The IEEE Newsletter

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

NJ Computer Chapter:

Web Page Engineering

On March 10, 1999, the IEEE North Jersey Section Computer Chapter will hold a tutorial on "Web Page Engineering" by James D. Isaak, a speaker sponsored by the Computer Society's Distinguished Visitor Program.

About the Talk

This tutorial will provide an overview of the recommended web page engineering practices which could help in the creation of web sites that are productive and maintainable. The following topic areas will be covered:

♦ Design and Life Cycle Considerations; Audience and Objectives
♦ Client & Server Technology; HTML, CSS, XML - Versions and Variations
♦ Legal Implications; Intellectual Property Rights: Copyright, Trademarks, Proprietary Information
♦ Accessibility - for Disabled Persons; Privacy
♦ Server, HTTP - Performance, Metrics, Robot Exclusion, Ease of Use; Metadata
♦ Dublin Core, PICS, Robots, Keywords, Bandwidth Impact
♦ Dates - Year 2000, Maintenance
♦ International Considerations; Language, Practical Considerations, Legal Awareness

Creating web sites is easy; kids can do it. Web sites can be flashy and fun. However, poorly engineered web sites can be expensive to maintain, difficult to navigate, an even a legal liability. As with so many aspects of engineering, "do it right the first time, or do it over (and over and over)".

Currently, the IEEE CS Internet Best Practices working group is accumulating insight & guidelines from a wide range of web-masters, the Web Consortium (HTML, XML, ...), and the Internet Engineering Task Force (TCP/IP, HTTP, ...) experts. From this work, they will be developing a new IEEE Standard, Project 2001: Recommended Practices for Internet Best Practices -- Web Page Engineering -- Intranet/Extranet applications.

About the Speaker

James D. Isaak, Senior Member, was recently the Director of Information Infrastructure Standards at Digital Equipment Corp. He is currently a member of the Computer Society's Board of Governors and was Vice President of the Standards Activities Board in 1998,.

Recently, Isaak initiated the IEEE SCC33, a standards coordinating committee for information infrastructure, and is active on the ANSI Information Infrastructure Standards Panel (IISP). From 1984 though 1994, he led the Posix standards effort as the work expanded to 30 projects and 500-plus volunteers. He is a member of the associated ISO/IEC SC22 committee, IEEE Standards Board, the Cross Industry Working Team (XIWT), the World Wide Web Consortium, the IEEE USAB Committee on Communications and Information Policy, and UniForum.

He has authored numerous articles on open systems and one on the Information Highway (Computer, Oct. 1978). He is also co-author of the recently published Open Systems Handbook (IEEE Standards Press).

All Welcome!

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

Time: 7:30 PM, Wednesday, March 10, 1999.

Place: Dialogic, Inc., 1515 Route 10 (East bound from Route 202), Parsippany, NJ. Please park in front and enter from front entrance.

Information and Pre-meeting Dinner Reservations: Howard Leach, (973) 540-4485, or Venugopal Tirumalai at (973) 367-8281.

Recruit New Members and Earn Credit Towards Your IEEE Dues

Recruit	Credit
1 - 2 New Members	$5.00
3 - 5 New Members	$10.00
6 - 9 New Members	$20.00
10 or More New Members	*Free Membership for Year 2000

*Payment for a full year membership is required

The program ends on August 15, 1999. Don't forget to fill in your name and membership number in the recruiter box on the application. Vouchers will be mailed by October 1999 and expire on December 31, 1999.

Get complete information and as many of the applications you will need, by giving your name and mailing address and the number of applications required to Don Weinstein, Kulite Semiconductor, One Willow Tree Road, Leonia, NJ 07605-2239, (201) 461-0900 Ext 234, mornings, or don@kulite.com.

MARCH 1999

NJ Section PACE:

Stock Market - Managing Your Investments Electronically?

The March 11th meeting of the North Jersey Professional Activities Committee will present a talk about "Stocks & Managing Your Investments Electronically?" The speakers, Mr. Greg Riabov and Mr. Len Dabulis, will give a generic presentation about the Market and managing our investments via the internet.

