

The



IEEE Newsletter

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

NORTH JERSEY SECTION CELEBRATES 50 YEARS!

NJ Communications Society: **Network Utility Maximization: General Frameworks and Recent Advances**

On October 7, 2004, the IEEE North Jersey Section Communications Society Chapter along with NJIT will host a presentation on "Network Utility Maximization: General Frameworks and Recent Advances." The speaker will be Dr. Mung Chiang.

About the Talk

Network utility maximization has provided an increasingly powerful framework for resource allocation in the Internet TCP/IP suite and various layers in wireless networks over the last few years. Compared to the traditional network linear flow problems, this framework utilizes many of the advances in nonlinear optimization theory and distributed algorithms. This talk presents a brief overview of the key applications of network utility maximization, a summary of some of the very recent results in this area, and an approach of 'layering as optimization decomposition'.

About the Speaker

Mung Chiang is an Assistant Professor of Electrical Engineering at Princeton University. He received a BS degree (Honors) in Electrical Engineering and Mathematics, MS and PhD degrees in Electrical Engineering from Stanford University, and has worked as a consulting systems engineer at three telecom startup companies and as a Principal Member of Technical Staff in Network Systems Engineering at SBC Communications.

Professor Chiang conducts research in the areas of nonlinear optimization of communication systems, architectures and algorithms for broadband access networks, and information theoretic limits of data transmission and compression. He has been awarded as a Hertz

Foundation Fellow, Stanford Graduate Fellow, NSF Graduate Fellow, and received Stanford University School of Engineering Terman Award and SBC Communications New Technology Introduction Contribution Award. Professor Chiang is the Lead Guest Editor of the IEEE Journal of Selected Area in Communications Special Issue on 'Nonlinear Optimization of Communication Systems' in 2006, a Guest Editor of the IEEE Transactions on Information Theory Special Issue on 'Information Theory and Networking' in 2006, and the Program Co-Chair of the 38th Conference on Information Sciences and Systems in 2004.

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), Thursday, October 7, 2004.

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) or check <http://web.njit.edu/~ieeenj> for the latest updates.

Proposed Slate of Officers for the 2005 IEEE North Jersey Section

Below is the list of proposed officers for the 2005 IEEE North Jersey Section as presented by the IEEE North Jersey Section Nominating Committee. If a North Jersey Section IEEE member in good standing would like to run for an office, please contact Keith Saracinello by November 2nd at k.saracinello@ieee.org or (908) 791-4067 for details.

Chair:	Har Dayal
1st Vice-Chair:	Bhanu Chivakula
2nd Vice-Chair:	Kirit Dixit
Treasurer:	Dr. Sanghoon Shin
Secretary:	Russell Pepe
Members-at-Large:	Dr. Nirwan Ansari Gary Hojell Dr. Richard Snyder

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NEWSLETTER STAFF

Editor Keith Saracinello
Business Manager..... Keith Saracinello
k.saracinello@ieee.org (908) 791-4067

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@ieee.org or to *The IEEE Newsletter*, c/o Keith Saracinello, 25 Messenger Ln, Ringoes, NJ 08551, (908) 791-4067.

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:

IEEE Service Center, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331, (732) 981-0060. It is not necessary to inform the North Jersey Section when you change your mailing address. "The IEEE Newsletter" and other section mailings use a list provided by IEEE's national headquarters.

SECTION OFFICERS

Chairman Dr. Durga Misra
dmisra@njit.edu (973) 596-5739
Vice-Chairman-1..... Har Dayal
har.dayal@baesystems.com (973) 633-4618
Vice-Chairman-2..... Bhanu Chivakula
b.chivakula@computer.org (732) 718-3818
Treasurer Dr. Edward (Ted) Byrne
flatland@compuserve.com (973) 822-3219
Secretary Dr. Sanghoon Shin
s.shin@ieee.org (973) 492-1207 Ext. 22

Members-at-Large:

Dr. Nirwan Ansari (nirwan.ansari@njit.edu)
Naz Simonelli (naz@ieee.org)
Dr. Richard Snyder (r.snyder@ieee.org)

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 Dr. Sanghoon Shin at (973) 492-1207 Ext. 22, s.shin@ieee.org.

NJ Section PACE/GOLD:

The Engineers' Career - What Are the Members Thinking?

On Wednesday, October 13, 2004 the North Jersey Section PACE/GOLD, will meet to discuss your concerns.

About the Talk

What is going on with PACE? The North Jersey Section's PACE committee has been mentioned in E.E. Times, noticed in the IEEE-USA office in Washington and honored by the Region 1 Ex. Comm. We have set the example and standard for PACE meetings and activities. For two years straight our North Jersey Section PACE has received the Region 1, "Alex Gruenwald PACE" award. Sorry, but you must have known Alex Gruenwald to appreciate the honor associated with this presentation.

