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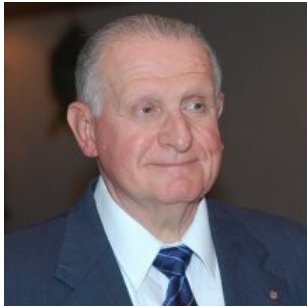
THE FEBRUARY 2008 IEEE NEW HAMPSHIRE SECTION NEWSLETTER

http://ewh.ieee.org/r1/new_hampshire/newsletters.html

Chairman's Thoughts

By Jim Anderson

james-w-anderson@ieee.org



Help Us Grow!

Last month I asked you to make a New Year's resolution to become more active in the section. I gave you some examples of general things you could do

and I promised you more specifics this month.

Webmaster

Our Webmaster, Jim Bock, who has served the section for many years, has had increasing demands on his time from his young family and his job and is not able to keep up with the section's increasing needs. We thank Jim for his service as the Computer Chapter Chair for eight years and Webmaster for the last four years.

Jim did an excellent job getting the newsletters posted on the website in a timely manner. At the present time I am serving as the Interim Webmaster and starting to update some of the other

areas of the website. Needless to say my plate is very full and I would appreciate someone volunteering to be our Webmaster as soon as possible. If you are interested in this position, please contact me james-w-anderson@ieee.org and we can discuss it in more detail.

Student Activities Committee Chair

Rhonda St. Laurent, who has served the section as Chair of the Student Activities Committee, has family health issues which, combined with the increasing travel demands of her job, has resigned. We thank Rhonda for her very active service to the section and to the Student Branches.

As we have more Student Branches (two and one in formation) and as they become more active it is important for the section to maintain contact with the students who are the future leaders of the IEEE. If you are interested in this position, please contact Tom Perkins tomperkins@ieee.org, who worked closely with Rhonda, for more details.

Publicity Committee Chair

As the section continues to grow, it is important to advertise our activities to other local technical groups and to the general public. The function of the Publicity Chair is to: 1- Make contact with the local media (we have a list of contacts).

- 2- Reformat the meeting and awards information in the newsletter as needed.
- 3- Distribute that information to the media and other technical organizations.

If you are interested in this position, please contact me james-w-anderson@ieee.org and we can discuss it in more detail.

Chapter Assistant Officers

Our three main chapters have been run for some time by three very competent and energetic people, but eventually they will burn out. I would like to get them some help before that happens, so that we can assure the continuity and vitality of our chapters. Specifically we could use people willing to run for Vice Chair or Secretary of our chapters. Naturally, you must be a member of the particular society in order to become an officer of the chapter.

For information about serving the **Computer Chapter**, please contact Jim Isaak CSNH2007@JimIsaak.com

For information about serving the **MTT-S Chapter**, please contact Tom Perkins tomperkins@ieee.org

Continued

For information about serving the **Power Engineering Chapter**, please contact Paul Krell krell@unitil.com

We have two new chapters that could use help.

For information about serving the **EMBS Chapter**, please contact Wayne Smith wjsmith@cisunix.unh.edu

Our **Joint Communications - Signal Processing Chapter** is being Co-Chaired by Ravi Subrahmanyam Ravi_subrahmanyam@yahoo.com and Kenric Nelson Kenric.Nelson@ieee.org and they could use a Secretary. Please contact one of them if you are interested in helping.

Our **WIE Group** has a full contingent of officers.

Standing Committee Members

We have a number of committees which could use some extra hands to make the load lighter.

For information about serving on the **Awards and Recognition Committee**, please contact Dean Bacon nhgump@gsinet.net

For information about serving on the **Membership Development Committee**, please contact Stuart MacPherson stuart.macpherson@ieee.org

For information about serving on the **Professional Activities Committee (PACE)**, please contact Madeleine Lowe m.lowe@ieee.org

For information about serving on the **Pre-University Educational Activities Committee**, please contact Don Sherwood donsherwood@ieee.org

For information about serving on the **Student Activities Committee**, please contact Tom Perkins tomperkins@ieee.org

Ad Hoc Committee Members

For information about serving on the following committees: Awards Banquet, Nominations, Publicity, and Summer Outing; please contact me james-w-anderson@ieee.org As part of the Publicity Committee we are looking for people to **post our meeting notices** where they work or go to school.

For information about serving on the NHJES Conference Committee, contact Tom Perkins tomperkins@ieee.org

Assistant Photographers

Ravi Subrahmanyam has volunteered to be our section photographer but he can not cover every event. We would like to have a photographer in each chapter, group, and several committees to cover their events. You don't have to be Ansel Adams, any pictures are better than no pictures at all. If you are interested in these positions, please contact me james-w-anderson@ieee.org and we can discuss it in more detail.

Other Opportunities

If you can think of any other way that you could help the section grow please contact me james-w-anderson@ieee.org and we can discuss it.

MBO Pilot Program Update

We got our objectives in by the deadline and received a very nice note from Howard Michel, Region 1 Director, who is leading this program for the IEEE Board of Directors: "Thanks for the list of goals for the section. I think they are very well

thought out and cover a wide range of activities. This is exactly the kind of things we want to "reward" instead of checking off five meetings each year."

"BTW, you are the first section in R1 and the IEEE to propose goals for this program. Congratulations!"

See our [2008 Section Objectives](#) on Page 10.

Reflector Survey Update

Due to contract issues we will not be able to use the eBallot system again, but the IEEE IT Department has a survey tool that they can set up for us.

We will discuss how to word the the questioner to make sure we ask the right questions in the right manner so as to extract as much information as possible about your desires for information that is in the Reflector and how often you take advantage of that information.

So continue thinking about what you want.