About the Talk

Today, with computers, the internet and our "on-line" capabilities, we have immediate access to our accounts and to the Stock Market. We can type in a list of stocks, bookmark them for instant viewing at any time, and fill our screen with information about - Last Trade, Change, Volume and More Info. Another "click'" and we pull up a screen with a chart plotting a specific stock's performance, related news articles, company profile, research and more. With each screen we see more numbers, titles, and still more information to decipher.

In this age of modern technology many of us are conducting our business electronically and perhaps you may want to consider managing your investments via software and the World Wide Web.

If you are interested, join us for an informative presentation to see and learn how to: manage investments electronically, trade more effectively, use tools and research designed for investors and invest via the software and the Internet.

This subject is important for engineers that are concerned about investing in the Stock Market and becoming more aware about the issues that will make them more knowledgeable and enhance their investment skills.

About the Speakers

Greg Riabov and Len Dabulis are employed by Charles Schwab & Co., Inc.

All Welcome!

All IEEE members and guests are invited to attend.

Time: 7:00 PM, Thursday, March 11, 1999.
Place: Clifton Public Library, 292 Piaget Ave, Clifton, NJ. Call (973) 772-5500 for directions.
Further Information: Rodney Cole (973) 299-9022 x2257, (rod-tonya-cole@worldnet.att.net), Mike Liechenstein, (973) 471-0721, or Richard F. Tax (rtax@bellatlantic.net).

Anyone? Anyone?

Volunteers are requested to speak to North Jersey IEEE student member groups on campus. We need folks that are willing to speak on just about any topic relating to engineering. Communicating well, or other "soft skills" are especially sought, as well as any technical topics. Volunteers must be willing to go to student meetings, usually on campus. If interested, please contact NNJ Student Activities Chair Amit Patel at a.j.patel@ieee.org or phone 973-284-2708.

North Jersey Section Activities
March 1999

Mar. 3-"NJ Section Executive Committee Meeting" – 7:00 PM, ITT, 100 Kingsland Road, Clifton, NJ. Milton Korn (973) 365-2757 or miltonkorn@aol.com.

Mar. 10-"Web Page Engineering" - NJ Computer Chapter, 7:30 PM, Dialogic Inc, 1515 Route 10 East, Parsippany, NJ. Howard Leach, (973) 540-4485, or Venugopal Tirumalai at (973) 367-8281.

Mar. 11–"Stock Market - Managing Your Investments Electronically??" – NJ Section PACE, 7:00 PM, Clifton Memorial Library, 292 Piaget Ave, Clifton, NJ. Rodney Cole (973) 299-9022 x-2257, (rod-tonya-cole@worldnet.att.net), Mike Liechenstein, (973) 471-0721, or Richard F. Tax (rtax@bellatlantic.net).

Mar. 15 - Fellows Nomination Deadline – Contact Sandy Schumacher, IEEE-Piscataway for forms and other information at (732) 562-3843.

Mar. 17–"IEEE Sarnoff Symposium 1999 - Advances in Wired and Wireless Communications" – 8:30 AM - 5:30 PM, The College of New Jersey (Trenton State College), Ewing, NJ. Alan Egger at alanegger@representative.com, Sandy Lehrfeld at sandy@microlambda.com.

Mar. 22-May 24–"C/C++ Windows Programming" – North Jersey Section, Monday Evenings, 10 sessions, 6:30-9:00 PM, Smiths Industries, 7-9 Vreeland Road, Florham Park, NJ. Bhanu Chivakula (973) 751-4879 (leave message) or Gabe Silberman at silberman@ieee.org.

Mar. 24–"Some Applications of MCMC in Signal Processing"" – NJ Communications and Signal Processing Chapters, 4:30-5:30 PM (refreshments at 4:15 PM), NJIT, 202 ECE Center, Newark, NJ. Hongya Ge (973) 642-4990 or Yun Shi (973) 596-3501 (shi@tesla.njit.edu).

