

The



# IEEE Newsletter

PUBLICATION OF THE NORTH JERSEY SECTION OF THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

*North Jersey SMC Society:*

## Advancements in Wall-Climbing Robots

On Wednesday, November 16, 2005, the NJ Systems, Man and Cybernetics (SMC) Chapter will host a talk on "Advancements in Wall-Climbing Robots." The speaker will be Dr. Jizhong Xiao.

### About the Talk

Most of the mobile robots nowadays essentially move in 2D plane without wall-climbing capability. It has been a long-time dream to develop miniature climbing robots with the ability to climb walls, walk on ceilings, crawl through pipes, and transit between different surfaces, thus transforming the present 2D world of mobile rovers into a new 3D universe. This talk will present some novel climbing robots that emerged recently, which include the biologically inspired climbing robots, vortex climber, and "Flipper" and "Crawler" robots developed at Michigan State University. The talk will also report the research progress and technical achievements by a multi-disciplinary team at The City College of New York (CCNY) in developing novel climbing robots which overcome the limitations of previous climbers, and surpass them in terms of robot capability, modularity, control performance, and intelligence to carry out various defense, security, and inspection missions.

### About the Speaker

Dr. Jizhong Xiao is currently an assistant professor and the founding director of CCNY Robotics Lab at the Department of Electrical Engineering, The City College, City University of New York. He is also a CUNY Doctoral Faculty in both Engineering Program and Computer Science Program. He received the PhD in Electrical and Computer Engineering from Michigan State University, in 2002, and Master's degrees from Nanyang Technological University, Singapore, and East China Institute of Technology. Dr. Xiao's research interests are in the areas of robotics and control, embedded system design, intelligent systems, and computer vision. His research has been supported by the NSF and US Army Research

Office and CUNY grants. He is a member of IEEE, New York Academy of Sciences and Sigma Xi.

### 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 16, 2005.

**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](mailto: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.

*NJ PES/IAS Chapters:*

## Energy Conservation Technical Discussion Series

Beginning January 2006, the PES and IAS Chapters will sponsor a FREE monthly series of discussions on the topic of Energy Conservation. Industry leaders will discuss various topics including but not limited to:

- utility incentives
- high efficiency lighting
- high efficiency transformers, motors & variable frequency drives
- solar, wind, and wave power
- hybrid vehicles
- plus many more timely topics

The FREE sessions will be held on a recurring monthly evening at a host facility centrally located near Edison, NJ.

The discussions will begin at 6:30PM preceded by a pre-meeting buffet starting at 6:00PM.

Look for additional details in the December Newsletter.

Interested presenters should contact Ronald W. Quade, PE, (732) 205-2614 or [rwquade "AT" ieee.org](mailto:rwquade@at.ieee.org).

**NOVEMBER 2005**

# November 2005

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### 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 Russell Pepe at (201) 960-6796, [rpepe@att.net](mailto:rpepe@att.net).*

### NJ Section PACE & GOLD:

## Engineers Meet: Engineering GOLD or Fools Gold?

On Wednesday, November 9, 2005 the North Jersey Section Professional Activities Committee and Graduates of the Last Decade will meet to discuss the engineering profession. Is it gold or iron pyrites? Our speaker will be a graduate of the last decade (GOLD). It's time to hear from a recent entrée to the profession.

Our speaker will present his views about engineering, education, IEEE, the job market, and be available to answer questions from the audience.

### About the Talk

Topics include: the current state of the employment market for entry level EEs and trends in engineering careers.

This is especially of interest to students, recent graduates and those looking to expand job opportunities

### About the Speaker

Matthew Nissen, a 2003 graduate from Brooklyn Polytechnic University with a degree in Electrical Engineering, will be the speaker.

Matthew is active in IEEE's New York Section as their PACE Chair. He is currently working for EME Group Consulting Engineers in NYC. EME is primarily an MEP (Mechanical Electrical Plumbing) Design and Energy Services Consulting Firm involved in construction, development, and infrastructure:

### 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/chapters/nj/](http://www.aea.org/chapters/nj/)  
[www.ieeeusa.org](http://www.ieeeusa.org)  
[web.njit.edu/~ieeenj/](http://web.njit.edu/~ieeenj/)  
[www.asme.org/sections/northjersey](http://www.asme.org/sections/northjersey)

**Time:** 6:30 to 9:00 PM, Wednesday, November 9, 2005. 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) 664-6954 (rtax "AT" bellatlantic.net).

### NJ Communications and SP Societies:

## Video Compression and Delivery – A Discussion

On November 22, 2005, the IEEE North Jersey Section Communications Society and Signal Processing Chapters along with NJIT will host a discussion on Video Compression and Delivery. The speaker will be Dr. Sankar Subramanian.

### About the Talk

This talk will focus on contemporary video compression and delivery techniques. The following topics will be discussed:

- Fundamentals of video compression
  - ↳ Spatial aspects
  - ↳ Temporal aspects
- Differences in compression used in
  - ↳ Video streaming
  - ↳ Digital broadcast television
  - ↳ Video on demand
  - ↳ Video conferencing
- Transport for video delivery
- Constraints on the network for video delivery
- Video quality – The end-user experience

### About the Speaker

Sankar Subramanian received his PhD in Computer Engineering from SUNY, Stony Brook in 1994 and his Masters in Computer Engineering from SUNY, Stony Brook in 1991. Sankar works at the Verizon Technology Laboratories in White Plains NY. His interests include Video Compression and Delivery, Network Security, Network Management Systems, Voice-Data Integrations, and Call Center technologies.