Our Section Members who have attended our PACE meetings are the ones to be applauded for our success. We have held PACE meetings every month for more than two years and we will, with your help, continue to do so.

But now it is your task to help us continue. This meeting will review past meeting subjects and need your input to provide the subject material for future meetings. Please come and bring your spouse or associates. Bring your concerns to PACE. Attend this meeting and see how, and what the Section and individual engineers can do to help.

About the Speaker

Open to the attending members. Graduates of the Last Decade (GOLD) are especially welcome.

All Welcome!

Guests, 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.asme.org/sections/northjersey
www.ieeeusa.org
web.njit.edu/~ieeenj/
www.Congress.org

Time: 6:30 to 9:00 PM, Wednesday, October 13, 2004.

Place: Clifton Memorial Library, 292 Piaget Ave, Clifton, NJ, (973) 772-5500.

Information: Paul Ward, (973) 790-1625 (PWard1130@aol.com), Richard F. Tax, (201) 664-6954 (rtax@AEA.org).

Student Leadership Workshops and Professional Skills Development Workshop - Fall 2004

It is that time of the year again. Is your student branch holding new activities this fall? If you have not done it yet, we encourage holding your officer elections and reporting them to IEEE HQ. Additionally, if you have a new branch counselor, it is also time to report that to IEEE HQ. Last, but not least, the fall annual plan of activities must be turned in soon. Branches reporting their plan has the extra benefit of receiving a rebate if they are turned in correctly and on-time. Forms for all of these reporting requirements are available at the website below.

Didn't know about all these forms and what to do by when? Well, then your branch might be an excellent candidate for holding a student branch leadership workshop this fall. What your branch should do is host this workshop to learn how to run your branch operations and organize events. If you can't host yourself, attend a neighboring school's workshop. You can find out who is hosting when on the website below.

The Professional Skills Development Workshop (PSDW) is also coming up. This November, the workshop will return and is being co-sponsored by the three sections of New Jersey. This year's theme is on Project Management and Starting Your Own Company.

The half-day workshop will include a free lunch and interactive lectures given by dynamic speakers. The exact date, time, and location are to be announced. Attendees are required to pre-register for the event in order to account for lunch. For any additional questions contact Sameer Kalra, skalra AT ieee DOT org. The final agenda and timeline will be posted on the website below, but a preliminary agenda is:

Time: 11:30 AM to 5:00 PM, Saturday, November 13, 2004 (free lunch to start).

Place: Rutgers University, Building TBD, Room TBD.

Register: see website below

Want to get regular reminders of on-going student events? Join the mailing list; instructions are available at http://ewh.ieee.org/r1/north_jersey/sac/iee.html.

IEEE North Jersey Section Activities

October 2004

Oct. 6 – “NJ Section Executive Committee Meeting” - 7:00 PM, ITT, 100 Kingsland Rd, Clifton, NJ. Dr. Sanghoon Shin at (973) 492-1207 Ext. 22 or s.shin@ieee.org.

Oct. 7 – “2004 MTT/AP Symposium and Mini-Show” – MTT-S/AP-S Chapter, 9:30 AM - 5:30 PM, Prime Hotel & Suites (formerly Radisson Hotel Fairfield), 690 Route 46 East, Fairfield, NJ. Kirit Dixit (201) 669-7599, Willie Schmidt (973) 492-0371, Har Dayal (973) 633-4618, or George Kannell (973) 386-4170.

Oct. 7 – “Network Utility Maximization: General Frameworks and Recent Advances” - NJ Communications Chapter, 7:00 PM, New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Dr. Nirwan Ansari (973) 596-3670 (nirwan.ansari@njit.edu) or check <http://web.njit.edu/~ieeenj> for the latest updates.

Oct. 13 – “The Engineers’ Career - What Are the Members Thinking?” - NJ PACE/GOLD, 6:30 – 9:00 PM, Clifton Memorial Library, 292 Piaget Ave, Clifton, NJ. Paul Ward (973) 790-1625 (PWard1130@aol.com) or Richard F. Tax (201) 664-6954 (rta@bellatlantic.net).

Oct. 14 – “Computational Support for Dynamic Parallel/Distributed Applications” - NJ Computer Chapter, 7:00 PM (pre-meeting buffet at 6:00 PM), Lucent Technologies, 67 Whippany Rd, Room TBA, Whippany, NJ. Seth Jakel (973) 731-1902, (sgjakel@comcast.net), Vivek Shaiva (908) 229-6125 (vshaiva@computer.org), or Arthur Greenberg (973) 386-6673 (ahg1@lucent.com).

