



The IEEE

Newsletter

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

NJ Computer Chapter:

XML: Practical Introduction Using Theory and Case Studies

On March 19th, 2002, the IEEE North Jersey Section Computer Chapter will host a presentation on "XML: Practical Introduction Using Theory and Case Studies" by Eli Rohn.

About the Talk

This talk is an abbreviated version of a half-day tutorial Eli is scheduled to give in Madrid, Spain as part of the SAC 2002 convention.

The talk will cover, as a minimum, the following subjects:

- What is XML (including recent history)
- Live Demonstrations
- Failure Story
- Success Story
- XML, .NET, Web Services
- Conclusion

About the Speaker

Eli Rohn is the Managing Member of Rohn Consulting LLC. He renders consulting services to the Fortune 500 companies on top of teaching Computer Science at NJIT, where he's considered an XML maven. Eli has published two technical books and over 30 professional articles. Eli, who started as a programmer, has over 15 years of experience with Mainframes, PCs, Networks, and has been involved with Internet technology since 1994.

All Welcome!

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

Time: 7:00 PM, Tuesday, March 19, 2002. Re-meeting dinner 5:30 PM at Grasshopper Too, 26 Erie Ave, Wayne, NJ, (973) 696-9698.

Place: BAE Systems, Inc., Plant 18, 150 Parish Drive, Wayne, NJ. Directions: (973) 633-6000, Option 5.

Information: Howard Leach (973) 385-7985 or h.leach@ieee.org.

NJ Consultants' Network:

Promotional Materials Workshop

On Thursday evening, March 21st, 2002, the IEEE Consultants' Network of Northern NJ will hold its monthly general meeting, featuring a promotional materials workshop.

About the Meeting

"Promotional Materials Workshop" is designed to be an informal discussion forum devoted to an improvement of marketing items used by independent consultants.

In the course of their practices, independent professionals use various forms of printed or electronic promotional materials. Their range may include business cards, flyers, brochures, emailable documents or even whole Web pages. Typically, these are created by the consultant himself, often resulting in very imaginative and unique designs. On the other hand, sometimes the message is lacking.

During the meeting, network members will present some of the materials used in their practices. This is intended to serve as a source of ideas for other members, in addition to generating some feedback and friendly critique. The discussion will be low-key and unstructured, in order to create a non-threatening environment for exchange of opinions.

Scheduling note: due to calendar conflicts, the March meeting will be held ahead of CNNNJ's usual schedule of last Thursday of the month.

About the Speaker

During the second half of the meeting, the following member of the IEEE Consultants' Network of Northern NJ will be presenting a brief overview of his consulting practice:

Barney Arntz is an electrical engineer (BSEE) with 20+ yrs experience in analog, radio frequency (RF) and microwave circuits and systems, specializing in high linearity RF power amplifiers. He operates a state of the art lab with equipment up to 3 GHz, which is capable of characterizing systems with complex modulation. He has been consulting for 5 years with several amplifier vendors, designing products used for wireless base stations.

About the Consultants' Network

The IEEE Consultants' Network of Northern NJ was founded in 1992 to encourage and promote the use of independent technical consultants by business and industry.

All Welcome!

You do not have to be a member of the IEEE or of the Consultants' Network to attend. Networking after the meeting is encouraged. There is no charge for admission.

Time: 7:30 PM, Thursday, March 21, 2002.

Place: MCE/KDI Integrated Products, 60 S. Jefferson Road, Whippany, NJ. (Use the rear entrance)

Information: For directions and up-to-date meeting status, call Robert Walker (973) 728-0344 or visit our website at www.TechnologyOnTap.org.

MARCH 2002

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Deadline for receipt of material is the 1st of the month preceding the month of publication. All communications concerning editorial and business matters, including advertising, should be sent to the Business Manager via e-mail at k.saracinello@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://www-ec.njit.edu/~ieeenj/>

IEEE NJ SECTION NEWSLETTER HOME PAGE

<http://www-ec.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.