### All Welcome!

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

**Time:** 6:15 PM (refreshments start at 6:00 PM), Tuesday, November 22, 2005.

**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:** Dr. Nirwan Ansari (973) 596-3670 ([nirwan.ansari@njit.edu](mailto:nirwan.ansari@njit.edu)) or check <http://web.njit.edu/~ieeenj/comm.html> for the latest updates.

# IEEE North Jersey Section Activities

## November 2005

**Nov. 2** – “NJ Section Meeting”, 6:30 PM, “Executive Committee Meeting” - 7:00 PM, ITT, 100 Kingsland Rd, Clifton, NJ. Russell Pepe at rpepe “AT” worldnet.att.net.

**Nov. 5** – “IEEE CT Mini-Conference - Control Systems – Theory and Applications” – IEEE CT Section, 9:00 AM – 3:00 PM, Bartel Hall Alumni Lounge and Conference Center, University of New Haven, CT. Oscar Tonello, IEEE-CT CS/IA/RA Chair, (203) 386-8216 (ot “AT” ieee.org), or Thomas Freund, IEEE-CT Consultants Network Chair, (860) 232-1614 (WriteNCook “AT” aol.com). Directions: <http://www.newhaven.edu/directions.html>.

**Nov. 7** – “Trustworthy Systems through Quantitative Software Engineering” - NJ Computer Chapter, 7:30 PM, Barnes and Noble, 2nd Floor Mezzanine, Clifton Commons, Route 3 East, Clifton, NJ, (973) 779-5500. Seth Jakel, (973) 731-1902, (973) 820-1865 (sgjakel “AT” comcast.net), or Vivek Shaiva (908) 229-6125 (vshaiva “AT” computer.org).

**Nov. 9** – “GaN-based Microwave Field Effect Transistors” – EDS/C&S, & MTT-S/AP-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), Har Dayal (973) 633-4618 (har.dayal “AT” baesystems.com), or Kirit Dixit (201) 669-7599 (kdixit “AT” ieee.org).

**Nov. 9** – “Engineers Meet: Business Engineering GOLD or Fools Gold?” - 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” bellatlantic.net).

**Nov. 10** – “Signal Processing Primer for Radio Design” – VTS & MTT-S/AP-S Chapters, 7:00 PM (dinner at 6:00 PM), Lucent Technologies, Room TBA, 67 Whippany Rd, Whippany, NJ. Stephen Wilkowski, Lucent Technologies, (973) 386-6487, Arthur Greenberg (973) 386-6673 (ahg1 “AT” lucent.com), Kirit Dixit, RF Electronics, (201) 669-7599, or Har Dayal (973) 633-4618 (har.dayal “AT” baesystems.com).

**Nov. 16** – “Advancements in Wall-Climbing Robots” - 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).

**Nov. 18** – “Upgrade of Generator Protection to Comply With IEEE Guides Technical Seminar” - NJ IAS/PES Chapters, 9:00 AM – 1:00 PM, PSE&G Training Center, 234 Pierson Ave, Edison NJ. Ronald Quade, PE, (732) 205-2614 or rwquade “AT” ieee.org.

**Nov. 22** – “Video Compression and Delivery – A Discussion” - NJ Communications and SP Chapters, 6:15 PM (refreshments at 6:00 PM), New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Dr. Nirwan Ansari (973) 596-3670 (nirwan.ansari “AT” njit.edu) or check <http://web.njit.edu/~ieeenj> for the latest updates.

### Upcoming Meetings

**Dec. 8** – “Annual Meeting” - 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](http://www.TechnologyOnTap.org).

**Feb. 18-May 6** – “C# .NET Programming” – North Jersey Section, Saturday Mornings, 10 sessions, 9:00 AM-12:00 PM, location TBA. Bhanu Chivukula (b.chivukula “AT” computer.org).

**Mar. 14-May 9** – “Project Management” – North Jersey Section, Tuesday Evenings, 8 sessions, 6:30-9:00 PM, NJ International Bulk Mail Center, 80 County Rd, Jersey City, NJ. Bhanu Chivukula (b.chivukula “AT” computer.org).

**Mar. 27-28** – “2006 IEEE Sarnoff Symposium” – see [www.sarnoffsymposium.org](http://www.sarnoffsymposium.org) for details.

**May 7** – “NJ Section Awards Reception” - 3:00 to 6:00 PM at the Birchwood Manor, 111 North Jefferson Rd, Whippany, NJ. Anne Giedlinski (973) 377-3175.

**Members and Non-Members Welcome**

**PLEASE POST**

*NJ Computer Chapter:*

## **Trustworthy Systems through Quantitative Software Engineering**

On Monday, November 7, 2005, the IEEE North Jersey Section Computer Society Chapter and the Barnes and Noble book store in Clifton will jointly host a presentation titled "Trustworthy Systems through Quantitative Software Engineering" by Lawrence Bernstein.

### **About the Talk**

Software system development is too often focused solely on schedule and cost. Sometimes performance and functional technical requirements become an issue. Rarely is trustworthiness considered. Not only must software designers consider how the software will perform they must account for consequences of failures. Trustworthiness encompasses this concern. This talk defines trustworthiness in terms of Safety, Reliability and Safety. A means for doing quantitative analysis of requirements and for quantitative software engineering will be presented. This talk is part of a book discussion of the speaker's new book at Barnes and Noble in Clifton.

### **About the Speaker**

Lawrence Bernstein is a recognized expert in software engineering, software technology, project management, and technology conversion. He is Industry Research Professor of Computer Networks and Software Engineering at Stevens Institute of Technology in Hoboken, NJ. He directs the Stevens Quantitative Software Engineering program. He is director of the New Jersey Center for Software Engineering.