Oct. 19&20 – “IEEE Lightwave Technologies in Instrumentation & Measurement Conference” – IEEE METSAC, IBM Palisades Executive Conference Center in Palisades, NY. <http://www.ewh.ieee.org/r1/metsac/LTWV.htm>.

Oct. 21 – “The Life of James Clerk Maxwell” – EDS/C&S, & MTT-S/AP-S Chapters, 7:00 PM (buffet at 6:15 PM), NJIT, 202 ECE Center, Newark, NJ. Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Durga Misra (973) 596-5739 (dmisra@njit.edu) or Dr. Edip Niver (973) 596-3542 (NJIT).

Oct. 22 – “The 2002 National Electric Code Seminar” - NJ IAS/PES Chapters, 9:00AM – 12:45 PM, Punch Bowl Room at Jersey Central Power and Light, 300 Madison Ave, Morristown, NJ 07962.

Oct. 28 – “Thermal Loading in Electronic Devices and PCs” - 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.

Oct. 28 – “A Study of Waveband Routing and Wavelength Assignment in Multi-Granular Hybrid Optical Networks” - NJ Communications Chapter, 6:15 PM, New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Dr. Nirwan Ansari (973) 596-3670 (nirwan.ansari@njit.edu) or check <http://web.njit.edu/~ieeenj> for the latest updates.

Upcoming Meetings

Nov. 3 – “NJ Section Executive Committee Meeting” - 7:00 PM, ITT, 100 Kingsland Rd, Clifton, NJ. Dr. Sanghoon Shin at (973) 492-1207 Ext. 22 or s.shin@ieee.org.

Nov. 8 – “Life Grade Luncheon” - 11:30 AM, Hamilton Park Conference Center, 175 Park Ave, Florham Park, NJ 07932. Ken Oexle (973) 386-1156.

Nov. 18 – “Amplifiers for Base Station Applications”, NJ VTS Chapter, 7:00 PM, Lucent Technologies, 67 Whippany Rd, Whippany, NJ. Arthur Greenberg (973) 386-6673 (ahg1@lucent.com).

Nov. 19 – “Considerations for Design of Critical Telecom and Data Centers Seminar” - NJ IAS/PES Chapters, 9:00 AM – 4:00 PM, PSE&G Training Center, 234 Pierson Ave, Edison, NJ. Ronald Quade, PE, (732) 205-2614 or rwquade@ieee.org.

Nov. 23 – “Digital Processing of Kirlian Images” - NJ SMC Society, 7:00 PM, Clifton Memorial Library, 292 Piaget Ave, Clifton, NJ. Dr. Mike Liechenstein (973) 471-0721 (m.liechenstein@ieee.org).

Dec. 2 – “Annual Planning Meeting & Workshop” - 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.

Fall 2004 – “Introduction to .NET and C#” - North Jersey Section, 1 Day Course, Time, Date and Location TBA. Bhanu Chivakula (b.chivakula@computer.org).

Fall 2004 – “Object-Oriented Design Training” - North Jersey Section, 1 Day Course, Time, Date and Location TBA. Bhanu Chivakula (b.chivakula@computer.org).

Members and Non-Members Welcome

PLEASE POST

NJ Computer Chapter:

Computational Support for Dynamic Parallel/Distributed Applications

On Thursday, October 14, 2004, the IEEE North Jersey Section Computer Chapter will host a presentation titled "Computational Support for Dynamic Parallel/Distributed Applications" by Manish Parashar.

About the Talk

Adaptive and interactive simulations yield highly advantageous ratios for cost/accuracy and can enable accurate solutions to realistic models of complex physical phenomenon. However their efficient implementation on widely distributed, highly heterogeneous and dynamic execution environments such as the computational Grid presents significant challenges in computer/computational science. In this talk Manish will present computer science solutions that enable efficient and scalable implementations of these applications. Specifically, Manish will address distributed and dynamic data-management, adaptive load-balancing and runtime management, interactive monitoring and control.

About the Speaker

Manish Parashar (M'89-SM'03) is Associate Professor of Electrical and Computer Engineering at Rutgers University, where he also is director of the Applied Software Systems Laboratory. He received a BE degree in Electronics and Telecommunications from Bombay University, India in 1988, and MS and PhD degrees in Computer Engineering from Syracuse University in 1994. He has received the NSF CAREER Award (1999) and the Enrico Fermi Scholarship from Argonne National Laboratory (1996). His current research interests include autonomic computing, parallel, distributed and Grid computing, networking, scientific computing, and software engineering.