Tis the Season Update #2

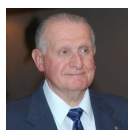
In response to my update last month Jennifer Ng Ain Kin, the WIE Past Chair, sent me information about [Books For Soldiers](#) - Care Packages For The Mind. See her article on Page 10.

Feedback

Please contact me james-w-anderson@ieee.org if you have any comments about, or suggestions for, the newsletter or for the Section.

In This Issue

Chairman's Thoughts



This month I offer YOU 24 ways that you can volunteer and help us grow. I also update you on the MBO pilot program, the Reflector survey, and the Tis the Season article. (Page 1)

2008 New Hampshire

Young Engineer of the Year



It is my great pleasure to announce that the nine Engineering Societies in NH have chosen our own Liberty Gunter as the award recipient this year. In the 30 year history of the award Liberty is the first person who was not a registered professional engineer to

receive the award. **Congratulations Liberty!**

(Page 5)

E-Week Banquet

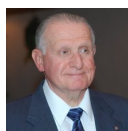


**ENGINEERS
WEEK 2008**
February 17-23

I hope that many of our members will attend the banquet on Thursday 2/21 to honor Liberty Gunter and network with your fellow engineers. The registration deadline is Thursday 2/14.

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Meet the Ex Com



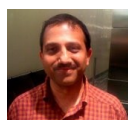
This month it is my pleasure to introduce a returning member to the Ex Com. In years gone by Madeleine Lowe has held most of the positions on the Ex Com. This time she is trying something new, she is our PACE Chair.

Welcome Madeleine!

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Chapter and Group News

Joint Com-Sig Chapter



Ravi Subrahmanyam & Kenric Nelson remind us about their first meeting which will be an "Introduction to Cognitive Operational Situation Management" by Dr.

Gabriel Jakobson, Chief Scientist, Altusys Corporation. The meeting will be next Thursday, Feb. 7 at 6:00 PM at BAE Systems headquarters in Nashua. Following the meeting we will have dinner at the Takumi Japanese restaurant, 197 Daniel Webster Highway. **Please support us by posting this meeting notice at work or school.**

(Page 17)



Computer Society

Jim Isaak announces an **IT Seminar** titled "Everything I Needed to Know About Designing Great Customer Experience I Learned in Kindergarten (or in some cases in High School and College), by Andy Knight VP of Web Design at Fidelity Investments. It is on Tuesday Feb 19, from 7:00 - 8:00 pm, at SNHU Manchester. **Please support us by posting this meeting notice at work or school.**

(Page 18)



Microwave Theory and Techniques

Tom Perkins announces the presentation "Whatever Happened to Design Productivity" by Dr. Michael Heimlich of Applied Wave Research in El Segundo, CA. It is on Wednesday March 12th at

6:00 PM at BAE Systems Headquarters in Nashua. **Please support us by posting this meeting notice at work or school.** (Page 19)



WIE NH News

Liberty Gunter announces that the date of their social event has been **changed to noon on Saturday Feb. 23rd** at the Langham Hotel in

Boston to enjoy their wonderfully decadent chocolate bar. She also outlines some future events. (Page 7)

Other Chapter Contact Information

(Page 7)

Pre-University Activities

ThinkFest 2008 Contest Winner



Don Sherwood announces that Jennifer Schelly submitted the winning electrical project and she gets her choice of any item in our greatly expanded catalog of IEEE NH

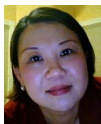
Section items.

(Page 8)



Dean Bacon is issuing a call for volunteers to help judge the electrical projects at the **Young Inventors' Program** on Saturday April 5th. The Section has been supporting this program for many years. (Page 8)

Pre-Engineering Technology Advisory Council



Jennifer Ng Ain Kin fills us in on the latest news from PETAC. (Page 8)

Student Activities

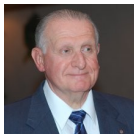
NHCTC Nashua Student Branch



Professor Barbara Bancroft, Branch Counselor, updates us on the history of the Branch formation process, tells us about the benefits to the students and about their activities. (Page 9)

Other Articles

2008 Section Objectives



Jim Anderson lists the objectives that were submitted as part of the IEEE MBO pilot program. (Page 10)



The Top 20 Engineering Achievements of the 20th Century

As part of E-Week, the ISA has invited us to attend their dinner meeting on February 26th to hear a presentation by Burton Dicht of ASME. The meeting is at the Best Western TLC in Waltham, MA at 6:00 PM. For details go to http://ewh.ieee.org/r1/new_hampshire/Docs/2008-02-Top-20-Achiev.pdf



NH Joint Engineering Societies Conference

Tom Perkins announces that the conference will be held on October 9th. <http://www.nhjes.org/>

AESS Video Education



Bob O'Donnell has produced a video introduction that is now live on the servers at UNH Durham at <http://aess.cs.unh.edu/> Bob provides background information on the system, progress to date, and asks for help in preparing courses and administrating the program.

Embedded Systems and Global Security Engineering



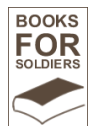
Ted Kochanski at UNH Durham has prepared an article about the ES&GSA program. It addresses the historical background leading up to its formation and the developments during the first year of the program. For details see http://ewh.ieee.org/r1/new_hampshire/Docs/2008-02-Ted.pdf

Safeguarding Your Business Facility

UNH is holding a one day seminar on Wednesday, April 16th at UNH Pease Tradeport, Portsmouth. http://ewh.ieee.org/r1/new_hampshire/Docs/2008-02-UNH-Security.pdf

Books For Soldiers

Care Packages For The Mind



Jennifer Ng Ain Kin shares with us her experience with donating books and other items to our service men and women around the world. (Page 10)

Expanded Selection of IEEE NH Section Monogrammed Clothing



Don Sherwood, our resident haberdasher, reminds us about the new items suitable for the cooler weather. Don has added pictures of two of the jackets. Even more items are available from the suppliers catalog.