He consults on software process improvement. For one company he recommended the split between R&D and software assets when it acquired another company. He was an expert witness in two arbitration cases where he assessed the quality and origins of a large operations support software system, and advised another company on the unreasonableness of their claims in a software product dispute. He has worked with the Price Waterhouse Coopers' Technology Center for several clients.

He had a 35-year distinguished career at Bell Laboratories in managing large software projects and since retirement heads his own consulting firm. At Bell Labs he became a Chief Technical Officer of the Operations Systems Business Unit and an Executive Director. In parallel with these Bell Labs positions he was the Operations Systems Vice President of AT&T Network Systems from 1992-1996.

He is a Fellow of the Institute of Electrical and Electronics Engineers, Inc. (IEEE) and a Fellow of the leading software organization, the Association for Computing Machinery (ACM). He is a member of the Russian Information Academy; a visiting Associate of University of Southern California's Center for Software Engineering and an Industrial Fellow of Ball State Center for Information and Communication Sciences. He is a member of the honor societies Tau Beta Pi and Eta Kappa Nu and is listed in Who's Who in America. He was awarded the coveted Bell South "Eagle" for seminal contributions to their automatic service provisioning systems. He was awarded the Patriotic Civilian Service Award, by the US Army, for outstanding performance on the SAFEGUARD software project.

### **All Welcome!**

Attendance is free of charge, and you do not have to be a member of the IEEE to attend. Bring your friends and network both before and after the presentation.

**Time:** 7:30 PM, Monday, November 7, 2005.

**Place:** Barnes and Noble, 2nd Floor Mezzanine, Clifton Commons, Route 3 East, Clifton, NJ, (973) 779-5500.

**Information:** Seth Jakel, (973) 731-1902, (973) 820-1865 (sjjakel "AT" comcast.net), or Vivek Shaiva (908) 229-6125 (vshaiva "AT" computer.org).

## **Conference Rooms Needed!**

The North Jersey Section (Education Committee) is looking for conference room facilities to hold their training seminars. The seminars are being held on one weeknight from 6:30 PM to 9:00 PM. In return for providing the conference facility for free, the organization can get free registration up to three members in the course/seminar. Please contact Bhanu Chivukula, Education Committee Chairman, at b.chivukula "AT" computer.org for suggestions or discussions, if interested.

## **The NJ Section Education Committee Requests Your Feedback**

The IEEE North Jersey Section has been helping fellow engineering professionals for the last fifty years. The Education Committee has successfully conducted software and engineering training courses over the last few decades. The Committee is committed to professional development of the members and the instructors for the courses are very qualified and experienced in their respective fields. Classes are arranged on weekday evenings or on Saturdays provided at least fifteen candidates are available. Completion certificates are issued by IEEE Headquarters with CEU credits for the number of training hours.

Due to the slow growth of the economy and several other factors, registration for these courses has diminished over the last few years. I would urge members to send their feedback regarding what courses they would be interested in, the format, location, and day/time, etc., by email to b.chivukula "AT" computer.org.

Regards,  
Bhanu Chivukula  
Chair, Education Committee  
Vice Chair, IEEE North Jersey Section

## **New Site Searches for Job Listings Far and Wide**

If you're looking for a new job, you've probably found a few Web sites that list positions in your field, but with more than 100 000 job sites on the Internet, you can't possibly peruse them all. Wouldn't it be great if there were an IEEE site that gathers the pertinent information for you? There is. Find out more at <http://boldfish.ieee.org:80/u/1007/00679498>

## **2006 Membership Renewal Kicks Off**

The IEEE encourages members to renew their 2006 membership electronically. More than 198 000 members renewed online for 2005, a 9 percent increase over 2004. Those who renew online by 15 November at <http://boldfish.ieee.org:80/u/1009/00679498> will be entered in a drawing to win a Dell Inspiron laptop. Find out about renewing and what new benefits are being offered at <http://boldfish.ieee.org:80/u/1010/00679498>

## GaN-based Microwave Field Effect Transistors

On November 9, 2005, the IEEE NJ Section Electron Devices, Circuits and Systems Chapters together with MTT/S/AP-S and the New Jersey Institute of Technology will host a talk on "GaN-based Microwave Field Effect Transistors." The speaker will be Dr. Michael Shur.

### About the Talk

Wurtzite (hexagonal) symmetry makes the device physics of GaN/AlN/InN heterostructure field effect transistors (HFETs) to be quite different from that from more conventional GaAs/InAs/InP and Si based transistors. Spontaneous and piezoelectric polarizations at AlGaIn/GaN or AlGaInN/GaN lead to the formation of two-dimensional (2D) electron gas or 2D hole gas (depending on the surface polarities). These 2D electrons have a higher mobility compared to that for three dimensional electrons but a reduced peak velocity. In high electric fields, electron runaway effects and overshoot and ballistic effects play a dominant role. A field dependent penetration of the electron wave function from the device channel into the wide band gap barrier layer strongly affects the real space transfer and device breakdown voltage. Quantum well designs (e.g. incorporating an InGaIn quantum well between the wide band gap AlGaIn barrier layer and GaN buffer and thin AlN barrier) might be required to control this wave function penetration and the real space transfer. A high electric field at the gate edges leads to the additional strain and hot electron effects causing the current collapse and gate lag. Optimized field plate and recessed gate designs (including the use of textured AlGaIn for easily controlled etching) help solve this problem and improve the device reliability. Inverted HFET designs might result in reduced access resistance, a large current carrying capability, lower gate leakage and better thermal control. Large energy gap discontinuities at heterointerfaces allow for obtaining very large densities of 2D electrons (exceeding those at AlGaAs/GaAs heterointerfaces by a factor of 10 to 20) with a commensurate increase in the output power. Such large densities make the insulated gate design – MOSHFET - (with the dielectric layer separated from the active channel by the wide band gap barrier layer) practical, since one can tolerate a much higher density of the surface states. Large electron densities in the HFET channels also minimize the

1/f noise making it to be smaller than in doped GaN films. Insulated gate designs makes devices superior for DC and RF power applications.