Mar. 25–"The Mechanics of Building Your Own Web Site" - NJ Consultants' Network, 7:30 PM, F.S.I. Inc., Harristown Rd, Glen Rock, NJ. See http://www.hicom.net/~cnnnj/ or call (973) 728-0344.

Upcoming Meetings

Apr. 7–"NJ Section Executive Committee Meeting" – 7:00 PM, ITT, 100 Kingsland Road, Clifton, NJ. Milton Korn (973) 365-2757 or miltonkorn@aol.com.

Apr. 14–"Low Voltage Microwave Electronics" – EDS/C&S Chapters, 7:00 PM, NJIT, Room 202, ECE Building, Newark, NJ. Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Dirga Misra (973) 596-5739 (dmisra@ megahertz.njit.edu) or Dr. Edip Niver (973) 596-3542 (NJIT).

Apr. 25–"NJ Section Awards Reception"–3:00 to 5:00 PM at the Birchwood Manor, 111 North Jefferson Road, Whippany, NJ. Anne Giedlinski (973) 377-3175.

Members and Non-Members Welcome
PLEASE POST

Advance to Senior Member Grade

You may be qualified for Senior Member Grade. It takes ten years of experience. A Bachelors degree counts for three of those years and Masters and Doctorates each count for one more year. You don't have to be an IEEE member for ten years. There is no difference in cost for the different grades. To get information and an application, give your name and mailing address to: Don Weinstein, Kulite Semiconductor, One Willow Tree Road, Leonia, NJ 07605-2239, (201) 461-0900 Ext 234, mornings, or don@kulite.com.

NJ Consultants' Network:

The Mechanics of Building Your Own Web Site

On Thursday, March 25, 1999, the IEEE Consultants' Network of Northern NJ will present a talk on "The Mechanics of Building Your Own Web Site." The principal speaker will be Frank Geluso.

About the Talk

Some of the topics to be discussed are getting started, choosing a hosting site, site design and navigation, graphics, technical developments and access to data, storage, economics, contractual matters. If you are planning to develop your own site, or learn how to improve your internet navigation techniques, then join us.

About the Speaker

The principal speaker will be Frank Geluso, Vice President of Micro Computer and Internet Development. This company has several years experience developing client web sites.

All Welcome!

All IEEE members, and guests are invited to attend.

Time: 7:30 PM, Thursday, March 25, 1999.
Place: F.S.I. Inc., Harristown Rd, Glen Rock, NJ.
Information: Directions to the meeting can be found on our Network web site at http://www.hicom.net/~cnnnj/ or by calling (973) 728-0344.

"Letters to the Editor" on the Web

Letters to the Editor can now be viewed exclusively via the North Jersey Section Homepage at http://www-ec.njit.edu/~ieeenj/NEWSLETTER.html. If interested in voicing your thoughts on a controversial IEEE issue (including H1-B Visas) or any IEEE related topic, send an email to Keith Saracinello at k.saracinello@ieee.org.

Free Internet E-Mail!

The North Jersey Section of the IEEE encourages you to get your own e-mail account, in part so we can send you meeting announcements and the newsletter electronically, and so you can make your IEEE related ideas known to us, if you're so inclined. But, until recently, it would cost you money to sign up with an internet service provider.

We'd like you to know that you can now get a free e-mail account so you can exchange messages with people all over the world. According to their literature, with JUNO (tm), you never have to pay monthly fees, no hourly fees, no sign-up fees. Depending on where you live, there may be a phone company charge for the connect time, if it's not a local call for you. Sponsors (commercials) pay for JUNO. But their messages don't interrupt what you're doing, they claim. If you have a PC running Windows, 4 MB RAM, 10 MB hard drive space available, a 3.5" floppy drive and a modem, JUNO gives you everything you need to send and receive e-mail. Call (800) 654-5866 to receive additional information and their free software.

This does not represent an IEEE North Jersey Section endorsement of the JUNO service, we're just letting you know it's out there. If you don't like their deal, you can always try one of the other internet service providers. Why not get connected now?