(Pages 10 and 15)

Membership Activities



Stuart H. MacPherson reminds us about the Senior Member Campaign. (Page 11)

Brain Teaser Challenge



Butch Shadwell provides us with the answer to last month's challenge about the maximum power that can be supplied by a dry cell and challenges us this month with a pulley problem. Find your old physics book.

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Other Meetings of Interest (Page 12)

WANTED

We need additional Section Photographers, and "How I Became Interested in Engineering" articles. (Page 14)

Questions and Answers (Page 14)

2008 New Hampshire Young Engineer of the Year

By Jim Anderson

james-w-anderson@ieee.org



Congratulations Liberty!

It was my pleasure to have served as one of the jurors representing the nine engineering societies in NH who selected Liberty Gunter as the 2008 NH Young Engineer of the Year.

In the 30 year history of the award Liberty is the first person who was not a registered professional engineer to receive the award.

Below you will find the nomination letter prepared by Dr. P. C. Chou who is an IEEE Fellow. The letter documents Liberty's education, technical achievements, and community involvement.

BAE SYSTEMS

To whom it may concern:

This is to nominate Liberty Gunter for the New Hampshire Engineering Societies 2008 Young Engineer of the Year Award. Liberty has worked under me for four of the five years she has been employed at BAE Systems as a semiconductor engineer. Her interest in engineering began while she was an undergraduate at Wheaton Col-

lege studying physics. There, she worked in the research lab of Prof. Xueshen Chen studying the upconversion properties of the laser crystal YSGG:Er and presented her work at the APS conferences. During the summers after her sophomore and junior years, she worked in the research lab of Dr. Gerald Lucovsky of NCSU, a leader in the Si industry, through an REU program (sponsored by the NSF). Her work during those summers earned her the coveted award of "Best Research" out of her 15 colleagues and allowed her to present her work at both local APS conferences as well as the Centennial APS conference (largest APS conference to date).

Her extensive research drew her to a summer internship after graduation at Incom, Inc, investigating the material properties of the glasses used for fused fiber optics (working with physicists, mechanical engineers and material scientists.) This experience allowed her to explore another interest, photonics.

Her undergraduate summers spawned an interest in semiconductors leading her to pursue graduate studies at Boston University in Dr. Charles Eddy's laboratory. There, she transferred her focus from Si to III-V semiconductor work and earned her Master of Science in Electrical Engineering with the thesis, "Process Design and Development of a Gallium Nitride Permeable Base Transistor", and she has a patent pending for this process. During her graduate summer, she interned at BAE Systems, working on very high performance millimeter-wave InP HEMTs.

Following graduation, she joined BAE Systems as a semiconductor engineer. While she has worked here, she's been involved with developing processes for InP, GaN and GaAs based devices. She has also earned the distinguished Chairman's

Award for Innovation 5 years (including the work she did as an intern). Her passion for engineering is endless and only 2 years after joining she was leading the development of BAE's brand new 6" PHEMT line. Although that process has since been transferred to production, she continues to work on cutting edge processes involving that line and is always a key asset to help with troubleshooting. She has numerous presented her development work at the conference, Compound Semiconductor ManTech. Some recent work includes the world's first 0.1μm and 70nm 6-inch GaAs PHEMT processes as well as identifying failure mechanisms for PHEMTs that saved the F22 program \$5million by increasing the final chip yield by 200-400%.

Over the last couple of years, her responsibilities have grown even further. Last year, she began managing the 6" PHEMT IRAD program. In that position, she not only has a technical role but must also control the programmatic entities such as schedule and budget, which she adapted to very quickly. Additionally, she's working towards another Masters - Management of Technology - through UNH, which she hopes to complete in 2008.

Community participation is also very important to Liberty, as she has been a lead mentor for BAE's Women in Technology (WiT) program for 3 years now. WiT is a program for high school aged women to actively participate in different modules for 12 weeks. These modules allow the women to get a taste of 6 different areas of engineering such as Software and Semiconductor. In addition, she is the Chair of the NH IEEE WIE group as well as one of the founding members. The first event she organized, the WIE Tea Luncheon, was very well attended and drew much interest in WIE.

I feel that Liberty exhibits the qualities of an outstanding engineer and think she is well deserving of the New Hampshire Engineering Societies 2008 Young Engineer of the Year Award.

Sincerely,

P.C. Chao
IEEE Fellow & Technical Director of
Microelectronics Center
BAE Systems, Nashua, NH

Jennifer Ng Ain Kin, WIE Past Chair, also submitted a nomination letter which focused in more detail on Liberty's IEEE and community involvement, as well as her technical achievements.

The nine engineering societies in NH sponsoring the award are: American Society of Civil Engineers, American Society of Heating, Refrigeration, & Air Conditioning Engineers, IEEE, Institute of Transportation Engineers, NH Public Works & Municipal Engineers Association, NH Society of Professional Engineers, Society of American Military Engineers, Structural Engineers of NH, and Society of Mechanical Engineers.

On January 25th Governor John Lynch met with Liberty, Robert H. Durfee, PE, The NH Engineer of the Year, and the available representatives of the sponsoring engineering societies at the State House. During the short discussion with the governor, Liberty briefly described the Women in Technology program at BAE Systems and I briefly described IEEE's Teacher in Service Program. Then the Governor threw the group a curve ball, he asked us how many additional engineers were needed in NH. Unfortunately, none of us could answer his question. It looks like the group needs to do its homework before it meets with the Gov-

ernor next year.



Liberty Gunter and Governor John Lynch

A [Group Picture](#) with the Governor is on Page 20.