Manish is a member of the executive committee of the IEEE Computer Society Technical Committee on Parallel Processing (TCPP), part of the IEEE Computer Society Distinguished Visitor Program (2004-2006), and a member of ACM. He is also the co-founder of the IEEE International Conference on Autonomic Computing (ICAC). Manish has co-authored over 130 technical papers in international journals and conferences, has co-authored/edited 5 books/proceedings, and has contributed to several others in the area of parallel and distributed computing.

All Welcome!

You do not have to be a member of the IEEE to attend. Bring your friends and network during the free pre-meeting buffet starting at 6:00 PM

Registration Recommended

Registration in advance is recommended with full name, affiliation and nationality so that an admission badge will be available for you on arrival.

Time: 7:00 PM, Thursday, October 14, 2004. Pre-meeting buffet starts at 6:00 PM.

Place: Lucent Technologies, 67 Whippany Rd, Room TBA, Whippany, NJ.

Information: Seth Jakel (973) 731-1902, (sgjakel@comcast.net), Vivek Shaiva (908) 229-6125 (vshaiva@computer.org), or Arthur Greenberg (973) 386-6673 (ahg1@lucent.com).

NJ EDS, C&S & MTT-S/AP-S Chapters:

The Life of James Clerk Maxwell

On October 21, 2004, 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 "The Life of James Clerk Maxwell." The speaker will be Dr. James C. Rautio.

About the Talk

James Clerk Maxwell stands shoulder to shoulder with Newton and Einstein, yet even those of us who have spent decades working with Maxwell's equations are almost totally unfamiliar with his life and times. This presentation, from the viewpoint of a microwave engineer, draws on many sources in providing an understanding of James Maxwell himself. What was Maxwell like as an infant? What was the tragedy at eight years old that profoundly influenced his life? What unique means of transportation did young Maxwell use to escape a cruel tutor? What happened to Maxwell on his first day at school? When did he publish his first papers, and what were they about? What did Maxwell have to do with the rings of Saturn? Why did he lose his job as a professor? Why did he have a hard time getting another job? What was his wife like? What is Maxwell's legacy to us? The answers to these questions provide insight into Maxwell the person and add an extra dimension to those four simple equations we have studied ever since.

About the Speaker

James C. Rautio received a BSEE from Cornell in 1978, a MS in Systems

Engineering from University of Pennsylvania in 1982, and a PhD in electrical engineering from Syracuse University in 1986. From 1978 to 1986, he worked for General Electric, first at the Valley Forge Space Division, then at the Syracuse Electronics Laboratory. At this time he developed microwave design and measurement software, and designed microwave circuits on Alumina and on GaAs. From 1986 to 1988, he was a visiting professor at Syracuse University and at Cornell. In 1988 he went full time with Sonnet Software, a company he had founded in 1983. In 1995, Sonnet was listed on the Inc. 500 list of the fastest growing privately held US companies, the first microwave software company ever to be so listed. Today, Sonnet is the leading vendor of 3-D planar high frequency electromagnetic analysis software. Dr. Rautio was elected a fellow of the IEEE in 2000 and received the IEEE MTT Microwave Application Award in 2001 and is an adjunct professor at Syracuse University.

All Welcome!

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

Time: 7:00 PM, Thursday, October 21, 2004. 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. Durga Misra (973) 596-5739 (dmisra@njit.edu) or Dr. Edip Niver (973) 596-3542 (NJIT).

SPAM Or Not To SPAM

IEEE-USA cannot send you email information unless you request email information from them. Why? IEEE-USA is prohibited from SPAMMING you, but they can send you information if you request to be put on their email list.

To request this information, contact Russell T. Harrison, Legislative Representative – Grassroots Affairs, IEEE-USA. r.t.harrison@ieee.org, (202) 530-8326.

NJ Consultants' Network:

Thermal Loading in Electronic Devices and PCs

On Thursday, October 28, 2004, the IEEE Consultants' Network of Northern NJ (CNNNJ) will host a talk on "Thermal Loading in Electronic Devices and PCs." The scheduled speakers are Peter K. Schutz, P.E., and Chris Mesibov.

About the Talk

Thermal loads in electronic devices, including PCs, can cause unexpected problems for consultants. Two veteran members of the IEEE Consultants Network of Northern NJ will explain the effects of thermal loading and proper design techniques.

Chris Mesibov will discuss thermal management concerns and techniques for PCs, including temperature monitoring, vulnerable and underrated PC components, airflow control, and dissipation products.

Peter Schutz will address general thermal management design issues in electronic products, including types of cooling, knowing which type is being used and the importance of air flow.

About the Speakers

Peter K. Schutz, PE, has been developing new products since 1985. A mechanical engineer and specialist in mechanical components and systems, his business includes thermal design and analysis and packaging of electronics. Peter is Vice Chairman of the Consultants' Network.

