The IEEE Newsletter

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

NJ EMS Chapter:

Critical Project Management Practices for New Product Development

On December 14, 2000, the IEEE North Jersey Section Engineering Management Society Chapter will host a presentation on "Critical Project Management Practices for New Product Development" by Dr. Gary Lynn of Stevens Institute of Technology.

About the Talk

Dr. Lynn will present critical factors for project management for new product development projects. He will present some insights from his multi-year study of over 700 new product teams 85 award-winning teams. Dr. Lynn will also share digital video clips of award-winning project managers discussing the secrets to their success for better and faster innovation.

About the Speaker

Dr. Lynn is a nationally recognized expert and speaker on new product development. He has authored or co-authored over 40 books and refereed journal articles on new product development. He is an award winning scholar and teacher. He won the best teacher award for best Associate Professor at Stevens and won the Merritt Williamson Award from the American Society for Engineering Managers for research excellence.

All Welcome!

You do not have to be a member of the IEEE to attend. Light refreshments will be served at 6:30 PM.

Time: 7:00 - 9:00 PM, Thursday, December 14, 2000.
Place: New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Directions are available at www.njit.edu.
Information: Wayne Owens, (201) 767-3400 Ext. 226, wowens@ieee.org.

No. Jersey SMC Society:

Training Neural Networks

On Tuesday, December 12th, the IEEE North Jersey Systems, Man and Cybernetics Society Chapter will host a presentation by Robert Turetsky of Columbia University on neural networks.

About the Talk

Neural networks are a computational and mathematical tool loosely based on the operation of the biological neuron. Applications using neural nets differ from more traditional computer applications in that the computer program must be told its algorithm in advance, while the response of a neural net is learned through a training period. Thus, neural nets are a paradigm that allows computation to converge to a solution, rather than having one explicitly programmed. In this lecture, the speaker will introduce neural nets and techniques used in training them. He will then discuss ways in which neural nets are used across various disciplines, as well as some of the current research on the subject. Finally, one understanding of the organization of the human brain will be briefly discussed, as well as how biological neurons behave in the brain. Research in this area will hopefully pave the way towards creating computer intelligence mirroring that of our own.

About the Speaker

Robert Turetsky received BS degrees in Computer Science and Computer Engineering from Rutgers University in New Brunswick, NJ in May 2000. He is currently engaged in advanced studies of Electrical Engineering at Columbia University in New York City, where his concentrations are in artificial intelligence, bio-informatics and signal processing. For the past three years, he has been developing web-based applications for Morgan Stanley Dean Witter, Inc., a prominent investment banking firm headquartered in NYC. Prior to that, he worked for two Internet start-up companies. His outside interests include film-making, jazz, and electronic music.

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 7:15 PM).

Time: 7:30 PM, Tuesday, December 12, 2000.
Place: Muscarelle Hall, Fairleigh Dickinson University, Teaneck, NJ (Parking just off Route 4 and River Road). The room assignment (probably 206) will be posted at the entrance to Muscarelle Hall.
Information: Dr. Mike Liechenstein (973) 471-0721 (m.liechenstein@ieee.org) or Mel Lewis (201) 692-2348 (m.lewis@ieee.org).

DECEMBER 2000

NEWSLETTER STAFF

Editor...Keith Saracinello
Business Manager..................Theresa Saracinello

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*, (732) 465-4067.

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.

SECTION OFFICERS

Chairman.. Alan Stolpen
a.stolpen@ieee.org, (973) 822-1300, ext. 2416
Vice-Chairman-1 ....Dr. Nirwan Ansari
(973) 596-3670
Vice-Chairman-2 ....Rodney Cole
rgcole@ieee.org (973) 299-9022 Ext. 2257
Treasurer.. Milton Korn
miltonkorn@aol.com (973) 365-2757
Secretary.. Wayne Owens
wowens@crestron.com (201) 767-3400, ext. 226

Members-at-Large:
Bhanu Chivakula (b.chivakula@computer.org)
Durga Misra (dmisra@megahertz.njit.edu)
Richard Tax (rtax@bellatlantic.net)

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 Consultants' Network:
Annual Business Meeting

On Thursday, December 7, 2000, the IEEE Consultants' Network of Northern NJ (CNNNJ) will hold its annual business meeting. To conclude the meeting two members will briefly present their skills and interests to the group. These presentations kick off what we hope will be the permanent reinstatement of an old idea, e.g. allowing members to present their skills to other members as an aid to networking and referrals. Laurie Cox and George Hacken have graciously agreed to speak.