The annual celebration will be held on Thursday evening, February 21, 2008 at the Radisson Hotel at the Center of New

E-Week Banquet

The 2008 New Hampshire Engineers Week Banquet and Expo promises to be twice the fun this year. We will not only celebrate excellence in our profession, we will hear a humorous perspective about life as an engineer!

Hampshire in Manchester.

The registration deadline is Thursday, February 14th. Times and directions to the venue are on the registration form at http://www.nhspe.org/pages/events/08_reg_form.pdf

The engineering societies of New Hampshire will present the coveted Engineer of the Year and Young Engineer of the Year awards to the best of the best. These awards recognize exemplary talent, effort and spirit in our profession and in our community. This year we celebrate Bob Durfee of Dubois & King, Inc. as the Engineer of the Year award recipient and **Liberty Gunter of BAE Systems as the Young Engineer of the Year.**

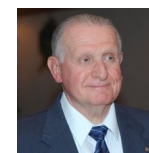
The evening's keynote speaker will be Mr. Brian Brenner, PE, a project manager and structural engineer with Fay, Spofford & Thorndike in Burlington MA. He also teaches at Tufts University. Brenner is the author of "Don't Throw This Away!" a witty perspective on life as an engineer. Brian is sure to leave you laughing!

This event is the biggest annual gathering of engineers in the state of New Hampshire. The evening will be entertaining, the food will be impressive, and the camaraderie will be the best! Plan to join us.

Meet the Ex Com

By **Jim Anderson**

james-w-anderson@ieee.org



It is my pleasure to introduce our new Professional Activities Committee (PACE) Chair, Madeleine Lowe, in her own words. **Welcome Madeleine!**

Continued

Hi, my name is Madeleine Lowe and I've volunteered to take over Duncan Merrill's long held PACE chairmanship after hearing many tales of exciting meetings in exotic places or something like that. I've been a member of the NH section for over 20 years and have held most of the offices at one time or another. I'm trying something new with PACE and hope to get enough time to do it well.

I graduated from Worcester Polytechnic Institute in '76 with a BSEE and married a WPI classmate a few years later although he is of the ME persuasion. I have worked at York Air Conditioning in York, PA and at Aerotronics in Contoocook, NH designing industrial control systems using analog, digital, PLC, microprocessor and computer systems.

Presently I live in Canterbury in the middle of the woods on a dirt road with, as we just noticed, the deer eating our rhododendrons. When Aerotronics dissolved in 1989, my husband and I started our own consulting business initially servicing our original customers and then new contacts via referrals.

One of the main benefits, as far as I am is concerned, is the flexible hours because I have a special afternoon role baking cookies and helping with homework. You see, while in NH, we became the proud parents of 2 sons. Matthew, who is now a junior at WPI studying for a dual degree in ECE and math, and Robert, who is a freshman at Belmont High and is actually starting a robotics / programming class at his school. Are high schools cool now or what?

As you can imagine, my plate is somewhat full, but I will squeeze IEEE PACE activities in there somewhere. Thank you for this opportunity and

wish me luck!

Chapter and Group News

WIE NH News

By *Liberty Gunter*

liberty.gunter@baesystems.com



IEEE Women in Engineering (WIE) is dedicated to important issues for Women Engineers. Affinity groups provide the opportunity for members to network at a local level. All members (male and female) are encouraged to join and participate in their local group activities to promote growth within the

WIE.



We will be starting off the New Year with a bang! Our first event will be Saturday February 23rd at 12:00 noon, in Boston at the Langham Hotel to indulge in their wonderfully decadent chocolate bar.

The fee for the first 20

RSVPs is:

IEEE members \$20

Non-IEEE members \$35

After the first 20 RSVPs the fee is \$42, so reserve your place early to get the best price.

Coffee and tea are included in the price and IEEE will cover the gratuity.

For reservations please contact Mikell Taylor (mtaylor@BluefinRobotics.com) by February 18th.

Additional events this coming year will offer both educational and social gatherings. These will include our second annual afternoon tea with a featured speaker as well as collaborative recreational events with Boston GOLD (plus more!). If you are interested in joining WIE or participating in any of our events, feel free to contact me for more information.

Other Chapter Contact Information



Engineering in Medicine and Biology Society

By *Wayne Smith*

If you have any suggestions for meeting topics or speakers; or if you would like to become active in the Chapter please contact me at: wjsmith@cisunix.unh.edu



Power Electronics Society

By *Chuck Button*

If you have any suggestions for meeting topics or speakers; or if you would like to become active in the Chapter please contact me at: chuckbutton@ieee.org

Power Engineering Society

By *Paul Krell*



If you have any suggestions for meeting topics or speakers; or if you would like to become active in the Chapter please contact me at:

krell@unitil.com

Pre-University Activities

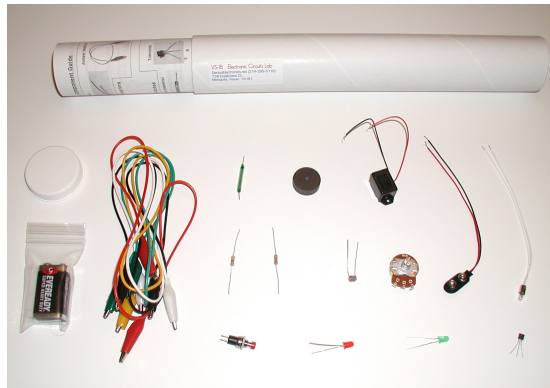
ThinkFest 2008 Contest Winner

By Dov Sherwood

donsherwood@ieee.org



Congratulations to Jennifer Schelly for submitting the winning activity for the ThinkFest Contest. Jen submitted several suggestions for electrical engineering projects suitable for a wide range of students.