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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 Wayne Owens at (201) 767-3400, ext. 226, wowens@crestron.com.

NJ Signal Processing Chapter:

Bezout Space-Time Equalization for MIMO Channels

On Wednesday, April 10, 2002, the IEEE North Jersey Section Signal Processing Society Chapter will host a presentation on "Bezout Space-Time Equalization for MIMO Channels." The speaker will be Professor S. Y. Kung.

About the Talk

The Multi-Input-Multi-Output (MIMO) channels will offer a very important diversity in 3G/4G wireless systems. Practical MIMO systems will need to address the Inter-Symbol-Interference (ISI) and Inter-Channel-Interference (ICI) problems. This talk will focus on the perfect recoverability of spatial-temporal Bezout equalizers for pinput-q-output ($p < q$) MIMO channels. The talk will start with an overview of the Bezout system theory which can serve as a powerful foundation for the Bezout equalization.

The STBC (Space-Time Block Coding) framework has recently become a very popular and efficient diversity creation technique. The Bezout system can work well jointly with the STBC. The STBC can be adopted to artificially construct a larger $q' \times p'$ (hopefully $p' < q'$) virtual transfer function without the channel information. We shall develop a Bezout equalizer and derive necessary and sufficient conditions for perfect recoverability (PR) for the STBC-induced virtual MIMO systems. For a robust channel design, SNRs for the Bezout equalizer can be derived based on the Bezout null space theory. The combined STBC and Bezout equalization techniques offer a broader spectrum of system configurations for optimal design tradeoff between the channel capacity and implementation complexities.

Bezout equalization, accompanied a novel finite-alphabet-exclusiveness (FAE) property, also offers a very effective approach to blind signal recovery for MIMO channels. The classical EM (expectation-maximization) algorithm can be applied to the adaptation of the Bezout parameters (instead of channel parameters as in most conventional blind approaches). Theoretical analysis on convergence property of the Bezout EM technique will be discussed. It also enjoys several advantages over the traditional approaches: (1) it can individually recover the user's signal and is thus specially appealing for MIMO, (2) it relaxes the burden of exact ISI length estimation, and (3) it can bypass the costly Viterbi algorithm and achieve substantial computational saving.

About the Speaker

Sun-Yuan Kung received his Ph.D. Degree in Electrical Engineering from Stanford University. In 1974, he was an Associate Engineer of Amdahl Corporation, Sunnyvale, CA. From 1977 to 1987, he was a Professor of Electrical Engineering-Systems of the University of Southern California. Since 1987, he has been a Professor of Electrical Engineering at the Princeton University. Since 1990, he has served as an Editor-In-Chief of Journal of VLSI Signal Processing Systems. He served as a founding member and General Chairman of various international conferences, including IEEE Workshops on VLSI Signal Processing in 1982 and 1986 (LA), International Conference on Application Specific Array Processors in 1990 (Princeton) and 1991 (Barcelona), and IEEE Workshops on Neural Networks and Signal Processing in 1991 (Princeton), 1992 (Copenhagen) and 1998 (Cambridge, UK), the First IEEE Workshops on Multimedia Signal Processing in 1997 (Princeton), and International Computer Symposium in 1998 (Taiwan).

Dr. Kung is a Fellow of IEEE. He was the recipient of the 1992 IEEE Signal Processing Society's Technical Achievement Award for his contributions on "parallel processing and neural network algorithms for signal processing." He was appointed as an IEEE-SP Distinguished Lecturer in 1994. He received the 1996 IEEE Signal Processing Society's Best Paper Award. He was a recipient of the IEEE Third Millennium Medal in 2000. He has authored more than 300 technical publications, including three books "VLSI Array Processors", (Prentice Hall, 1988) (with Russian and Chinese translations), "Digital Neural Networks", Prentice Hall, 1993, and "Principal Component Neural Networks", John Wiley, 1996. He has recently co-edited a book on "Multimedia Image and Video Processing", CRC Press, 2001.