Meeting Agenda

- 2000 Recap
- Announcement of election results
- Review and ratification of several proposed network policy issues
- Discussion of alternate plans for 2001
- Finalize 2001 plans
- Refreshment Break
- Member Presentations
  George Hacken
  Laurie Cox

About the Speakers

Laurie Cox is the President of RLC Designs, Inc. and has been consulting for more than 10 years. She received a BEEE degree from Manhattan College and an MSEE degree from Rutger's University in 1985 and 1987 respectively. Laurie specializes in FPGA design of digital signal processing algorithms, and also provides software services in C/C++, VBasic and assembly languages for embedded designs and PC-based applications.

George Hacken is currently completing an upgrade of an i386-based real-time embedded system (C and Assembler). He is also Technical Support for a PC-based instrument maker. A third project is Train-Control Software for New York City Transit, which has Safety-Critical (Vital) modules that are implemented via Formal Methods (Program Verification).

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, December 7, 2000.
Place: KDI Triangle, 60 S. Jefferson Road, Whippany, NJ.

Information: For directions and up-to-date meeting status, call Robert Walker (973) 728-4500 or visit our website at www.TechnologyOnTap.org.

The VT Conference Committee Wants You!! Looking for Volunteers, Sponsors, Exhibitors

The IEEE North Jersey Section is hosting the Fall 2001 Vehicular Technology Conference in Atlantic City, NJ from October 6-11, 2001. And now's your chance to get involved.

Have you ever wondered how a conference comes together? How speakers, tutorials, meals, and many other activities are smoothly integrated? How to produce a powerful technical program of international caliber? How to advertise your company's name on the coffee cups during the lunches and breaks?

Then this is the deal for you. The conference committee is issuing an open call for volunteers to help man its sub-committees. Currently the following have some openings: local arrangements, banquet, publicity, publications, registration, special/social events, transportation, and many others.

But it doesn't stop there. There are special discounts for student volunteers and sponsoring companies. What better way for your organization to get its name out to hundreds of people from worldwide in the mobile communications arena than by becoming Platinum, Gold, or Silver sponsors? You can even tailor your sponsorship to meet your advertising needs. This includes getting tables or floor space to exhibit YOUR products and services to those people with the purchasing power or an all electronic advertisement on the website.

Even students can get involved. There is a significant student admissions discount and does not require any society affiliations. We are also looking for students to man the registration desk and take on other activities. Universities are also welcome to become sponsors.

How can you find out more and get involved? Contact conference chair Art Greenberg at a.h.greenberg@ieee.org or (973) 386-6673, and Industry Liaison/Exhibits chair Stephen Wilkowski at swilkowski@lucent.com or (973) 386-6487. Check out the website at http://www.fallvtc2001.org.

North Jersey Section Activities
December 2000

Dec. 7–"Annual Business Meeting" – NJ Consultants' Network, 7:30 PM, KDI Triangle, 60 S. Jefferson Road, Whippany, NJ. Robert Walker (973) 728-4500 or www.TechnologyOnTap.org.

Dec. 12–"Training Neural Networks" - NJ Section Systems, Man and Cybernetics Society, 7:30 PM, Muscarelle Building, Fairleigh Dickinson University, Teaneck Campus, NJ. Dr. Mike Liechenstein (973) 471-0721 (m.liechenstein@ieee.org) or Mel Lewis (201) 692-2348 (m.lewis@ieee.org).

Dec. 12–"IT Success Fair" – no IEEE sponsorship, $70 admission fee, 4:00-7:00 PM, Stevens Institute of Technology, Charles V. Schaeffer Athletic Center, Hoboken, NJ. Prof. Larry Bernstein, (973) 258-9213, ibernstein@stevens-tech.edu.

Dec. 14–"Critical Project Management Practices for New Product Development" - NJ EMS, 7:00 – 9:00 PM, NJIT, 202 ECE Center, Newark, NJ. Wayne Owens at (201) 767-3400 Ext. 226 or wowens@crestron.com.

Dec. 20-23 – "3rd International Conference on Information Technology" – North Jersey Section, Bhubaneswar, India. Durga Misra at (973) 596-5739 or dmisra@njit.edu.

Upcoming Meetings

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

Jan. 19–"Harmonics and Power Quality" – NJ IAS/PES Chapters, 8:30 AM to 3:30 PM, Automatic Switch Company (ASCO), Hanover Rd, Florham Park, NJ. R. Vittal Rebbapragada (609) 720-3209 or via e-mail at r.rebbapragada@ieee.org.