VS-1 Kit from Genius Electronics

The VS-1 kit meets all the contest requirements and contains all the necessary components, connecting wires and instructions to build projects ranging from basic buzzer circuits to more advanced transistor amplifier circuits. The activities can be worked on either in groups or individually. This type of activity provides a snapshot into electrical engineering and fits well into the ThinkFest program. Points for prizes can be

earned for the number of projects completed in a given time period and the complexity of the projects. Because the kits are relatively inexpensive, they will be available for the students to take with them and hopefully complete the remaining projects at home.

For submitting the winning project, Jen gets to select the item of her choice from the greatly expanded catalog of IEEE NH Section items.



By Dean Bacon

nhgump@gsinet.net



This year's Young Inventors' Program competition is on Saturday April 5th. We need judges for the electrical projects.

Please contact me if you can help with this outstanding program to get kids interested in science and engineering.

These kids are the future of our profession and the country.

While the Section has been supporting this program for many years there are probably many of you who are not familiar with it.

The Academy of Applied Science, in collaboration with NH educators, created the NH Young Inventors' Program in 1986. The Young Inventors' Program strives to stimulate inventive thinking in young people and to encourage practical ingenuity through hands-on experimentation and discov-

ery. For more than twenty years, the Academy and its volunteers have provided teachers of K-8 students throughout NH with this proven approach to teaching problem-solving skills and creativity through the invention process. The results of the program show that students are stimulated to think creatively and apply problem solving skills to real world situations.

Young Inventors compete at their local schools by designing a model or poster. Students present and demonstrate their inventions during the competition to a panel of volunteer judges. Winners of the school's Young Inventors competition go on to compete at the state celebration. The state celebration is usually held in the Spring and brings together inventors of all ages, their family members and teachers. Every student is recognized for the achievement of their invention with certificates and ribbons. Awards are given to outstanding inventions in various categories.

Various organizations donate judges and prizes, such as IEEE, the New Hampshire Medical Society, etc.

Pre-Engineering Technology Advisory Council

By Jennifer Ng Ain Kin

jng@ieee.org



Recent News:

Check the new Pre-Engineering NH website (<http://www.preengineeringnh.org>) For details, contact me.

Technology Student Association Conference at Beacon Resort, Lincoln, NH [[link](#)]. Contact Dan Caron

(dwcaron@hotmail.com)

The annual spring Women In Engineering UNH conference is now scheduled for April or May (TBD). If you are interested to participate, please contact Bob Henry (robert.henry@unh.edu)

Sneak peek at the first annual UNH Tech Camp site (DRAFT): <http://www.ceps.unh.edu/out-reach/techcamp.html>. For more information, please contact Kristin Harris (kharris@iol.unh.edu).

PETAC CONTACTS 2007/2008:

CHAIR, Robert Henry (robert.henry@unh.edu)

V ICE CHAIR, Michele Munson

(michelemun@comcast.net)

SECRETARY, Jennifer Ng Ain Kin

To reach all PETAC members, email to the list petac@preengineeringnh.org

If you are interested to know more about PETAC activities, do not hesitate to contact me.

Student Activities

NHCTC Nashua Student Branch

By Professor Barbara Bancroft

bbancroft@ccsnh.edu



The Students, Faculty and Staff of NHCTC Nashua are happy to announce that we have formed an IEEE Student Branch. Our application has been formally approved.

HISTORY

In the spring semester of 2007 the students formed a club to explore the possibility of becoming an

IEEE student branch. The idea came from Professor Jim Isaac from SNHU Manchester. Response to this idea was tremendous. By the fall semester the students recruited 50 new IEEE members. This success is largely due to the enthusiasm of the club officers. In particular the club Chairperson, Brianna Farrell and the club treasurer Richard McGonagle were instrumental in providing direction for the club and recruiting many new members. Our students were recognized for this effort at the New Hampshire Section Annual Awards Banquet.

COLLEGE MEETS STRINGENT REQUIREMENTS

Becoming an IEEE Student Branch is not automatic. In order to be recognized as an IEEE student branch, NHCTC Nashua had to fulfill many stringent requirements.

- Offer a number of qualifying technical degrees
- Meet accreditation requirements as a college. We are accredited by the NEASC - CIHE (Commission on Institutions of Higher Education)
- Specific programs need to be accredited by their professional organizations. Our CENT program is ABET accredited.
- The entire college had to be licensed by the State of New Hampshire

The IEEE NH Section website lists the following Student Branches:

- NHTI
- UNH
- Dartmouth

We are happy to join his list.

IEEE STUDENT BENEFITS

Students get a wide array of benefits. Belonging to a professional organization is very important for the education and development of young pro-

fessionals. It is encouraging to see more experienced professionals mentor students. Some of the specific student benefits are:

- Professional conferences and meetings
- Discounted professional development courses
- Consultants data base
- Help with job postings and networking
- Scholarships
- Free software

STUDENT ACTIVITIES

The NHCTC - Nashua IEEE Student Branch jointly with IEEE Computer Society and Southern New Hampshire University is hosting a series of professional seminars. Seminars that take place on Tuesdays and are open to the public. The location alternates between SNHU and NHCTC. We are always interested in new speakers who would like to share their expertise with the students.

Our students are looking for any networking exposure. We have previously organized field trips to different work place locations to give our students a better awareness of what their future work place will look like and what is expected of them on the job. We are always looking for industrial sites willing to host a tour for the students.

Each club at NHCTC is required to complete a fund raising project and service project. The IEEE Student Branch decided that they will refurbish computers for needy families. Professor David Miller is working with an area agency to identify needs in the local community. This is an on going effort by Professor Miller. IEEE Branch members are looking forward to joining the program.

