who are U.S. members of the IEEE. IEEE-USA is part of the IEEE, the world's largest technical professional society with 360,000 members in 150 countries. See http://www.ieeeusa.org.

Contact: Chris McManes
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202-530-8356
IEEE-USA

NJ Power Engineering Society/Industry Applications Society
Arc Flash Seminar

The PES and IAS Chapters will sponsor a technical seminar on the topic of Introduction to Arc Flash Hazards. The session will be held on Friday, November 17, 2006, at Public Service Electric & Gas Corporate Headquarters in Newark, NJ.

Topics

Introduction to Arc Flash Hazards
- ✓ Existing and Proposed Standards
- ✓ Determine Safe Approach Distance
- ✓ Arc Fault Current Calculations
- ✓ Flash Protection Boundary Calculations
- ✓ Incident Energy Exposure Calculations
- ✓ Determine Hazard Risk Category
- ✓ Select Personal Protective Equipment (PPE)
- ✓ ATPV Values for PPE
- ✓ Reducing the Arc Flash Hazard

About the Instructor

Bill Vilcheck received his BSEE and MSEE from West Virginia University and has been employed as a power systems engineer since 1975. He joined Eaton Electrical Services & Systems in 1998. As Principal Engineer, he has been involved in all power systems engineering activities and continues to focus upon power quality engineering, energy management, and arc flash safety. Bill Vilcheck is a Senior Member of IEEE and member of the Pulp and Paper Industry Committee. He is a Professional Engineer registered in Pennsylvania and West Virginia and co-author of several technical papers.

The registration fee for this seminar prior to November 3rd will be $150 for non-IEEE members, $100 for IEEE Members, $75 for GOLD Graduates (last 1-10 years) and $25 for students with valid ID. The fee will be waived for IEEE Life Member Grades with verification at the seminar. Registrations after November 3rd must include an additional late fee of $25. The seminar fee includes lunch, refreshments and handouts. Non-members joining IEEE within 30 days of the seminar will be rebated 50% of the IEEE registration charge.

If desired, IEEE Continuing Education Units will be offered for this course - a small fee of $25 will be required for processing. A total of 0.4 CEUs will be offered. Please indicate if desired below.

Time:	9:00 AM to 2:00 PM (lunch is included), Friday, November 17, 2006.
Place:	PSE&G, 80 Park Plaza, Newark, NJ 07101
Directions:	http://www.pseg.com/about/directions.jsp or Amtrak, NJ Transit or PATH buses and trains
Information:	Ronald W. Quade, PE, (732) 205-2614 or rwquade "AT" ieee.org

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Registration: Arc Flash Seminar 11/17/2006

Register via US mail to: Ronald W. Quade, PE
                                 Eaton Electrical
                                 379 Thornall St, 8th Floor
                                 Edison, NJ 08837

Name _____

Address _____

Phone_____   Email _____

IEEE #_____ Student @_____ Non IEEE_____ Life Member_____

Continuing Education Units: _____Yes $25   _____No
If CEUs are chosen, please include a $25 processing fee
Payment Enclosed $_____ Add $25 late registration after November 3, 2006

Make checks payable to North Jersey Section IEEE

Navigation: Land, Sea, Air and Space

On Wednesday, November 15, 2006, the IEEE NJ Section of Aerospace, Electronics and Systems (AES) Technical Society together with the L-3Com will host a short course on Navigation: Land, Sea, Air and Space. The instructor is Dr. Myron Kayton.

About the Course

The course will include: Overview of navigation, Coordinate Frames, Absolute navigation versus dead reckoning, Guidance versus navigation, Tailoring navigation to the vehicle, Terrestrial radio systems, GPS and DGPS, timing, Dead reckoning, compass, gyroscopes and accelerometers, gimbal sets, strap-down configurations, sensor processing, Cell-phone positioning, Spacecraft navigation, coasting flight, powered flight, land navigation, Testing, Calibration, initialization, and alignment, Cost and accuracy, Animal navigation, Future trends, Bibliography: books, journals, and web sites.

About the Instructor

Dr. Myron Kayton has 50 years of experience designing and testing avionic, navigation, communication and computer-automation systems. He is a Consulting Engineer for his own company. From 1968 to 1981, he was a member of the senior staff at TRW where he served as Chief Engineer for Spacelab avionics and head of System Engineering for Space Shuttle avionics among scores of assignments. From 1965 to 1969, he served as Deputy Manager for Lunar Module Guidance and Control at NASA's Johnson Space Center. From 1960 to 1965, he was Section Head at Litton's Guidance and Control Division where he designed and analyzed some of the earliest multi-sensor navigation systems, for example the SRAM cruise missile. Dr. Kayton is a Life Fellow of the IEEE, served on its Board of Directors and as President of the Aerospace and Electronic Systems Society, and received numerous awards and honors. He is an AESS Distinguished Lecturer, has taught at UCLA and published more than 80 papers; two books, Avionics Navigation Systems (two editions); Navigation: Land, Sea, Air and Space; and several handbook chapters.

All Welcome!

All are welcome but seats are limited (first come-first served)! You do not have to be IEEE member to attend the course. Early registration, latest by October 31, is required to help L-3Com for security review and allowing you access to their building.

Cost: $10 for IEEE-AES members, unemployed and students. $25 for all others. You are welcome to join AES Society and pay the reduced rate.