Deep understanding of this new physics of GaN/AlN/InN HFETs is a prerequisite for the optimization of their design, improving their reliability and performance, and achieving a higher frequency operation.

### About the Speaker

Michael Shur received his MSEE (engineer) degree (with honors) from St. Petersburg Electrotechnical Institute, PhD in Physics and Mathematics and Doctor of Science in Physics and Mathematics degree, both from A. F. Ioffe Institute. He has held research or faculty positions at A.F. Ioffe Institute, Cornell, Oakland University, University of Minnesota, and University of Virginia, where he was John Money Professor of Electrical Engineering and served as Director of Applied Electrophysics Laboratories. He is now Patricia W. and C. Sheldon Roberts '48 Professor of Solid State Electronics, Professor of ECSE, Professor of Physics, Applied Physics and Astronomy, Director of Center for Broadband Data Transport Science and Technology, and co-Director of the NSF I/UCR Center "Connection One." In 2001-2002, he served as Acting Director of Center for Integrated Electronics at RPI. Dr. Shur is Fellow of IEEE, Fellow and life member of the American Physical Society, Fellow of Electrochemical Society, Fellow of World Innovation Foundation, AAAS, Life Member of IEEE MTT, of Sigma Xi, and of Humboldt Society of America, member of Eta Kappa Nu, and Tau Beta Pi, Electromagnetic Academy, Materials Research Society, ASEE, Sigma Xi, elected member and former Chair of US Commission D, International Union of Radio Science (URSI), and elected member of NRC of URSI (2003-2004). Dr. Shur is Editor-in-Chief of the International Journal of High Speed Electronics and Systems and of the book series on Selected Topics in Electronics and Systems (World Scientific), Regional Editor of *physica status solidi*, Member of the Honorary Board of Solid State Electronics, member of the International Advisory Committee of Journal of Semiconductor Technology and Science, Vice-President for publications of the IEEE Sensor Council, and member (1999-2003) and Chair (2004-2005) of the IEEE Prize Papers/Scholarships Award Committee. He is also Distinguished Microwave Lecturer of IEEE MTT and Distinguished Lecturer of IEEE EDS. In 1990-1993, he served as an Associate Editor of IEEE ED Transactions.

Dr. Shur has also served as Chair, Program Chair, Organizing and Program

Committee Member of many IEEE conferences. He is one of co-developers of AIM-Spice (with over 60,000 users world wide) and co-founder of Sensor Electronics Technology, Inc. In 1994, the Saint Petersburg State Technical University awarded him an Honorary Doctorate. He has published many technical papers, authored, co-authored or edited 33 books and 28 book chapters, and has been awarded over 30 patents on semiconductor devices and circuits. Several of his technical publications received the best paper awards. Among his other awards are the Gold Medal of the Russian Ministry of Education, several A. F. Ioffe Best Paper Awards, van der Ziel Award, Senior Humboldt Research Prize, Pioneer Award from Compound Semi, RPI School of Engineering Research Award, and Commendation for Excellence in Technical Communications. Dr. Shur is listed by the Institute of Scientific Information (ISI) as a highly cited researcher in engineering.

### All Welcome!

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

**Time:** 7:00 PM, Wednesday, November 9, 2005. 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/University/Directions.html>.

**Information:** Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Edip Niver (973) 596-3542 (NJIT), Har Dayal (973) 633-4618 (har.dayal "AT" baesystems.com), or Kirit Dixit (201) 669-7599 (kdixit "AT" ieee.org).

## Nominate a Colleague for Fellow

It's never too early to start thinking about nominating a colleague who is a senior member for the 2007 class of IEEE Fellows. Nominating forms are due to the Fellow Committee by 1 March 2006.

The IEEE Fellow grade is conferred by the Board of Directors upon a person with an extraordinary record of accomplishments in any of the IEEE fields of interest. The total number of Fellows selected in any one year cannot exceed one-tenth of 1 percent of the total voting IEEE membership.

To obtain the IEEE Fellow Nomination Kit, visit the IEEE Fellow Activities Web site at <http://www.ieee.org/fellows> or send a message to fellow-kit "AT" ieee.org.

VTS & MTT-S/AP-S Chapters:

## Signal Processing Primer for Radio Design

On Thursday, November 10, 2005 the Vehicular Technology Society together with MTT/S/AP-S will host a presentation entitled "Signal Processing Primer for Radio Design" by Sean Gallagher.

### About the Talk

Engineers that are coming to digital signal processing from other disciplines may be overwhelmed by the concepts and language of digital signal processing. This presentation is designed to demystify the concepts that are basic to understanding digital signal processing while using math that is no more complicated than high school trigonometry. Topics covered include a proof that you've been doing convolution since grammar school, why I and Q signals are needed when base banding signals, decimation of base banded signals, poly-phase decomposition, how the discreet Fourier transform really works, and other topics as time permits.

### About the Speaker

Sean Gallagher earned his MSCE from Villanova University in 1995 where he did thesis work on implementing algorithms in fpgas. He currently is a senior DSP Specialist for Xilinx Inc where he works on fpga implementations of algorithms ranging from digital communications to radar applications. Sean has taught digital signal processing as an adjunct professor at Temple University and is currently developing a hardware DSP course for Villanova University. Sean resides in the Philadelphia suburbs with his family and enjoys sailing, guitar, and model railroading in his free time.

### All Welcome!

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

### Pre-Registration Strongly Suggested

Please email swilkowski "AT" lucent.com or kdixit "AT" rfsales.com with full name (first and last), affiliation, citizenship so that a guest badge is ready.