We are always looking for new speakers, interesting ideas, or any interaction with industry and local engineering professionals. If you would like to

find out more about the NHCTC - Nashua IEEE Student Branch please contact me.

Other Articles

2008 Section Objectives

By Jim Anderson

james-w-anderson@ieee.org



During the brainstorming phase the members of the Ex Com came up with 41 potential goals. During the evaluation phase the goals were refined, prioritized, and reduced in number to the following 14 high priori-

ty goals. Various members of the Ex Com have volunteered to be responsible for the achievement of each of the goals.

- 1- Produce 12 quality newsletters.
- 2- Bring all the items up to date on the Section website by the March Ex Com meeting.
- 3- Keep the Section website up to date throughout the year.
- 4- Develop a six month meeting calendar.
- 5- The Section, its' Chapters, Affinity Groups, three of its Committees, and the NH Joint Engineering Societies (of which the Section is a founding member) will hold an average of five events each. An event is defined as a technical, social, educational or administrative meeting; a course, or a plant tour, and will include some Distinguished Lecturers. This will be a total of at least 60 events.
- 6- Form a Joint Communications - Signal Processing Chapter.

- 7- Form a Life Member Affinity Group.
- 8- Fund a kit for one FIRST Lego League team.
- 9- Recruit two members to speak at K - 12 schools.
- 10- Hold one meeting outside the Nashua to Manchester corridor where most of our members are located.
- 11- Recruit three new members for the Ex Com.
- 12- Increase the awareness of the IEEE among fellow members, and the general public, through the advertising, sale, and wearing of clothing embroidered with the IEEE NH Section logo. This program will be advertised at least six times.
- 13- Nominate at least one person for Region 1 or higher awards.
- 14- Raise greater than \$3,000 in sponsorships for Section events.

Books For Soldiers Care Packages For The Mind

By Jennifer Ng Ain Kin

jng@ieee.org



During my last maternity leave in the summer of 2005, one of my goals was to un-clutter my house. I found some ideas in a parenting magazine on how to join www.freecycle.org for donating locally common household goods, clothing, etc.

For books and magazines, the magazine led me to *Books For Soldiers*, <http://booksforsoldiers.com/> a non-profit corporation website where volun-

teers would send books requested by our soldiers (all branches and deployed all over the world). I quickly became a volunteer and since then, I have sent over 50 care packages containing not only books but also snacks and toiletries (items which they could not easily find where they were).

The experience is very rewarding to me and my family: just knowing that a care package will bring a smile to one soldier somewhere out there and show our gratitude for their sacrifice and dedication. Please become a BFS volunteer and send some books!

EDITOR'S NOTE: Their website says "Once your application is approved, you will be able to send troops books, DVDs, games and relief supplies. You will also have access to our Pen Pal area and Post Card Jamboree. On average our volunteers fill over 1,000 requests a month. Get started today and get your company, civic group or place of worship involved with supporting our troops."

Expanded Selection of IEEE NH Section Monogrammed Clothing

By Dov Sherwood

donsherwood@ieee.org



We're expanding the selection of IEEE NH Section monogrammed clothing to include a number of items that are more suitable for the colder weather. We now have a total of 20 items. The linked [table](#) on Page 17 shows a representative selection of items that are available from the catalog website:

www.thecorporatechoice.com. Pictures of two of the new jackets are included in the table. To see what the other items look like, enter the Catalog # from the table into the website's search engine.

The colors are limited to navy blue and white (off white) to adhere to the IEEE logo requirements and the two thread color restriction of the embroiderer. Pre-paid orders can be sent to:

Don Sherwood
16 Hooker St.
Nashua, NH 03064

Please include the catalog #, description, size, and color along with a check and email address. Orders will be placed once the minimum buy of twelve items has been reached. It then takes about two weeks to complete the order. Items will be available for pick up at the Ex Com meetings or a mutually agreed location. Direct mailing can also be arranged for an additional postage charge.

Other items from the catalog that are not listed in the table can also be ordered. However, since the catalog does not include cost, they will have to be priced separately. Contact me and I will get a price for you.

Have fun looking through the catalog.

Membership Activities

By Stuart H. MacPherson
stuart.macpherson@ieee.org



Senior Member Upgrade

Your NH Section will continue this year in taking an active role in supporting those who desire and qualify to become a Senior Member. Now that the

holidays are over, it is a good time to seriously consider upgrading. If you already have a resume, the process is simple, straightforward and not time consuming. Believe me, I went through it along with many others. I have not heard of any issues with the process. Please send me an email with your request!

Remember, qualifications are straightforward: "... a candidate shall be an engineer, scientist, educator, technical executive or originator in IEEE-designated fields. The candidate shall have been in professional practice for at least ten years" (a PhD is equivalent to five years practice, or an MS to four years, or a BS to three years) " and shall have shown significant performance over a period of at least five of those years." .

If you believe you have met the fundamental requirements, your colleagues are willing to support you in seeking Senior Membership.

The Section Membership Development Committee has created a webpage describing the simple steps to guide you through the process: simply go to http://www.ewh.ieee.org/r1/new_hampshire/sm.html for details. Highlights are:

- Besides the application, three references must be submitted supporting your nomination. The references must be Senior or Fellow grade Members.
- If you are being nominated by a Section, Society or Affinity Group, only two other references are required.
- It is understood that it may be difficult for some candidates to find references. However, your Section is willing to support you: provide us with a recent CV or resume and a draft application form, we can then write a nomination letter from the Section.
- We have gathered a short list (~20) of Senior and Fellow Members who are willing to review your application and CV/resume, and based on those materials (and possibly emails and phone calls) will provide you with a reference.