Feb. 20–Mar. 22 – "Object Oriented C++ 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 (973) 751-4879 (b.chivakula@computer.org).

Apr. 22–"NJ Section Awards Reception" – at the Birchwood Manor. Reserve this date! Details to follow.

Members and Non-Members Welcome
PLEASE POST

IAS/PES Officer Nominations

The following individuals have been nominated to serve as chapter officers for 2001.

IAS Chapter
   Ken Oexle - Chair
   Won Kim - Vice Chair

PES Chapter
   Vittal Rebbapragada - Chair
   Tom Piascik - Vice Chair

Elections will be held at the next scheduled chapter meeting. To submit additional nominations contact Ken Oexle at 973-386-1156.

Fellow Nominations

The IEEE will be accepting Fellow Grade nominations through March 15, 2001. The application and supporting references must be submitted by this date. Contact the IEEE Fellows Committee at Piscataway to receive a nomination kit. Their phone number is 732-562-3840. It is available electronically at

www.ieee.org/about/awards/fellows /fellows.htm

Apply for Senior Member Grade

To become a Senior Member, you need ten years experience. A Bachelors degree counts for three of those years and a Masters and Doctorates each count for one year. You don't have to be an IEEE member for ten years. The dues for Senior Members, Members and Associates are the same.

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, email don@kulite.com. Please include your mailing address.

3rd International Conference on Information Technology
December 20-23, 2000
Bhubaneswar, INDIA

Co-Sponsored by
North Jersey Section of IEEE

The Advance Program in pdf format can be found at
www-ec.njit.edu/~dmisra/CIT2000.htm

The highlights are:
❑ Eight tutorials completely free for everyone
❑ Six Keynote Speakers
❑ Five Invited Speakers
❑ Thirty five Accepted Papers

For additional details, please contact Durga Misra, ECE Department, NJIT, at dmisra@njit.edu or (973) 596-5739.

Student Activities Committee Seeks Volunteers and Speakers for Local Branches

The North Jersey IEEE Section Student Activities Committee is looking for volunteers that can help out in the following areas:
1. Branch Mentors to provide one-on-one guidance to local students in running their branches.
2. Speakers on technical and non-technical topics for student lecture series.
3. Section volunteers to help organize events and maintain contact with branches and student leaders.

If you are a recent graduate (GOLD) or long-time member, all are welcome to participate. Please contact chairman Amit Patel at 973-284-2708 or a.j.patel@ieee.org and visit the new website at:
   http://ewh.ieee.org/r1/north_jersey/sac

IEEE Vehicular Technology Conference

The IEEE Vehicular Technology Society will hold its Fall 2001 Conference on October 6-11, 2001 in Atlantic City. It is one of the major international mobile communications conferences in the world and will be hosted by the North Jersey chapter. Information about the conference is available at www.fallvtc2001.org.

Companies that are interested in sponsorship should contact Steve Wilkowski at swilkowski@lucent.com.

Applications Available for 2001 Mass Media S&E Fellows Program

For a 10-week period during the summer, the AAAS Mass Media Science and Engineering Fellows Program places advanced college and university students in the natural and social sciences and engineering at radio stations, television stations, newspapers, and magazines throughout the country. The goal of the program is to strengthen the connections between science and the media. This past summer marks the first time that IEEE-USA has placed a Science and Engineering Fellow. Elan Ruskin, a junior at the University of Pennsylvania majoring in computer science engineering, spent 10 weeks at the ST. LOUIS (MO) POST DISPATCH covering environment, nature and technology news. IEEE-USA is looking forward to continuing its participation in the Mass Media Science and Engineering Fellows Program in 2001. IEEE-USA will sponsor a U.S. IEEE member who is a Junior, Senior, or Graduate/Post-Graduate level student in the 2001 program. For more information, visit http://www.ieeeusa.org/notable /mediafellow2001.htm. The deadline for receipt of applications is 15 January 2001.

The Fred Nathanson Memorial Radar Award
By the IEEE/AESS Radar Systems Panel
To the Young Engineer of the Year

General:

This annual award, in honor of the late Fred Nathanson, is sponsored by the IEEE Radar Systems Panel of the Aerospace and Electronic Systems Society. The purpose of this award is to grant international recognition for outstanding contributions to the radar art by young IEEE/AESS members. The goals of the Radar Systems Panel in granting this award are to encourage individual effort and to foster increased participation by developing radar engineers. This IEEE award consists of a commemorative recognition plaque and a $1000 honorarium.