**Time:** 7:00 PM, Thursday, November 10, 2005. Pre-meeting dinner will start at 6:00 PM.

**Place:** Lucent Technologies, Rm TBA, 67 Whippany Rd, Whippany, NJ 07981.

**Information:** Stephen Wilkowski, Lucent Technologies, (973) 386-6487, Arthur Greenberg (973) 386-6673 (ahg1 "AT" lucent.com), Kirit Dixit (201) 669-7599 (kdixit "AT" microcomsales.com), or Har Dayal (973) 633-4618 (har.dayal "AT" baesystems.com).

NJ Consultants' Network:

## Annual Meeting

On Thursday, December 8, 2005, the IEEE Consultants' Network of Northern NJ will conduct its annual Planning Meeting and Workshop.

### About the Talk

The combined November/December meeting of the IEEE Consultants' Network is designed as a strategic planning event for Network members and for consultants who are considering membership in the Consultants' Network.

The main purpose of the meeting will be to discuss ideas and expectations for the various Network functions in the upcoming year. Results of the annual election of officers will be announced at the time.

This Working Session is traditionally an open, informal forum to determine what the IEEE-CNNNJ is doing right or wrong. The floor will be open to suggestions for improvements, recommendations of new Network directions and activities and proposals of new feature topics for the general meetings.

The major functions performed by the IEEE Consultants' Network that will be discussed are:

- Monthly General Meetings - Suggested feature topics will be discussed.
- Member Networking - Member presentations and alternate general meeting formats that improve networking.
- Group Marketing & Image Building - CNNNJ Website, tri-fold and postcard mailing, CNNNJ's free consultant referral service, and alternate publicity methods.

Refreshments and pastries will be available during the course of the evening and there will be no pre-meeting dinner for members as is customary.

### 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.

**Time:** 7:30 PM, Thursday, December 8, 2005.

**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](http://www.TechnologyOnTap.org). To download a map to KDI, go to: <http://www.mcekdi-integrated.com/directions.htm>.

## North Jersey Section Seeks Committee Chairs and Volunteers

The NNJ IEEE Section ExCom is seeking new volunteers to help conduct business at the section level for the benefit of its membership in the North Jersey section and surrounding areas. There are a variety of volunteer positions open and available. They range from long-term to short-term, technical to non-technical, leadership or just participatory. All activities have varying levels of time commitment. For Chapter Chairs, you must be a member of the corresponding IEEE Society.

If you would like to become involved with volunteering in some of these efforts or positions or just become more informed about what is happening at the NNJ IEEE Section, please contact the persons listed below for additional information and questions. You can even attend the section business meeting held the first Wednesday of every month to find out more and other volunteer activities that require some help.

Some of the positions currently open and available are:

- *Aerospace & Electronics Chair/Vice-Chair.* Contact Har Dayal (har.dayal "AT" baesystems.com).
- *Engineering in Medicine & Biology Chair/Vice-Chair.* Contact Har Dayal (har.dayal "AT" baesystems.com).
- *Solid State Circuits Chair/Vice-Chair.* Contact Har Dayal (har.dayal "AT" baesystems.com).
- *Women in Engineering Affinity Group Coordinator.* Contact Har Dayal (har.dayal "AT" baesystems.com).
- *GOLD Affinity Group Chair.* Contact Dick Tax (rtax "AT" bellatlantic.net)
- Historian Committee seeks help collecting IEEE historical information and specifically IEEE North Jersey Section History. Contact Al Stolpen (a.stolpen "AT" ieee.org)
- Student Activities Committee seeks new volunteers for North Jersey. Contact Amit Patel (a.j.patel "AT" ieee.org)

Additionally, if interested volunteers would like to get more general information about other activities in our section, visit the North Jersey Section website for newsletter information <http://web.njit.edu/~ieeenj/> or contact Har Dayal, har.dayal "AT" baesystems.com.

# 2006 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  
Agilent Technologies Inc.  
1 Cragwood Rd  
South Plainfield, NJ 07080

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, 2005, will not be counted.

Chairperson: (choose one)

- ..... Har Dayal  
.....(write-in)\_\_\_\_\_

Vice Chairman-1: (choose one)

- ..... Bhanu Chivakula  
.....(write-in)\_\_\_\_\_

Vice Chairman-2: (choose one)

- ..... Kirit Dixit  
.....(write-in)\_\_\_\_\_

Treasurer: (choose one)

- ..... Dr. Sanghoon Shin  
.....(write-in)\_\_\_\_\_

Secretary: (choose one)

- ..... Gary Hojell  
.....(write-in)\_\_\_\_\_

Members-At-Large: (choose three)

- ..... Pete Donegan  
..... Seth Jakel  
..... Amit Patel  
.....(write-in)\_\_\_\_\_

Member Name \_\_\_\_\_ Member No. \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_



**THE BUYER'S EDGE** is a consumer buying service that guarantees the lowest prices on most major purchases for its 3 million members in the tri-state area of NY, NJ, CT and greater Philadelphia. Through the convenience of toll-free numbers, you can call our vendors direct and talk to a "live" specialist who has product and service expertise, knows inventory availability and, in many cases, can arrange delivery directly to your door A.S.A.P.

[www.buyersedgeinc.com](http://www.buyersedgeinc.com)

User Name: 1431  
Password: member1

## BUY-BY-PHONE

- 1. SHOP FIRST** - decide on your exact specifics (e.g., make and model or style number). When you have completed your shopping, then...
- 2. CALL** - participating vendor for price.  
See phone numbers below.
- 3. BUY-BY-PHONE** - using credit card or check. The items will be delivered to you.