Chris Mesibov specializes in Cypress PSoC design, RF testing, programming, and automated test equipment design; embedded and power systems. He has learned about thermal problems in PCs the hard way.

All Welcome!

Everyone welcome. No registration needed. Free admission.

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, October 28, 2004.

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.mckedi-integrated.com/directions.htm>.

NJ Communications Society:

A Study of Waveband Routing and Wavelength Assignment in Multi-Granular Hybrid Optical Networks

On October 28, 2004, the IEEE North Jersey Section Communications Society Chapter along with NJIT will host a presentation on "A Study of Waveband Routing and Wavelength Assignment in Multi-Granular Hybrid Optical Networks." The speaker will be Dr. Aleksandar Kolarov.

About the Talk

Waveband routing and wavelength assignment (WRWA) has only recently attracted attention from the optical networking industry for its practical importance in reducing the control complexity and cost of optical cross-connects (OXC). In this paper, we study WRWA tasks in hybrid hierarchical wavelength division multiplexing (WDM) networks with OXC that can route multiple granularity (wavelengths and wavebands) at the same time. We first develop an integer linear programming (ILP) model with the objective to minimize the cost of optical-electronic-optical (OEO) and all optical (OOO) ports used. This is the first waveband switching ILP model developed for hybrid OXC. Since the optimal ILP solution can only be obtained for networks of smaller size, we also develop a heuristic waveband routing and wavelength assignment algorithm. The proposed algorithm shows near optimal performance for networks of smaller size. In our heuristic approach, we solve the waveband routing and wavelength assignment sub-problems as a single problem, rather than separating them into two separate problems. The algorithm is solved by using Dynamic Programming, sequentially on one lightpath request at a time. We comment on the WRWA performance under various traffic scenarios. Our results demonstrate a significant cost reduction that could be achieved by employing hybrid hierarchical OXC instead OXC with opto-electronic fabric that can process a single granularity only.

About the Speaker

Aleksandar Kolarov (S'89-M'93) received BSc and MSc degrees, both in Electrical Engineering, from the University of Belgrade, Yugoslavia, in 1984 and 1987, respectively. He received a PhD degree in electrical engineering from Rutgers University, NJ, in 1993, for his

research in dynamic routing in multi-service communication networks. From 1984 to 1989, he was a Research Engineer at "Mihajlo Pupin" Institute in Belgrade, Yugoslavia. Since 1993, he has been with NEC Laboratories America in Princeton, NJ, where as a Senior Research Staff Member, is responsible for design and implementation of IP-based network architectures and protocols including quality-of-service, control and management.

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), Thursday, October 28, 2004.

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) or check <http://web.njit.edu/~ieeenj> for the latest updates.

Interested in Being a North Jersey Section Officer?

The North Jersey Section Nominating Committee will soon begin to consider candidates for section officers for next year. We request that those who are interested in a section office submit their name, office sought, and qualifications to the Committee Chair, Dr. Fred Chichester, by mail at

56 Gordonhurst Ave
Upper Montclair, NJ 07043

For further information, you may telephone him at (973) 744-7340 between the hours of 8:00 AM and 9:00 PM.

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 Chivakula, Education Committee Chairman, at b.chivakula@computer.org for suggestions or discussions, if interested.

NJ Consultants' Network:

Annual Planning Meeting & Workshop

On December 2, 2004, the IEEE Consultants' Network of Northern NJ (C>NNNJ) will host their Annual Planning Meeting & Workshop.

About the Meeting

In a combined November/December meeting, the IEEE Consultants Network of Northern NJ (C>NNNJ) will plan the network's direction and activities for the year 2005. We will discuss ideas and set expectations for the various network functions. Network members and any consultants considering joining the network are welcome to attend and participate.

Results of the annual election of officers will be announced at this meeting.

Traditionally, this working session is an open, informal forum to determine what the IEEE-C>NNNJ is doing right, or wrong. The floor will be open to suggestions for improvements, recommendations of new network directions and activities, and proposals for new feature topics for the general meetings.

The functions performed by the IEEE Consultants Network throughout the year include:

- Monthly General Meetings – Suggested feature topics will be discussed.
- Member Networking – Member presentations and alternate formats to improve networking.
- Group Marketing & Image Building – C>NNNJ website, tri-fold and postcard mailing, C>NNNJ's free consultant referral service, and alternate publicity methods.

We will have our end-of-year networking party, with refreshments, at the close of the session.

All Welcome!

Everyone welcome. No registration needed. Free admission.

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 2, 2004.

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>.