Low Voltage Microwave Electronics

On April 14, 1999, the IEEE NJ Section Electron Devices, and Circuits and Systems Chapters together with the New Jersey Institute of Technology will host a talk on "Low Voltage Microwave Electronics." The speaker will be Dr. Mike Golio.

About the Talk

The presentation provides an overview of the low voltage/low power electronics developments and issues for portable wireless applications. Issues related to the development of low voltage products that will be discussed include: semiconductor material choice, device technology choice, device modeling, circuit approaches, and system architectures. Finally, key issues that will determine the lower limits that can be achieved in DC power and voltage reductions are discussed. The basic components required for wireless applications (both commercial and military) are undergoing a revolutionary change in terms of their DC power consumption. Key drivers for this change include longer battery lifetime and reduced weight and size. In order to increase battery lifetime, the power consumption of the individual components must be reduced. At present, the single largest volume and weight component in most portable electronics products is the battery. Therefore, a major impact on the mass and volume can be made by reducing the supply voltage (number of battery cells required) while simultaneously reducing power consumption (battery cell volume and weight).

The constraints implied by the low voltage imperative can be examined as they apply to every aspect of RF/microwave component development. The presentation discusses each of the following in detail:

1. Materials Technology (GaAs vs Si, epi vs implant, heterojuctions)
2. Device Technology (BJT, HBT, MESFET, MOSFET, HEMT)
3. Modeling Requirements (key challenges to modeling low voltage/low current operation)
4. Circuit Technology (topology challenges for low voltage)
5. System Design Issues (architecture trends and low voltage)

Since the reduction of battery size and weight is the key to the success of low voltage/low power electronics strategies, it is important to examine some fundamental issues related to batteries and the RF circuitry powered by them.

The issues that limit the DC power requirements for RF circuits are fundamentally different than those that limit the DC power requirements for associated digital circuits in hand held products. Digital circuitry is required to store and analyze information -- information that is encoded in a binary manner. This can be accomplished theoretically by the presence or absence of a single electron. Although practical considerations make the single electron memory improbable, and movement of that electron into and out of storage still requires energy, it is clear that binary data can be manipulated with extremely small amounts of energy. The system architecture does not impose arbitrary power requirements on the strength of the digital signal. In contrast, the RF portion of hand held radios is required to transmit or receive signals over a distance. Because that distance can be large, and because power is lost in the radiation process, these functions must be able to handle power levels that are determined by the propagation media and transmitter-to-receiver separation. Thus, for RF circuitry, a reduction in voltage must be accompanied by increased efficiency and/or increased current. The implications of this increased current requirement on battery operated parts imposes a limit to low voltage operation that will be discussed.

About the Speaker

Michael Golio is the Technical Director of MMIC Design at Rockwell Collins. His work focuses on technical planning and direction of the development of MMICs for commercial and military avionics, GPS, and wireless applications.

Dr. Golio received his BSEE degree from the University of Illinois in 1976. He worked for two years in the Microwave Tunable Devices Organization at Watkins-Johnson before returning to school to complete his MSEE and PhD degrees at North Carolina State University in 1980 and 1983 respectively. His graduate research focused on microwave devices, non-linear models and carrier transport. Upon completion of his graduate work, he served as an Assistant Professor of Electrical Engineering at Arizona State University before joining Motorola Government Electronics Group in 1986. There he directed research on characterization, parameter extraction and modeling of non-linear microwave devices. This research resulted in several publications including the book "Microwave MESFETs and HEMTs" and a large signal parameter extraction software package, "GASMAP". In 1991, he moved to Motorola's Semiconductor Products Sector to develop a GaAs fabrication facility to address commercial products including chips for cellular phones, digital pagers and wireless LANs.

Mike has served the MTT-Society in several roles: as Chapter Activities Coordinator, member of MTT-S Adcom, organizer for several MTT Symposium workshops and panel sessions, Liaison to IEEE Press, member of the Technical Program Committee on non-linear modeling, and co-chair of the MTT Technical Committees. He is a regular contributor of columns for the MTT-S Newsletter and he was elected Fellow of the IEEE in 1996. He is currently serving as the Distinguished Microwave Lecturer for the IEEE MTT Society.