<b>MAJOR APPLIANCES</b>	<b>800-377-3700</b>
<b>TV &amp; VIDEO EQUIPMENT</b>	<b>800-377-3700</b>
<b>AUDIO EQUIPMENT</b>	<b>800-543-0911</b>
<b>CARPETING &amp; RUGS</b>	<b>800-526-5389</b>
<b>CHINA, CRYSTAL, SILVER, PORC. FIG.</b>	<b>800-543-8235</b>
<b>DIAMONDS, FINE JEWELRY, WATCHES</b>	<b>800-635-9136</b>
<b>EXERCISE EQUIPMENT</b>	<b>800-541-9905</b>
<b>FURNITURE</b>	<b>800-631-0286</b>
<b>LIGHTING</b>	<b>800-510-6348</b>
<b>LUGGAGE</b>	<b>800-543-8237</b>
<b>PIANOS &amp; ORGANS</b>	<b>800-526-6825</b>
<b>TRAVEL</b>	<b>800-634-8538</b>
<b>VACUUM CLEANERS</b>	<b>800-377-3700</b>

**NOTE:** Product coverage is constantly being improved; however some products or services may not be available in your area.

### LOWEST PRICE GUARANTEE

If you buy a product for \$150 or more through a Buyer's Edge Plan and within 30 days (24 hours on Travel) and 50 miles and find the exact item for less at a factory-authorized dealer, THE BUYER'S EDGE requires that the participating vendor mail you the difference, plus 20% of that difference.

This guarantee even covers advertised sales, discount houses and other buying plans. Silver and gold items, services, merchandise offered with limits on availability or quantity, dealer installed options, and prices after manufacturers' cut-off dates for model year on new cars are not covered by this guarantee.

Visit above website for more details...  
re: hours, coverage, "What's New" and "Specials"

## BUY-IN-PERSON

### CARPETING - CHINA - DIAMONDS - EXERCISERS FURNITURE - LUGGAGE - PIANOS

- No need to know make, model, etc.
- Free in-store services may be available
- Call Buy-By-Phone vendor for local dealer referral (see below)

### CAR PLAN 800-543-8381

**OPTION #1 FREE REFERRAL**...to a cooperating dealer for new and used cars\*

- 1. SHOP:** decide on make and model and options
- 2. CALL:** for a referral to local cooperating dealer
- 3. SAVE:** at the dealership. You will be given the Buyer's Edge negotiated profit margin over factory invoice cost.

\***USED CARS:** Late models (3 years or less 12 month or 12,000 mile limited warranty up to 36,000 miles.

### OPTION #2 PRICING INFORMATION PACKAGE...

dealer's cost of vehicle...and much more... FREE via fax with a referral to a local cooperating dealer.

### KITCHEN CABINETS/COUNTERTOPS 800-327-3599

Call for referral.

Designer services available.

### MOVING PLAN 800-356-7771

Professional services, household goods/autos (intrastate or interstate). Free in-home estimate. Call 4 weeks prior to moving date.

### REAL ESTATE PLAN 800-232-6766

1% savings on purchase or sale of home in most cases. Call referral service before contacting broker.

### MEMBER PROTECTION SERVICE THAT WORKS FOR YOU

If you ever receive less than superior treatment with regard to price, delivery or service, speak to the management of the participating vendor. If you don't get results, contact:

#### THE BUYER'S EDGE, INC.

667 Shunpike Road Suite 4, Green Village NJ, 07935  
or E-mail: [info@buyersedgeinc.com](mailto:info@buyersedgeinc.com)

Be prepared to give your Group # (see above) whenever you contact a participating vendor.





**Symposium Committee**

**Conference Chair:**

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 a\_dandawate@hotmail.com  
 Sanyogita Shamsunder, *Vice-Chair*  
 sanyo@ieee.org  
 Sandbridge Technologies

**Program Committee:**

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 sarnoff2006@agfranz.com

## CALL FOR PAPERS

Since 1978 the IEEE Sarnoff Symposium has been bringing together a tremendous and rich diversity of telecom experts from industry, universities and government. The popularity of the Sarnoff Symposium, again being held in the historic Nassau Inn located in the heart of downtown Princeton, continues to grow as the premier forum for researchers, engineers and business executives in the North East drawing an attendance from all over the world.

The 2006 Symposium will provide information on the latest developments in communication systems, microwave technology and multimedia applications. The industry product and technology exhibition will be expanded and the Symposium will include the popular opening-day evening reception and dinner, executive panels and tutorials.

The Symposium is soliciting papers describing state-of-the-art research, innovative developments and applications as well as proposals for tutorials. The areas of interest include, but are not limited to:

**Communication Systems:**

- Broadband Networks (LAN/WAN)*
- Network Security*
- VoIP & QoS*
- Ultrawideband (UWB) Communications*
- Military Communications*

**Wireless and Cellular Communications:**

- Wireless Communication Systems*
- Satellite Communications*
- Wireless Sensor Networks & Ad Hoc Networks*
- Wi-Fi and WiMAX*

**RF and Microwave Systems:**

- Power Amplifiers*
- Microwave & Optoelectronic Devices*
- Multi/Adaptive Antenna Systems*
- Smart antennas for wireless applications*
- Components for wireless systems*

**Multimedia Applications & Networking**

- IPTV and Mobile Video*

**Optical Communications & Networking**

Proposals for **tutorials** are also encouraged. All accepted papers (after review by experts in the field) will be included in the 2006 IEEE Sarnoff Symposium Proceedings and will be published through IEEE Xplore. Prospective authors should submit an *abstract* and an extended *summary* not exceeding 1000 words using the EDAS conference management system (<http://edas.info/index.cgi>) by October 31, 2005 in pdf format.