The other members of the committee are: Tom Perkins, Past Section Chair; Jim Anderson, Section Chair; Duncan Morrill, and Jennifer Ng Ain Kin. If you are considering Senior Member elevation, please contact us at nhiieee-member-ship@ieee.org

Brain Teaser Challenge

By Butch Shadwell



Last Month's Solution

From my discussion with Uncle Gary concerning an electric toothbrush I got the following problem. "...can you tell me the maximum power output I can get from a 1.5 volt battery with an internal resistance of .1 ohms?"

One of the fun things I get to do once in a while is demonstrate to EE students that the maximum power transfer occurs when the load impedance matches the source impedance. You can use the second derivative of the power equation (with respect to the load resistance) to find the max point, and voila. I don't have room here for the math but you can take my word for it.

The way I would solve this one is to simply double the source resistance and calculate the current from a 1.5 volt supply. Then $P = I^2 R$. Making the substitution we get 5.625 watts. But I bet you already knew that.

This Month's Challenge

The year was 2108 and Zorg was considering his New Year's resolution. Like every one of his past 40 New Years, he was spending far too much time thinking about a resolution that had virtually zero probability of being kept. But he thought, "Every new year is a chance to start over. I could become the person I've always wanted to be this time, if I would just commit myself to that end." Of course this wasn't the first time for this

thought either. He had wondered what had held him back all of those times in the past when he had tried and failed to keep that promise to himself. Was he just too lazy or was there actually a reason why he could not allow himself to succeed? Oh well.

As the smoke cleared around his overheated brain, the answer came to him. This year he would complete his work on the new improbability drive for space propulsion. When he had set it aside last year he was stuck trying to lift his prototype contraption into the test stand to measure the output. It weighs 2,000 pounds but Zorg is only able to pull with 100 pounds of force. If he uses a block and tackle system (multi-wheeled pulleys) and he pulls on the rope end coming down from the upper block, what is the minimum number of wheels each block needs (upper and lower) in order for him to be able to lift his device into position? The other end of the rope is fastened to the bottom of the upper block. Also, assume zero friction from the pulleys. This could be a little tricky for some.

What happens if we terminate the far end of the rope on the lower block instead of the upper one? Have fun.

Reply to Butch Shadwell at b.shadwell@ieee.org (email), 904-223-4510 (fax), 904-223-4465 (v), 3308 Queen Palm Dr., Jacksonville, FL 32250-2328. (<http://www.shadtechserv.com>) The names of correct respondents may be mentioned in the solution column.

Other Meetings of Interest

Please let me know if you are aware of other meetings that might be of interest to our members. We each belong to different societies, read different publications, work in different industries, and surf different web sites. So if you see any interesting meetings or conferences please send me the notice or the URL.

To keep the list manageable I have limited it to meetings in North America during the next six months.

Jim Anderson james-w-anderson@ieee.org

February 24 - 28, 2008

IEEE Applied Power Electronics Conf. and Expo.
Austin Convention Center
<http://www.apec-conf.org/>

February 25 - 29, 2008

The International Wireless Communications Expo
Las Vegas Convention Center
<http://72.32.233.196/IWCE2008/Public/Content.aspx?ID=1271>

March 11 - 12, 2008

MVA Communication Ecosystem Conf.
South San Francisco Conference Center
<http://www.mvacec.com/2008/home/>

March 11 - 14, 2008

Power Systems Conf.
Madren Center, Clemson, University, SC
<http://www.ces.clemson.edu/powsys2008/>

Continued

March 17 - 20, 2008

THE 25th INTERNATIONAL BATTERY SEMINAR & EXHIBIT, Broward County Convention Center, Fort Lauderdale, Florida
<http://powersources.net/florida/frameset.html>

March 18 - 21, 2008

IEEE/IAS Electrical Safety Workshop
Hyatt Regency Dallas, TX
<http://ewh.ieee.org/cmte/ias-esw/>

April 1 - 3, 2008

Annual Conf. for Protective Relay Engineers
College Station, Texas
<http://engineering.tamu.edu/prorelay/>

April 3 - 6, 2008

IEEE SoutheastCon 2008
Von Braun Center, Huntsville, AL
<http://www.southeastcon.org/2008/>

April 14 - 17, 2008

Spring Simulation Multiconf.
Crowne Plaza Ottawa, Canada
<http://www.scs.org/confernc/springsim/springsim08/cfp/springsim08.htm>

April 14 - 18, 2008

Embedded Systems Conf. and Expo.
McEnery Convention Center, San Jose, CA
<http://www.cmp-egevents.com/web/esv/home>

April 25 - 27, 2008

33rd Annual Trenton Computer Festival
The College of New Jersey, Ewing, NJ
<http://www.tcf-nj.org/web/>

April 28 - 30, 2008

IEEE Sarnoff Symposium
Nassau Inn, Princeton, NJ
http://ewh.ieee.org/r1/princeton-centraljersey/2008_Sarnoff_Symposium/index.html

April 30 - May 2, 2008

Small Fuel Cells
Omni Hotel at CNN Center - Atlanta, GA
<http://www.knowledgepress.com/events/8011207.htm>

May 12 - 13, 2008

IEEE Conf. on Technologies for Homeland Security
Westin Hotel, Waltham, MA
www.ieeehomelandsecurityconference.org

May 27 - 31, 2008

IEEE International Power Modulator Conf.
Mandalay Bay Resort and Casino
www.cavs.msstate.edu/pmc2008

June 9 - 12, 2008

International Symposium on Electrical Insulation
Renaissance Vancouver Hotel Harbourside,
Vancouver, BC, Canada
<http://ewh.ieee.org/conf/isei/index.html>

June 29 - July 2, 2008

2nd International Symposium on Bio- and Medical Informatics and Cybernetics: BMIC '08
Rosen Centre Hotel, Orlando, Florida
<http://sciiis.org/BMIC2008>