North Jersey SMC Society:

Digital Processing of Kirlian Images

On Tuesday, November 23, 2004, the NJ Systems, Man and Cybernetics (SMC) Chapter will host a talk on "Digital Processing of Kirlian Images." The speaker will be Xanadu Halkias.

About the Talk

In 1890, while experimenting with the mysteries of electricity, the renowned engineer, Nikola Tesla, became the first person to obtain a partial imprint of the electromagnetic field surrounding all objects, referred to as their "auras." Fifty years later, two Russian scientists, Semion and Valentina Kirlian, developed a practical way of capturing auras. The process is known today as Kirlian photography and is recognized both for its artistic appeal as well as for its controversial role as a diagnostic tool.

Unfortunately, most research on Kirlian photography deals with the origin, means of capture, and interpretation of the images without the aid of an automated approach. The idea behind this talk is to use image-processing techniques to provide some insight into whether and how the existing practice might be amenable to a mathematical/computational process. As discussed, by a careful choice of descriptive features, a "diagnostic" system can be trained based on the presentation of a Kirlian image. The desired characteristics can be subsequently classified into three categories: size, color, and morphology. In the speaker's implementation, these categories are represented by the extraction of so-called "Regions of Interest" using Watershed segmentation and the computation of salient features using texture and curvature analysis. This provides a novel, first approach to the analysis of Kirlian images using the tools provided by the broader field of Computer Vision.

About the Speaker

Xanadu Halkias is currently pursuing advanced studies at Columbia University in signal processing and statistical pattern recognition. She received her MS degree from National Technical University of Athens, Greece. Her thesis, Digital Processing of Kirlian Images, was completed under Prof. Petros Maragos in 2002, along with the companion paper which appeared at the 2004 International Conference on Signal Processing in Beijing.

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), Tuesday, November 23, 2004.

Place: Clifton Memorial Library, 292 Piaget Ave, Clifton, NJ, (973) 772-5500. (main floor; left turn from entrance & proceed to conference room).

Contact/RSVP: Dr. Mike Liechenstein, (973) 471-0721, (m.liechenstein@ieee.org). Please also check electronic newsletter for any possible changes in room, etc.

Membership Drop Not Complete Surprise

At first glance, a 5.6 percent drop in IEEE membership might seem alarming. However, the 21 000 decline to 361 138 members in 2003 was not totally unexpected. Find out why at

http://www.theinstitute.ieee.org/portal/index.jsp?pageID=institute_level1_article&TheCat=2201&article=tionline/legacy/inst2004/apr04/4w.featuremembership.xml

Contract Engineering: A Viable Career Alternative

While many engineers still seek permanent, full-time employment, others are turning to contract engineering as an alternative. What is contract engineering; what are the benefits; and what are the challenges?

<http://www.todaysengineer.org/mar04/contract.asp>

IEEE-USA Pulse: Engineering Equality as Important as Job Availability

While much talk surrounds the question of whether or not an engineering shortage actually exists, many believe an issue just as worthy of debate and action is engineering equality. What is IEEE-USA doing to encourage young women, minorities, people with disabilities and the disadvantaged to consider engineering a viable career choice?

<http://www.todaysengineer.org/mar04/equality.asp>



Take Me Out to the Ball Game!



Who says that engineers don't have fun? On Sunday, August 22nd, 94 IEEE members and their guests traveled to Bears Stadium to see the Newark Bears, with one time major league great Rickey Henderson, lose a close game to the Bridgeport Bluefish. The perfect weather added to the pleasure of the day and all those who were there said they had a good time. Between innings there were on-the-field events for children and the section was recognized both by throwing the opening pitch and having some of the children competing in the events.

The section would like to hold more family events in the future and if anyone has a suggestion, please contact Durga Misra by email at dmisra@njit.edu.



NJ Section Newsletter Editor Keith Saracinello (center) throws out 1st pitch



Future engineers Jake and Amanda enjoy an autographed baseball



NJ Section Secretary Sanghoon Shin (right) and family enjoy the game

Former Major League great Rickey Henderson



IEEE North Jersey Section Newsletter Advertising

The “NEWSLETTER” is the non-profit professional publication of the North Jersey Section of the Institute of Electrical and Electronics Engineers, Inc.

Published monthly except June (electronic only) and July, it is distributed to approximately 5,000 qualified members of the section.

Editorial content is pertinent and timely. It contains current information and details about special meetings, field trips, and seminars scheduled during the month and for future dates.

NEWSLETTER readers are influential in the Electrical and Electronics industries. They are in decision-making positions or can influence decisions in this important field.

Demonstrate your support of their professional organization by advertising in their Newsletter while reaching your customers and prospects.