**IMPORTANT DATES**

Abstract Due:	October 31, 2005
Acceptance Notification:	December 15, 2005
Final Version Due:	February 2, 2006
Tutorial Proposals Due:	December 10, 2005

**Conference Schedule:**

Tutorials	March 27, 2006
Keynote Session and Reception	March 27, 2006
Conference and Exhibit	March 28, 2006

[www.sarnoffsymposium.org](http://www.sarnoffsymposium.org)

# NJ Power Engineering Society/Industry Applications Society

## Upgrade of Generator Protection to Comply With IEEE Guides

### Technical Seminar

The PES and IAS Chapters will sponsor a one-day seminar covering the Upgrade of Generator Protection to Comply with IEEE Guides. The session will be held on Friday, November 18 at the PSE&G Training Center, 234 Pierson Ave, Edison, NJ.

**Topics** (A more detailed syllabus is available at <http://web.njit.edu/~ieeenj/NEWSLETTER.html>)

1. Quality Issues and Standards
2. Latest Generator Protection Developments
3. Review of Grounding Techniques
4. Types of Generator Connections
5. Improved Sensitivity
6. Improved Security
7. Abnormal Frequency
8. Protections Against External Device Failure
9. Operating, Commissioning and Analysis Tools
10. Communications

#### About the Instructor

The instructor will be Chuck Mozina, Consulting Engineer with Beckwith Electric. Chuck Mozina is a Contract Consultant, Protection and Protection Systems for Beckwith Electric Company, Inc., specializing in power plant and generator protection. His consulting practice involves projects relating to protective relay applications, protection system design and coordination.

Chuck is an active 20-year member of the IEEE Power System Relaying Committee (PSRC) and is the past chairman of the Rotating Machinery Subcommittee. He is active in the IEEE IAS I&CPS committee, which addresses industrial protection system. He is the past U.S. representative to the CIGRE Study Committee 34 on System Protection and has chaired a CIGRE working group on generator protection. He also chaired the IEEE task force that produced the tutorial "The Protection of Synchronous Generators," which won the PES's 1995 Outstanding Working Group Award. Chuck is the 1993 recipient of the PSRC's Career Service Award.

Chuck has a Bachelor of Science in Electrical Engineering from Purdue University and has authored a number of papers and magazine articles on protective relaying. He has over 25 years of experience as a protective engineer at Centerior Energy, a major investor-owned utility in Cleveland, Ohio where he was the Manager of the System Protection Section. For the past ten years, he was Application Manager for Protection Products with Beckwith Electric Company. He is also a former instructor in the Graduate School of Electrical Engineering at Cleveland State University. He is a registered Professional Engineer in the state of Ohio.

If desired, IEEE Continuing Education Units will be offered for this course. A small fee of \$15 will be required for processing. A total of 0.4 CEUs will be offered. Please indicate if desired below.

The registration fee for this seminar prior to November 4<sup>th</sup> 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 4<sup>th</sup> 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.

**Time:** 9:00 AM to 1:00 PM followed by lunch, Friday, November 18, 2005.  
**Place:** PSE&G Training Center, 234 Pierson Ave, Edison NJ.  
**Directions:** [www.pseg.com/customer/business/small/facility/edison\\_directions.jsp](http://www.pseg.com/customer/business/small/facility/edison_directions.jsp)  
**Information:** Ronald W. Quade, PE, (732) 205-2614 or [rwquade "AT" ieee.org](mailto:rwquade@at.ieee.org).

**Registration:** *Beckwith Generator Protection, 11/18/2005*

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

Name \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

IEEE # \_\_\_\_\_ Student @ \_\_\_\_\_ Non IEEE \_\_\_\_\_ Life Member \_\_\_\_\_

Continuing Education Units: \_\_\_\_\_ Yes \$15 \_\_\_\_\_ No

If CEUs are chosen, please include a \$15 processing fee

Payment Enclosed \$ \_\_\_\_\_ Add \$25 late registration after November 4<sup>th</sup>

**Make checks payable to North Jersey Section IEEE**

# IEEE North Jersey Section Course Project Management

*Tuesday Evenings, March 14, 2005 through May 9, 2006*

*Eight weekly classes (March 14, 21, 28, April 4, 18, 25, May 2, 9, 2006)*

*USPS, NJI & BMC, 80 County Road, Jersey City, NJ 07097-9998 (Checks should not be mailed to this address)*

## IEEE North Jersey Section appreciates USPS, BMC for sponsoring these courses at their premises

The North Jersey Section IEEE is offering an evening course entitled "Project Management". Dice.com lists 3200+ Project related jobs in the New York tri-state area daily! This course will help you to break down a master project into manageable tasks, pinpoint possible solutions, and provide information to keep the project under control. Using Microsoft Project 2003 software, you will learn to accomplish various project plans. In addition, it will greatly enhance your business, communications and interpersonal skills.

The IEEE certificate of completion will be given to you when you complete the course. You may wish to take two Certification exams, one in Project Management administered by Project Management Institute and the other in IT Project+ by CompTIA Inc.

Instructor: Donald Hsu, Ph.D., has been a corporate manager for 11 years and is an experienced trainer. Since 1999, he has trained 300+ people in *IT Project+*, *MS Project 2003*, and *Project Management* courses in eight organizations. **Effective Project Management:** Traditional, Adaptive, Extreme, Third Edition (Paperback) by Authors: Robert Wysocki and Rudd McGary – would be given in the class.