The 2001 Young Engineer of the Year will be honored at IEEE Radar Con-01. This conference will be held in Atlanta GA, USA on the 1st and 2nd of May, 2001.

Eligibility:

An eligible candidate must be no more than 40 years of age as of December 31, 2000. She/he must also be a member at any grade level of the Aerospace and Electronic Systems Society of the IEEE. The candidate must have demonstrated outstanding contributions to the art of radar, as documented by the nominator(s).

Nomination:

Anyone qualified to appraise the candidate's contribution to the art of radar may formally nominate him or her. A one page letter of intent to nominate is required by December 1, 2000. This letter must include sufficient details and/or other evidence describing the candidates contribution to the art of radar. The candidate should not be aware of the nomination process.

A full nomination package, including resume is required by December 31, 2000. Additionally, no more than five, but not less than three, additional letters of endorsement should be forwarded to indicate credible recognition by others, such as peers, managers, and customers. This information will be reviewed by the Awards Committee of the IEEE/AESS Radar Systems Panel in order to select a recipient. Nomination packages may be obtained by contacting John Milan at the address below.

Schedule:

All nomination letters for the 2001 Fred Nathanson Memorial Radar Award to the Young Engineer of the Year and other documentation must be received by the Awards Committee no later than December 15, 2000. The winner and successful nominating sponsor will be notified no later than February 15, 2001. Actual presentation of the award will be in May 2001 at IEEE Radar Con-01.

Mail or fax (818) 901-2435 all nomination information to:

John M. Milan
(818) 901-2390, john.milan@itt.com
Chairman, Awards Committee
IEEE/AESS Radar Systems Panel
ITT Gilfillan
P.O. Box 7713
7821 Orion Avenue
Van Nuys, CA 91409

Full Page Advertisement #1

IEEE North Jersey Section Course
Object Oriented C++ Programming

Tuesday and Thursday Evenings, February 20, 2001 through March 22, 2001 (No class on Feb. 22)-ten bi-weekly classes
(February 20, 27, March 1, 6, 8, 13, 15, 20, 22 and 27, 2001)
BAE Systems (Formerly GEC-Marconi), 164 Totowa Road, Wayne, NJ
(Checks should not be mailed to this address)

The North Jersey Section IEEE is offering an evening course entitled "Object-Oriented C++ Programming." The Object-Oriented concept is very widely used today in new design and programming work. Instead of focusing on functionality (what the programs do) it focuses on the natural objects comprising the problem and how they, and their capabilities, are modeled in the program.

C++ is the most widely used language today for object-oriented design and programming. But O-O programming is still programming, so the course will begin with the elements of procedural programs and using C++ as a better C language. It will then move on to Object-oriented programming. The course will cover concepts, implementation and practical aspects of using C++ code.

A knowledge of C programming is not necessary to take the course, but, because neither C nor C++ are elementary programming languages, a familiarity with foundation programming concepts will be very helpful.

TOPICS

1. Review common elements of C and C++: punctuation and key words, variable naming, typing and scope, libraries, text strings, arrays, structures and pointers.
2. C++ procedural programs: conditionals and logical variables, looping and testing, subfunctions and arguments. Debugging.
3. Concept of Object-Orientation: objects and classes of objects, methods and messages, encapsulation and abstraction, overloading of functions and operators, inheritance and polymorphism.
4. C++ improvements to C: new commands and operators, comments, stream I/O. function prototypes, more explicit typing and linking.
5. C++ implementation of objects: what is a C++ object, data and method functions within an object, public, private and friend, static and dynamic objects, constructors and destructors.
6. Encapsulation and abstraction within C++ objects: references and aliases, scope control operator, 'this' object, overloading, functions, operators.
7. Inheritance and polymorphism among C++ objects: parent class or object, extending classes, redefining object data and methods, multiple inheritance.
8. C++ I/O streams: standard I/O, formatted I/O with manipulators, disk and device I/O.
9. C++ library classes and their use: characteristics of a good library class, conversion base classes, video base classes, window base classes, database base classes.
10. Overall program structure with C++ objects: how to lay out a C++ program, how to reuse classes in a program, how to test and evolve a C++ program, how to find errors and debug C++ object programs.
11. Other topics: object-oriented design methodologies, templates and the standard template library, namespaces and interactive program design. Object programs in the Windows environment. Evolution of C++. Commonality and differences with Java.

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 6, 2001 will require a late fee of $25. No reservations will be accepted after February 13, 2001.