All Welcome!

You do not have to be an IEEE member to attend. Pizza and light refreshments will be served at 4:45 PM.

Time: 5:00 PM, Wednesday, April 10, 2002.

Place: New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Directions are available at www.njit.edu.

Information: Dr. Yun-Qing Shi, (973) 596-3501, shi@njit.edu, Dr. Alfredo Tan, (201) 692-2347, tan@mailbox.fdu.edu, or Dr. Hong Man (201) 216-5038, hman@stevens-tech.edu.

IEEE North Jersey Section Activities

March 2002

Mar. 5–Apr. 9 - “Object-Oriented Programming” – North Jersey Section, Tuesday and Thursday Evenings, 10 sessions, 6:30-9:00 PM, BAE Systems (formerly GEC-Marconi), 164 Totowa Road, Wayne, NJ. Bhanu Chivakula at b.chivakula@computer.org.

Mar. 6–“NJ Section Executive Committee Meeting” – 7:00 PM, ITT, 100 Kingsland Rd, Clifton, NJ. Wayne Owens at (201) 767-3400 ext. 226 or wowens@crestron.com.

Mar. 19–“XML: Practical Introduction Using Theory and Case Studies” - NJ Computer Chapter, 7:00 PM, BAE Systems, Inc., Plant 18, 150 Parish Drive, Wayne, NJ. Howard Leach, (973) 385-7985, or h.leach@ieee.org.

Mar. 21–“Promotional Materials Workshop” – NJ Consultants' Network, 7:30 PM, MCE/KDI Integrated Products, 60 S. Jefferson Road, Whippany, NJ. Robert Walker (973) 728-0344 or www.TechnologyOnTap.org.

Mar. 22–“Electromagnetic Compatibility Seminar: Principles and Applications” - NJ IAS/PES Chapters, 9:00 AM to 3:00 PM, GPU Energy, 300 Madison Avenue, Morristown NJ (973-401-8200). R. Vittal Rebbapragada, PE, (609) 720-3209 or r.rebbapragada@ieee.org.

Mar. 27 – Mar. 28–“Wireless LANS & IP Telephony” - NJ Coast Section, 8:00 AM to 5:00 PM, IEEE Headquarters, 445 Hoes Ln, Piscataway, NJ. See <http://ewh.ieee.org/r1/njcoast> or contact Charles Chery (732) 420-8698 chery@ieee.org.

Upcoming Meetings

Apr. 3–“NJ Section Executive Committee Meeting” – 7:00 PM, ITT, 100 Kingsland Rd, Clifton, NJ. Wayne Owens at (201) 767-3400 ext. 226 or wowens@crestron.com.

Apr. 10–“Bezout Space-Time Equalization for MIMO Channels” - NJ Signal Processing Chapter, 5:00 PM (pizza and refreshments at 4:45 PM), NJIT, 202 ECE Center, Newark, NJ. Dr. Yun-Qing Shi (973) 596-3501, Dr. Alfredo Tan (201) 692-2324 tan@mailbox.fdu.edu or Dr. Hong Man (201) 216-5038 hman@stevens-tech.edu.

Apr. 18–“The Circuit Paradigm in Nanoelectronics” – EDS/C&S Chapters, Time TBD, NJIT, 202 ECE Center, Newark, NJ. Dr. Richard Snyder (973) 492-1207, Dr. Durga Misra (973) 596-5739 (dmisra@njit.edu), or Dr. Edip Niver (973) 596-3542.

Apr. 26–“Electric Motor Seminar” – NJ IAS/PES Chapters, 9:00 AM to 3:00 PM, Longo Industries, Wharton, NJ. For additional information contact Ken Oexle at (973) 386-1156.

Apr. 26 & 27–“The 11th Annual Wireless and Optical Communications Conference”, 8:00 AM Registration, 9:00 AM Opening Remarks, Marriott Hotel, Newark Airport, Newark, NJ. Details can be found on <http://www.wocc.org>.

Apr. 28–“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.