**(This is not an exclusive PMP-PMI examination prep course even though project management processes and concepts are discussed in the class. No PDUs are issued for PMP eligibility. CEU credits would be given by IEEE)**

### TOPICS

1. Explain the need for a project manager
2. Define SOW, PERT, GANTT, CPM, and Scope of the project
3. Identify the team members, resources and plan for the strategy
4. Calculate schedule, budget variances, and monitor project progress
5. Manage changes, estimates, and communications
6. Set a baseline, import tasks from MS Excel, export Project files to MS Word
7. Create and modify custom reports, templates and combination views
8. Share resources and create a master plan loaded to Project Server
9. Approve updates and conclude a project plan
10. Analyze Global E-Commerce and present student Projects

Class size will be limited to a maximum of 25 with a minimum of 15. Early registration is recommended. 5% Discount for the first 10 registrations. Phone reservations will NOT be accepted. Reservations accepted after March 3, 2006 will require a late fee of \$25. No reservations will be accepted after March 9, 2006.

**WHERE:** NJ International Bulk Mail Center, Jersey City, NJ. (Checks **should not** be mailed to this address)

**WHEN:** 8 Tuesdays, March 14, 21, 28, April 4, 18, 25, May 2, 9, 2006, 6:30-9:00 PM.

**COST:** IEEE (& affiliate) members \$400; Non-IEEE members \$480.

**CONTACT:** Bhanu Chivakula -email b.chivakula "AT" computer.org

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### REGISTRATION: Project Management

Please mail the registration form with the check (**Checks payable to "North Jersey Section IEEE"**) to **Bhanu Chivukula, PMP, Chair Education Committee, IEEE North Jersey Section, 19 Prestwick Way, Edison, NJ 08820.**

Name: / Mr. / Mrs. / Miss / Ms. / \_\_\_\_\_

Non-member

☞ email address ☞

IEEE Member Member #: \_\_\_\_\_ Member of \_\_\_\_\_ technical society

Employer: \_\_\_\_\_

Employer Address: \_\_\_\_\_

Home Address: \_\_\_\_\_

Business (day) telephone #: \_\_\_\_\_ Home telephone #: \_\_\_\_\_

Please enclose required fee payable to: **North Jersey Section IEEE**

Registration status will be emailed after March 10, 2006. Phone inquiries concerning registration will NOT be honored. In general, the effective date of the application corresponds to the date when BOTH a fully completed application/registration and payment are received.

Tuition receipt will be mailed only if this box is checked

Signature: \_\_\_\_\_

# IEEE North Jersey Section Course C# .NET Programming

*Saturday Mornings, February 18, 2006 through May 6, 2006  
Ten weekly classes (February 18, 25, March 4, 18, 25, April 1, 8, 22, 29, May 6, 2006)  
Place: TBA (Checks should not be mailed to this address)*

The North Jersey Section IEEE is offering a course entitled "C# .NET Programming". Since 2002, C# .NET has generated significant headway in Fortune 1000 enterprise development systems. Dice.com lists 650+ C# .NET related jobs in the New York tri-state area daily! This course will cover the fundamentals of C# language, the .NET framework, window and web-based applications, ADO.NET, ASP.NET, and XML. It will be useful for anyone to develop applications based upon these tools.

The IEEE certificate of completion will be given to you when you complete the course. Microsoft has MCAD and MCSD certifications. You may wish to get certified by taking the necessary Microsoft exams with the knowledge gained from this course.

Instructor: Donald Hsu, Ph.D., has been a corporate manager for 11 years and is an experienced trainer. Since 2002, he has trained 250+ people in Java, C++, XML, C# .NET courses in 6 organizations.

## TOPICS

1. Compare the enterprise development tools using C++, Java to C# .NET
2. Define Visual Studio .NET common language runtime
3. Identify C# syntax, data type, control structures
4. Distinguish methods, arrays, object-oriented programming
5. Build graphical user interface, multithreading, files and streams
6. Explain the benefit of using extensible markup language (XML)
7. Select database, SQL server, and ADO .NET
8. Choose ASP .NET, web forms, web controls, and web services
9. Operate the network, streams-based socket and mobile toolkits
10. Analyze the accessibility regulations and resources
11. Present student Projects

Class size will be limited to a maximum of 25 with a minimum of 15. Early registration is recommended. Phone reservations will NOT be accepted. Reservations accepted after February 8, 2006 will require a late fee of \$25. No reservations will be accepted after February 11, 2006.

**WHERE:** TBA (Checks **should not** be mailed to this address)  
**WHEN:** 10 Saturdays, Feb 18, 25, March 4, 18, 25, April 1, 8, 22, 29, May 6, 2006, 9:00 AM to 12 noon  
**COST:** IEEE (& affiliate) members \$475; Non-IEEE members \$550.  
**CONTACT:** Bhanu Chivakula -email b.chivakula "AT" computer.org

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## REGISTRATION: C# .NET Programming

Please email details to address b.chivakula "AT" computer.org. The filled in registration with the check (**Checks payable to "North Jersey Section IEEE"**) should be mailed to B. Chivukula, Chair, Education Committee, IEEE North Jersey Section, NJ, 19 Prestwick way, Edison, NJ 08820

Name: / Mr. / Mrs. / Miss / Ms. / \_\_\_\_\_

Non-member ✉email address✉  
 IEEE Member    Member #: \_\_\_\_\_    Member of \_\_\_\_\_ technical society

Employer: \_\_\_\_\_

Employer Address: \_\_\_\_\_

Home Address: \_\_\_\_\_

Business (day) telephone #: \_\_\_\_\_    Home telephone #: \_\_\_\_\_

Please enclose required fee payable to: **North Jersey Section IEEE**  
Registration status will be mailed after February 12, 2006. Phone inquiries concerning registration will NOT be honored. In general, the effective date of the application corresponds to the date when BOTH a fully completed application/registration and payment are received.

Tuition receipt will be mailed only if this box is checked    Signature: \_\_\_\_\_