WHERE: BAE Systems (Formerly GEC-Marconi), 164 Totowa Road, Wayne, NJ. (Checks **should not** be mailed to this address)
WHEN: 10 Sessions, Tuesdays and Thursdays, February 20, 27, March 1, 6, 8, 13, 15, 20, 22 and 27, 2001, 6:30-9:00 PM.
COST: With text book or notes: IEEE (& affiliate) members $300; Non-IEEE members $400.
CONTACT: Bhanu Chivakula 973-751-4879 (leave message) or email b.chivakula@computer.org

REGISTRATION: OBJECT-ORIENTED C++ PROGRAMMING

To: Mr. Naz Simonelli, 68 Woodmont Drive, Randolph, NJ 07869-3740 **(Checks with registration form should be mailed to this address)**

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 13, 2001. 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:_____

Harmonics and Power Quality

A One-Day IEEE Seminar
Presented by the IAS and PES Chapters, North Jersey Section
January 19, 2001   8:30AM to 3:30PM

The "60Hz" power system is rapidly becoming a thing of the past. Engineers need to know how to design, analyze, and operate distribution systems that carry 60 Hz plus a substantial load of other frequencies.

Why? Non-linear loads (those that draw a non-sinusoidal load current from a sinusoidal voltage source) generate harmonic current and voltage components, while periodically-varying loads that modulate the fundamental-frequency current generate interharmonics (currents and voltages at frequencies that are rational fractions of the fundamental). The resulting problems can include transformer overheating (or derating to avoid overheating), overheating of synchronous-machine rotor bars, blowing of capacitor bank fuses due to resonance at a harmonic frequency, communications interference, control system malfunctions, erroneous firing of thyristor converters, CRT image fluctuations, and lighting flicker. Harmonics-related problems can only become more common as microelectronic power supplies and adjustable-speed drives account for an ever-growing proportion of the load (predicted to exceed 50% in some areas by the year 2000).

This seminar is designed for industrial-plant, power utility, and commercial-building power system engineers. It will provide a comprehensive introduction to power system harmonics: where they come from, their effects, and how to analyze and alleviate them.

♦ Introduction and Overview	♦ Drive Systems:
♦ Sources of Harmonics	– Synchronous Machines
♦ Practical Definition for Powers in Systems with Nonsinusoidal Waveforms	– Induction Machines – Inverter Power Supplies
♦ Harmonic Analysis by Manual and Computer Methods	♦ Filters and Other Harmonics Mitigation Methods: Principles and Applications
♦ Shunt Capacitors and Resonance	
♦ Effects of Harmonics on:	♦ Power Quality Measurements and Instrumentation
– Utility Distribution	♦ Standards Governing Limits on Harmonics
– Industrial Distribution	♦ Case Studies
– Instrumentation and Control	♦ Open Discussion
– Power Systems	

SEMINAR LEADERS:	The seminar will be conducted by industry experts & IEEE distinguished lecturers
LOCATION:	Automatic Switch Company (ASCO), Hanover Road, Florham Park, NJ (973-966-2000) Directions from Route 287: Take I-287 to Exit 37 (NJ 24 East - Springfield). Take NJ 24 East to Exit 2B (Columbia Turnpike). Proceed 2.2 miles to Hanover Road (6th set of traffic lights). Turn left on Hanover Road (Afton Restaurant). Automatic Switch will be on the right (0.4 miles). Enter first driveway marked shipping/receiving and proceed to visitor parking lot on the left. Follow sidewalk to office entrance door.
COST:	Includes materials, morning refreshments, and luncheon: IEEE members $125, Non-IEEE members $175, Students with valid ID $25. Group discounts of 50% will be given if three or more attendees from the same company are registered. $25.00 will be deducted for IEEE members and nonmembers (not students) whose registration fees are received by January 9, 2001!
INFORMATION (after December 3rd):	R. V. Rebbapragada, Washington Group, International, 510 Carnegie Center, Princeton, NJ 08540, phone 609-720-3209, fax 609-720-3598, e-mail r.rebbapragada@ieee.org

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REGISTRATION – **Harmonics & Power Quality**, January 19, 2001

Reserve your place by mailing a check **payable to "IEEE North Jersey Section"** to: Ken Oexle
11 Deerfield Road
Whippany, NJ 07981

Name_____   IEEE#_____

Address_____   Phone_____

_____   Amount $_____

Early Registration Discount_____   Group/Company Registration Name_____

$25.00 discount for IEEE members and nonmembers (not students) whose registration fees are received by January 9, 2001**!**