Apr. 28 - May 2–“IEEE International Conference on Communications 2002 (ICC2002)” – NJ Communications Chapter, New York Marriott Marquis, NY, NY. Visit <http://www.icc2002.com> for more information.

May 4 & 5–“27th Annual Trenton Computer Festival”, 10:00AM. See <http://www.tcf-nj.org> for details.

May 16–“Circuit Breaker Solutions” - NJ IAS/PES Chapters, Time TBD, Union, NJ. Ken Oexle at (973) 386-1156.

Members and Non-Members Welcome
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IEEE International Conference on Communications 2002 Call For Participation

We are pleased to announce that the IEEE ICC2002 Conference will be held in New York City from 28 April to 2 May 2002. Along with the IEEE Communications Society, which is celebrating its 50th Anniversary in 2002, our IEEE Section is proud to be a co-sponsor of the conference. In recognition of this golden anniversary, ICC2002 has scheduled a number of events, including a special retrospective 50th Anniversary Panel chaired by Bob Lucky. In addition, with your full or limited registration you will receive a DVD set that contains 50 years of papers that have been published in ComSoc magazines and journals and the last few years of conference proceedings!

The conference site is the New York Marriott Marquis, which is located in the heart of the Broadway Theater District. The conference will include Tutorials, Workshops, Plenary Sessions, Technical Sessions, plus Panels and Business Application Sessions.

Please visit <http://www.icc2002.com> for more information about IEEE ICC2002. We hope that you are able to join us in New York. The DVD set alone will be well worth the trip into the city!

Upgrade To Senior Member Grade

To become a Senior Member, you need ten years experience. A Bachelors degree counts for three of those years and Master and Doctorate degrees each count for one more year of experience. You don't have to be an IEEE member for ten years. The dues for Senior Members, Members and Associates are the same. New Senior Members will receive an engraved wood and bronze Senior Member plaque from the IEEE.

To get information and an application, contact Don Weinstein, Kulite Semiconductor, One Willow Tree Road, Leonia, NJ 07605-2239, (201) 461-0900 ext 234 mornings, FAX (201) 461-0990,

Please include your mailing address.

PACE NEWS – New Season for PACE

PACE, an acronym for Professional Activities Committee for Engineers, but we shall refer to it by Professional Activities Committee. This is a committee providing IEEE Members with the opportunity to meet, address, discuss and perhaps improve the professional aspects of the engineering profession.

This month I will try to get some answers from the PACE and IEEE-USA leaders to identify PA Goals. Meanwhile we are starting on an email list of PACE members in other Sections.

I will make arrangements for our first PACE meeting to take place next month. We could also use your help getting meeting sites. Locations near the Garden State Parkway and Route 80 would really be good.

With a new season for PACE, you are invited to email me your thoughts and concerns of a professional nature. I would also like to know if you are interested in having monthly Section PACE meetings.

Any thoughts, ideas, or suggestions you may have can be emailed to me at rtax@bellatlantic.net.

Richard F. Tax
North Jersey PACE Chair

NJ PES/IAS: Circuit Breaker Solutions

On May 16, 2002, the North Jersey Section IAS/PES Chapters will host a technical meeting on "Circuit Breaker Solutions." The session will cover the replacement, retrofit, reconditioning and retrofill of industrial grade low and medium voltage circuit breakers. Additional details about the meeting will appear in the April Newsletter.



IEEE NEW JERSEY COAST SECTION

presents

A Two-Day Seminar/Conference

WIRELESS LANS & IP TELEPHONY

March 27-28, 2002; 8:00 AM – 5:00 PM

IEEE Headquarters, Piscataway, New Jersey



This year the IEEE New Jersey Coast Section annual conference will feature presentations on Wireless LANs and IP Telephony presented by a set of distinguished lecturers.