Manufacturers can support local reps and distributors by using cooperative advertising in the IEEE NEWSLETTER.

IEEE North Jersey Section Newsletter Advertising Rates

	1x	5x	10x
Full Page	\$800	\$685	\$570
2/3 Page	640	548	460
1/2 Page	480	410	340
1/3 Page	350	300	250
1/6 Page	175	150	125
Classified and Per Inch	30	25	25

Classified job advertisements are welcome!

Life Grade Luncheon

The PES Chapter and the IEEE North Jersey Section will sponsor a luncheon for North Jersey IEEE Life Grades (Members, Senior Members and Fellows) on Monday November 8 at the Hamilton Park Conference Center, 175 Park Ave, Florham Park, NJ 07932. The luncheon will begin at 11:30 AM in the Terrace area. Cost is \$5.00 per person.

Advance registration is required prior to October 29. We can accommodate only 30 people. Registrations will be processed in the order of receipt and will be confirmed by return mail. Please complete the following registration form and include a check Payable to the North Jersey Section IEEE in the amount of \$5.00 per person.

Reservations cannot be accepted at the door. For additional information contact Ken Oexle (973) 386-1156.

IEEE Life Grade Luncheon Registration NJ Nov 8 2004

Name _____

Address _____

Phone _____

IEEE # _____ Life Grade ____ Yes

Return to: Ken Oexle
11 Deerfield Rd
Whippany, NJ 07981

Prior to October 29 and enclose a \$5.00 check payable to **NJ Section IEEE**



IEEE NORTH JERSEY SECTION

MTT-Society and AP-Society Joint Chapter

PRESENT

IEEE

19TH ANNUAL SYMPOSIUM AND MINI-SHOW

Thursday, October 7, 2004

Prime Hotel & Suites (formerly Radisson Hotel Fairfield)

690 Route 46 East, Fairfield NJ (973) 227-9200

The conference presents a series of 12 lectures describing the state of the art in Microwave, RF, Optical and Wireless, technologies by leaders in their respective fields.

Presentation Schedule (9:20AM to 5:30PM)

Time	Topic	Speakers	Title	Affiliation
9:20	Opening Remarks	George Kannell	Tech. Chair IEEE MTT/AP North Jersey Section	Lucent Technologies
9:30	A New Approach to Filtering by Application of Projection Operators	John Minkoff	Staff Scientist	ITT Industries Aerospace
10:00	An Enhanced Cloud Attenuation Model for use in Microwave Point to Point Link Margin Analysis	Jim Benjamin	Senior Member of Technical Staff	BAE Systems
10:30	Break/ Mini-Show			
11:00	The FPGA Platform Radio: OFDM Demodulation and Power Amplifier Predistortion.	Chris Dick	DSP Chief Architect	Xilinx
11:30	Minimizing Power Amplifier Memory Effects	Allen Katz	Professor / President	The College of NJ / Linearizer Technology
12:00	Lunch / Mini-Show			
1:00	Recent Advances in Random and Deterministic Jitter and Noise Analysis at 2Gb/s to 60Gb/s"	Mike Tranchemontagne	Application Engineer	Tektronix
1:30	A New RF Simulation Technique for Architecture Engineering and Optimization	Rulon VanDyke	Lead Engineer	Eagleware Corp
2:00	Designing a Low-Noise Low-Cost 3G Receiver Solution	Arild Kolsrud	Senior RF Engineer	Richardson Electronics RCS Division
2:30	Applications of Microwave Photonics	John MacDonald	Vice President of Engineering	Linear Photonics
3:00	Break/ Mini-Show			
3:30	InGaP HBT Power Amplifier Design for Wi-Fi (IEEE801.11g) Applications	Bill McGinn	Application Engineer	Ansoft Corporation
4:00	3-way Low Loss Phase Combiner for Power Amplifier Sharing in 3-Sector Cellular Networks	Carsten Metz	Member of Technical Staff	Lucent Technologies
4:30	OFDM in Wireless Networking	Steve Crain	Applications Engineer	Agilent
5:00	WLAN-OFDM Transceiver Design & Verification: A Methodology for System and Circuit Tool Utilization	Murthy Upmaka	Applications Engineer	Agilent EESof
5:30	Closing remarks	Kirit Dixit	Chair IEEE MTT/APs North Jersey Section	Microcom Sales

MINI SHOW FEATURING LATEST PRODUCTS - (10:00 AM TO 5:30 PM)

For further information contact Kirit Dixit (201-669-7599), Willie Schmidt (973-492-0371), Har Dayal (973-633-4618), or George Kannell (973-386-4170).

ALL ARE WELCOME (IEEE Membership not required).

THERE IS NO CHARGE TO ATTEND THE SYMPOSIUM OR SHOW.