All Welcome!

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

Time: 7:00 PM, Wednesday, April 14, 1999. Free buffet will be starting at 6:15 PM.

Place: NJIT, Room 202, ECE Building, Newark, NJ.

Information: Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Dirga Misra (973) 596-5739 (dmisra@ megahertz.njit.edu) or Dr. Edip Niver (973) 596-3542 (NJIT).

IEEE Sarnoff Symposium on Advances in Wired and Wireless Communications

Sponsored By : IEEE Princeton Section, TCNH Engineering Department,
IEEE Student Branch, and the Sarnoff Corporation

Date: Wednesday, March 17,1999

Time: 8:30 a.m. - 5:30 p.m.
(Exhibits: 10:30 a.m. - 5:30p.m.)

Place: The College of New Jersey (Trenton State College)
PO Box 7718, Ewing, NJ

PROGRAM:
Welcoming Address:
> Bob Luck, Lucent Technologies

Invited Paper Sessions/Chairpersons:
- **Advanced Optical Networks**
  W.Stephens, Sarnoff Corporations
- **Antenna Technology for Wireless Communications**
  R.P. Flam, ORBIT/FR, Inc.
- **Satellite Communications**
  D.Ihrie, Sarnoff Corporation
- **Systems on a Chip**
  W.Gelnovatch, General Technical Services, L.L.C. (GTS)
- **Advanced Packaging Technologies**
  J. Pierro, AIL Systems, Inc.
- **Cable Systems**
  C. Strolle, Sarnoff Digital Communications
- **RF in the Small Office / Home Office**
  J. Evans, Winlab, Rutgers, The State University of New Jersey
  P.DiPiazza, Winlab, Rutgers, The State University of New Jersey
- **Advanced Digital Cellular Communications**
  N. Giordano, Golden Bridge Technology
- **Digital Television Technologies**
  Y. Zhang, Sarnoff Corporation
- **Advanced Digital Military Communications**

Student Paper / Poster Session Organizer:
> W. Jemison, Lafayette College

REGISTRATION:
Advance /Same Day: $50/$75 ($5/$10 student; $0 life members)
(Registration includes entrance to all sessions and one copy of technical digest; Additional Digest: $20)

ADVANCE REGISTRATION:
Desiree McDermott (609) 734-2430, Sarnoff Corporation
CN 5300, Princeton, NJ 08543-5300
Please make checks payable to "IEEE Princeton Section/Sarnoff Symposium"

EXHIBITOR INFORMATION:
Alan Egger at alanegger@representative.com
Sandy Lehrfeld at sandy@microlambda.com

IEEE AWARDS RECEPTION

North Jersey Section
April 25, 1999
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 25, 1999** from 3 to 5 PM. Tickets are $35.00 each and include a complete prepaid, two-hour open bar, hors d'oevres, 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 17, 1999. 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 17, 1999.** 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: _____

        _____

IEEE North Jersey Section Seminar
C/C++ WINDOWS PROGRAMMING

Monday Evenings, March 22 – May 24, 1999
Smiths Industries
7-9 Vreeland Road, Florham Park, NJ

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.

T O P I C S

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 March 12 will require a late fee of $25. No reservations will be accepted after March 22.

WHERE: Smiths Industries, 7-9 Vreeland Road, Florham Park, NJ.
WHEN: 10 Sessions, Monday, March 22 through May 24, 1999, 6:30-9:00 PM.
COST: With text book only: IEEE members $255; Non-IEEE members $355.
CONTACT: Bhanu Chivakula (973) 751-4879 (leave message) or Gabe Silberman at silberman@ieee.org.

REGISTRATION: OBJECT-ORIENTED C++ PROGRAMMING

To: Mr. Naz Simonelli, 68 Woodmont Drive, Randolph, NJ 07869-3740

Name:_____

˅
  Nonmember
˅
  IEEE Member   Member #:_____   Member of _____ technical society

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 Mar. 12, 1999. 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 & payment are received.

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