MARCH 27, 2002		SCHEDULE OF EVENTS	
8:00 – 10:30	<u>WIRELESS LANS</u> Session W1 <i>Wireless LAN Overview</i> Kun Il Park, MITRE Corp	8:00 – 10:00 & 10:15 – 12:00	<u>IP TELEPHONY</u> Session I1 <i>Overview of IP Telephony Standards</i> Amruthur Narasimhan, Avaya, Inc.
10:45 – 12:00 & 1:00 – 2:15	Session W2 <i>WLAN Chips and Components</i> Jim Zyren, Intersil	1:00 – 2:45 & 3:00 to 5:00	Session I2 <i>Voice Over IP: Products and Features</i> Or QOS for VOIP (TBD)
2:30 – 5:00	Session W3 <i>Toward 4G Networks</i> Andrew Campbell, Columbia Univ.		

MARCH 28, 2002		SCHEDULE OF EVENTS	
8:00 – 10:00 & 10:15 – 12:00	<u>WIRELESS LANS</u> Session W4 <i>Bluetooth</i> Pravin Bhagwat	8:00 – 10:00 & 10:15 – 12:00	<u>IP TELEPHONY</u> Session I3 <i>IP Telephony</i> Henning Schulzrinne, Columbia Univ.
1:00 – 2:45 & 3:00 to 5:00	Session W5 <i>Wireless Networking Solutions for the Enterprise</i> Patrick Leary, Breezecom	1:00 – 2:45 & 3:00 to 5:00	Session I4 <i>The Role of VoIP in Modern Telecommunication</i> Siroos Afshar, AT&T

Note: 7 am-8 am: Breakfast 10:30 am-10:45 am & 2:15 pm-2:30 pm: Coffee Breaks 12 Noon-1 pm: Lunch

SEATS ARE LIMITED, REGISTER EARLY!

Register Before March 1, 2002

IEEE Members- 1-day \$275, 2-day \$475
Non-members 1 day \$325/day 2-day \$525

Register After March 1, 2002

IEEE Members- 1-day \$325, 2-day \$525
Non-members 1 day \$375/day 2-day \$575

Please go to IEEE NJ Coast section web site at <http://ewh.ieee.org/r1/njcoast> to register for the Seminar/Conference. For information contact: Charles Chery, chery@ieee.org, (732) 420-8698.

NJ PES/IAS:

Electric Motor Seminar

The PES and IAS Chapters will present a technical seminar on the fundamentals of electric motors. The daytime seminar (9:00 AM – 3:00PM) will be held at Longo Industries in Wharton, NJ on Friday April 26, 2002.

About the Seminar

The seminar will cover the following topics:

- Motor Design and Construction
- Selection and Application of Motors
- Torque Requirements
- Compatibility with Adjustable Speed Drives
- Motor Installation Considerations
- Predictive and Preventive Maintenance
- Tour of Longo Motor Service Center

Mr. Thomas Bishop, Vice President-Engineering Longo Industries will lead the seminar and be assisted by other members of his staff. Mr. Bishop is a licensed Professional Engineer and has over thirty years of experience in motor design, application and equipment service. He is Chairman of the EASA Technical Services Committee, a principal member of National Fire Protection Association Electrical Equipment Maintenance Committee (NFPA70B), and a member of the working group developing IEEE 1415 Guide for Induction Machinery Maintenance and Failure analysis

The registration fee for this seminar prior to April 15th will be \$175 (non-IEEE members), \$125 (IEEE Members), and \$50 (students with valid ID). Registrations after April 15th 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 3:00 PM, Friday, April 26, 2002.

Place: Longo Industries, One Harry Shupe Boulevard, Wharton, NJ (973-537-0400). Directions: Route 80 to Route 15 South. Turn right at first traffic light on to Dewey Avenue. Proceed to next traffic light and turn left on to Main Street. Harry Shupe Boulevard is on the left (0.3 mile, just beyond where Main St makes a sharp turn). Longo Industries is at the end of the road.

Information: R. Vittal Rebbapragada, PE, (609) 720-3209 or r.rebbapragada@ieee.org.