FREE BREAKFAST / LUNCH INCLUDED FOR ALL

NJ Power Engineering Society/Industry Applications Society Seminar

Considerations for Design of Critical Telecom and Data Centers

The PES and IAS Chapters will sponsor a free one-day seminar covering considerations for the design of critical telecom and data centers. The session will be held on Friday, November 19, 2004 at the PSE&G Training Center, 234 Pierson Ave, Edison, NJ.

About the Seminar

The seminar will cover the basics of design and hardware required by today's critical facilities, which demand 7 x 24 availability of precision environment and power infrastructure. While environmental and monitoring issues will be discussed, the emphasis will be on design of the power system. Among the topics to be covered are:

- Sizing the systems, including projected load densities and so called "extreme densities"
- Configurations to ensure 7 x 24 availability, and maximum redundancy
- Providing maximum flexibility
- Hardware details, including UPS, power distribution, surge suppression, etc.
- Specific discussion of battery systems, including: types, environmental considerations, maintenance, and battery alternatives
- Point-Counterpoint discussion of DC power systems vs. traditional AC (UPS)

About the Instructor

The primary instructor will be Len Giuliano, PE. Len has a diverse background of technical experience primarily in the electrical power industries, including design, management and technical sales and support. Specific areas include utility substation design, generator design, power plant switchgear, and UPS and related products. More recently, Len has been dedicated to issues involving critical facilities.

Len has a bachelor's degree from Villanova University; is a registered PE; has authored a nationally published article "Solutions to Computer Room Power Problems"; and is a past Vice President and Program Chairman of the Delaware Valley Power Quality Group.

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 .6 CEUs will be offered. Please indicate if desired below.

There will be no charge for this seminar but space will be limited. Advanced registration is required by November 5th.

Time: 9:00 AM to 4:00 PM, Friday, November 19, 2004.
Place: PSE&G Training Center, 234 Pierson Ave, Edison NJ.
Directions: See http://www.pseg.com/customer/business/small/facility/edison_directions.html
Information: Ronald W. Quade, PE, (732) 205-2614 or rwquade@ieee.org.

Registration: Considerations for Design of Critical Telecom and Data Centers 11/19/2004

Register via US mail to: Ronald W. Quade, PE
Eaton Electrical
379 Thornall Street
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 \$15 processing fee made payable to **North Jersey Section IEEE**

The 2002 National Electric Code Seminar

The PES and IAS Chapters will sponsor a one-day seminar providing an overview and discussion of recent changes incorporated in the **2002 NATIONAL ELECTRICAL CODE (NEC)**. The session will be held on Friday, October 22nd, from 9:00 AM – 12:45 PM, in the Punch Bowl Room at Jersey Central Power and Light, 300 Madison Ave Morristown, NJ 07962. The instructor is Won Kim, PE. Participants are encouraged to bring their NEC book to the seminar. It can be ordered at www.NFPACatalog.org. (Request the current NEC 2002 edition)

About the Seminar

The National Electrical Code is revised every three years by National Fire Protection Association as NFPA 70, and is adopted by most of the States as the State's Electrical Code. The purpose of the Code is the practical safeguarding of persons and property from hazards arising from the use of electricity. The seminar will cover the major changes in the code, and the topics will include the following:

- Relationship to Uniform Construction Code of New Jersey and Electrical Safety Code (NESC) published by IEEE
- Enforcement of the Code by the Department of Community Affairs (DCA) and the municipalities
- Relationship between electrical engineers/designers, electrical contractors and electrical inspectors
- Wiring methods, materials and protection
- Equipment for general use
- Special occupancies and conditions
- Communications Systems

WHERE:	Punch Bowl Room at Jersey Central Power and Light, 300 Madison Ave Morristown, NJ 07962. Directions: Route 287 to Route 124 (Madison Ave Exit). Head toward Madison. Jersey Central building is on the left about 1.5 miles from the exit.
WHEN:	Friday, October 22 nd , 9:00 AM – 12:45 PM
COST:	Non-IEEE members \$100; IEEE (& affiliate) members \$75; IEEE GOLD (Graduates of the Last Decade) Members \$50; IEEE Student Members \$25; IEEE Life Members – Free. All Registrations after Oct. 15 must include an additional late fee of \$25.
CONTACT:	Kenneth Oexle (973) 386-1156

Registration - North Jersey IEEE PES/IAS NEC Seminar, Friday, Oct. 22, 2004

Name _____

Address _____

Phone _____ IEEE # _____ Payment Enclosed _____

Add \$25 late fee after Oct 15

Mail to:

Kenneth Oexle
11 Deerfield Road
Whippany, NJ 07981

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