Time: 9:00 AM – 4:30 PM, Wednesday, November 15, 2006. Refreshments will be provided.
Place: L-3Com Space and Navigation, 450 Clark Drive, Budd Lake, NJ, 07828, (973) 446-4000, www.L-3Com.com/Spacenav.
Information: Dr. Naresh Chand, (973) 636-7408, naresh.chand "AT" baesystems.com.

REGISTRATION: Navigation: Land, Sea, Air and Space by Myron Kayton

Please mail the completed registration form with the check **(payable to "North Jersey Section IEEE") to: Dr. Naresh Chand, BAE SYSTEMS, M/S 100A2, 164 Totowa Road, Wayne, NJ 07474**

Name: Dr. / Mr./ Mrs./ Miss / Ms./_____

Email address: _____

Telephone # Business:_____ Home:_____

Member of IEEE-AES Technical Society: ☐ Yes   ☐ No

If no, do you want to join AES Technical Society: ☐ Yes

☐ IEEE Member   Member #:_____

Member of _____ technical society

Employer:_____

Employer address:_____

_____

Home Address:_____

_____

Please enclose required fee payable to: North Jersey Section IEEE

As soon as a fully completed registration form and the payment are received, you are officially registered for this course. Registration status will be mailed through email.

☐ Tuition receipt will be mailed only if this box is checked

☐ I wish to receive IEEE Completion Certificate

Signature:_____

LISAT 2007

Third Annual IEEE Long Island Systems, Applications and Technology Conference
Friday, May 4, 2007
Institute for Research & Technology Transfer, Farmingdale State University
Farmingdale, NY

CALL FOR PAPERS AND EXHIBITORS

Last year's successful conference featured contributed papers that were presented in three parallel sessions: Systems, Applications, and Technology. Technical papers describing research development and application on a broad range of electronic and electrical engineering topics are solicited for LISAT2007.

All paper submissions must include title and a 300 to 500 word summary, the speaker(s) full name, affiliation, address, phone number and email address and a 1/3 page long biography. Submissions should be emailed to the LISAT Technical Program Co-Chairmen, Dave Mesecher at **d.mesecher@ieee.org** and Daniel Rogers at **drogers@ieee.org**, as well as Jesse Taub, Technical Program Consultant, at **jjtaub@aol.com**. Papers will be accepted based on their originality, quantitative content, clarity, and interest to IEEE members.

The deadline for paper submissions is December 1, 2006. You will be notified of acceptance or rejection on or before January 10, 2007 and will be given instructions for electronic submission of your full paper which is due by February 15, 2007. One author of each paper must register for the Conference and will be expected to provide a 40 minute PowerPoint presentation at the conference followed by 10 minutes of Q&A. Presented papers will be part of the CD-ROM Conference Proceedings to be given to each attendee and will become part of the IEEE Xplore database.

While LISAT welcomes a wide variety of papers in systems, applications and technology, some examples of topics of particular interest are:

Homeland Defense, Satellite Communications, Mobile Communications, RF ID Tag Technology, Microwave Technology, Electromagnetic Compatibility, Mobile Ad Hoc Networking, Multi-level Network Security, Sensor Fusion, New Electrical Power Sources, Antenna Systems and Processing, Radio Locationing, Radar Systems and Techniques, and Medical Electronics

Releases and Approvals: This conference will be unclassified and attended by both US and non-US persons. It is the author's responsibility to obtain all required company and government releases and approvals prior to making a paper submission. A statement that such releases and approvals have been obtained as well as a completed IEEE copyright form (signed by the submitting author) must accompany the final manuscript of each accepted paper.

*For information on Exhibiting at LISAT, please contact: Fred Kruger at **f.m.kruger@ieee.org** or Mark Sadick at mark@sagharborind.com and/or Tel: 516-967-2970*

*For all other information contact LISAT2007 Conference Chair: Dr. Charles Rubenstein at **c.rubenstein@ieee.org** or Conference Vice Chair: Dr. Babak Beheshti at **b.beheshti@ieee.org***

*LISAT is sponsored by the **IEEE Long Island Section** and its Technical Society Chapters, and **IEEE Region 1** in cooperation with the **Institute for Research & Technology Transfer (IRTT)** at **Farmingdale State University***

2007 Officer Ballot

Instructions for Casting Ballots
Completed ballots should be mailed to the North Jersey Section Newsletter Editor as follows:

Keith Saracinello
IEEE North Jersey Section Newsletter Editor
25 Messenger Ln
Ringoes, NJ 08551

The ballot MUST be filled out completely with members name, membership number, and signature. The ballots are invalid without this information. Xerox copies of the ballot are acceptable as long as they are filled out completely. Ballots received after November 30, 2006, will <u>not</u> be counted.

Chairperson: (choose one)
  ☐............................ Kirit Dixit
  ☐...............................(write-in)_____

Vice Chairman-1: (choose one)
  ☐................ Bhanu Chivukula
  ☐...............................(write-in)_____

Vice Chairman-2: (choose one)
  ☐...............................(write-in)_____

Treasurer: (choose one)
  ☐............. Dr. Sanghoon Shin
  ☐...............................(write-in)_____

Secretary: (choose one)
  ☐..........................Seth Jakel
  ☐...............................(write-in)_____

Members-At-Large: (choose three)
  ☐.................... Pete Donegan
  ☐..........................Seth Jakel
  ☐...........................Amit Patel
  ☐.............................(write-in)_____

Member Name_____ Member No. _____

Signature _____ Date _____