Registration: Electric Motor Seminar, 4/26/2002

Register via US mail to:

K. Oexle
11 Deerfield Rd
Whippany, NJ 07981

Name _____

Address _____

Phone _____ Email _____

IEEE # _____ Student @ _____ Non IEEE _____

Payment Enclosed \$ _____ Add \$25 late registration after April 15th

Make Check payable to North Jersey Section IEEE

NJ PES/IAS:

Electromagnetic Compatibility: Principles and Applications

The IEEE North Jersey Chapters of IAS/PES will host a one day Seminar on "Electromagnetic Compatibility: Principles and Applications" on Friday March 22, 2002.

About the Seminar

The seminar will be conducted from 9:00 AM to 3:00 PM, with breaks for lunch and coffee. The seminar will cover the following topics:

- Introduction to EMI environment
- Sources of conducted and radiated EMI
- Standards governing the EMI Design Guidelines and Test Practices
- EMI Measurements, Control Requirements, and Test Methods
- EMI Issues from Variable Speed Drive Applications
- Harmonics and its Role in EMI
- Mitigation Techniques: Shielding, Bonding and Grounding

The seminar is designed for engineers, contractors, and consultants that are involved with selection, application, and installation of micro-processor based control and protection systems, distributed control systems, power electronic devices such as variable speed drives in industrial, residential, commercial, and electric utility installation such as generating stations and substations.

This seminar will be conducted by Mr. R. V. Rebbapragada, PE who has industry recognized experience with over 25 years of experience in the area of Electro Magnetic Compatibility. The registration fee for this seminar prior to March 15th will be \$175 (non-IEEE members), \$125 (IEEE Members), and \$50 (students with valid ID). Registrations after March 15th 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 3:00 PM, Friday, March 22, 2002.

Place: GPU Energy, 300 Madison Avenue, Morristown NJ (973-401-8200). Directions: Route 287 to Route 124 Exit in Morristown. Follow signs toward Madison, GPU is about 1.5 miles on the left side.

Information: R. Vittal Rebbapragada, PE, (609) 720-3209 or r.rebbapragada@ieee.org.

Registration: Electromagnetic Compatibility Seminar - Principles & Applications, 3/22/2002

Register via US mail to:

K. Oexle

11 Deerfield Rd

Whippany, NJ 07981

Name _____

Address _____

Phone _____ Email _____

IEEE # _____ Student @ _____ Non IEEE _____

Payment Enclosed \$ _____ Add \$25 late registration after March 15th

Make Check payable to North Jersey Section IEEE

IEEE AWARDS RECEPTION

*North Jersey Section
April 28, 2002
Birchwood Manor, Whippany NJ*

*A time to relax, unwind and enjoy --
A time to pay tribute to our new Fellows --
A time to honor our Award Winners --
YES it's time for the Annual Section Reception*

The Annual Section IEEE Awards Reception will be held at the Birchwood Manor, 111 North Jefferson Road, Whippany again this year. The affair is scheduled for **Sunday, April 28, 2002** from 3 to 6 PM. Tickets are \$35.00 each and include a complete prepaid, two-hour open bar, hors d'oeuvres, buffet, and dessert. Spouses and guests are welcome. We are limited to 90 attendees, so please make your reservations early.

Reservations are required by April 22, 2002. Complete the reservation form and return it with your payment. If you would like tickets mailed back to you, please enclose a self-addressed **stamped** envelope. Otherwise, your tickets will be held at the door for you. If any additional information is required concerning the reception, contact Anne Giedlinski at (973) 377-3175.

Use this form for Reception reservations. **ENCLOSE A SELF-ADDRESSED STAMPED ENVELOPE to receive tickets in advance.** **Reservations are required by April 22, 2002.** Mail reservation request to:

Anne Giedlinski
299 Brooklake Road
Florham Park, NJ 07932

Enclosed is _____ for _____ ticket(s) at \$35.00 each (make check payable to **North Jersey Section IEEE**) for:

NAME: _____

ADDRESS: _____