June 29 - July 2, 2008

6th International Conf. on Politics and Information Systems, Technologies and Applications
Rosen Centre Hotel, Orlando, Florida
<http://www.socioinfocyber.org/pista2008>

June 29 - July 2, 2008

2nd International Conference on Knowledge Generation, Communication and Management: KGCM 2008
Rosen Centre Hotel, Orlando, Florida
<http://www.sciiis.org/KGCM2008>

July 13 - 16, 2008

IEEE International Professional Communication Conf.
Concordia University, Montréal, Canada
email IPCC2008@gmail.com

July 20 - 24, 2008

PES General Meeting
David L. Lawrence Convention Center and Westin Convention Center Hotel **Pittsburgh, PA**
<http://ewh.ieee.org/cmte/PESGM08/>

WANTED

Wanted - Additional Photographers

Ravi Subrahmanyan has volunteered to be our photographer but his schedule will not allow him to cover all our events. Therefore, we need one or more additional volunteers to take photographs at our Section events and meetings. If you are interested to help out, please email the Editor, Jim Anderson, at james-w-anderson@ieee.org

Wanted - Articles on “How I became interested in engineering.”

Was it because you were always interested in taking things apart and putting them back together (with “extra pieces”)? Was it by chance? Was it because you come from generations of engineers and this was your destiny? What was it? Please send me, Jim Anderson, (james-w-anderson@ieee.org) your story on how you became interested in Engineering and chose this profession. Every month, we will try to feature an article in the newsletter.

Questions and Answers

Q: Who are the NH Executive Committee members?

A: The list of all the members and their contact information is found on the section website at http://www.ewh.ieee.org/r1/new_hampshire/Officers.html

Q: Who do I contact about suggestions for the newsletter?

A: The Editor, Jim Anderson, can be reached at james-w-anderson@ieee.org

Q: How can I be removed from the mailing list or update my email address for section news?

A: Send email to the NH Section Administrative Assistant, Donna Davis, at NHIEEE@aol.com

Q: How do I start a new society chapter?

A: Please refer to this site for details on eligibility and requirements: <http://www.ieee.org/portal/pages/tab/cha/newchap.html>

Q: Why doesn't the URL http://www.ieee.org/nh_section work?

A: The URL is case sensitive and you must use http://www.ieee.org/NH_Section.

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Disclaimer: The opinions expressed, as well as the technical accuracy of authors published in this newsletter, are the responsibility of the individual authors. Therefore, no endorsement by the IEEE, its officers, or its members is made or implied.

Table

Available IEEE NH Section Monogrammed Items

| Catalog # | Brand | Description | Colors | Cost (\$) |
|-----------|----------------|---|-------------------------|-----------|
| HS220 | Harvard Square | Storm Jacket, Nylon Men's | Navy | 44.00 |
| HS960W | Harvard Square | Ladies' Boot Bay Full Zip Soft Shell Fleece Jacket | Ink, Dove | 44.00 |
| HS960 | Harvard Square | Men's Booth Bay Soft Full Zip Shell Fleece Jacket | Ink | 44.00 |
| HS955 | Harvard Square | Men's Booth Bay Soft Shell Quarter Zip Pullover | Ink | 44.00 |
| HS950 | Harvard Square | Men's Boot Bay Soft Shell Full Zip Fleece Jacket | Ink | 38.00 |
| HS350 | Harvard Square | Men's Pima Reserve Polo Shirt | Navy, White | 22.00 |
| HS355 | Harvard Square | Ladies' Pima Reserve Polo Shirt | Navy, White | 22.00 |
| HS150 | Harvard Square | Men's Long Sleeve Classic Denim Shirt | Dark Blue | 21.00 |
| HS155 | Harvard Square | Ladies' Long Sleeve Classic Denim Shirt | Dark Blue | 21.00 |
| HS800 | Harvard Square | Five Panel Brushed Twill Structured Cap | Navy, white | 11.00 |
| HS021 | Harvard Square | Vector Portfolio | Navy | 14.00 |
| HS475W | Harvard Square | Ladies' 100% Cotton V Neck Sweater | Navy, Stone | 37.00 |
| HS474 | Harvard Square | Men's 100% Cotton V Neck Sweater | Navy, Stone | 37.00 |
| 4662M | Jerzees | 50/50 Heavyweight Super Sweats Crew Neck Sweatshirt | Birch, True Navy, White | 17.00 |
| 4662B | Jerzees | 50/50 Heavyweight Super Sweats Youth Crew Neck Sweatshirt | Birch, True Navy, White | 17.00 |
| 562W | Jerzees | 50/50 Mid weight Ladies' Crew Neck Sweatshirt | Navy, White | 17.00 |
| F260 | Hanes | 90/10 Heavyweight Ultimate Cotton Crew Neck Sweatshirt | Ash, Navy, White | 21.00 |
| C1470 | Columbia | Ladies' Fern Creek Vest | Columbia Navy | 38.00 |
| C1480 | Columbia | Men's Cathedral Peak Vest | Columbia Navy | 36.00 |
| HS960 | Harvard Square | Booth Bay Soft Shell Fleece Vest | Ink | 44.00 |

See pictures of two of the jackets below.

If you attended the banquet you had a chance to see the men's and lady's jackets that were presented to Tom Perkins, Jennifer Ng Ain Kin, Dean Bacon, and Jim Anderson in appreciation for their dedicated service to the section. For those that were not able to attend, photos (without the IEEE NH Section logo) are shown below.



Men's Nylon Storm Jacket, # HS220



Lady's Boot Bay Full Zip Soft Shell
Fleece Jacket, #HS960W

Introduction to Cognitive Operational Situation Management

The IEEE NH Joint Communications and Signal Processing Chapter



Dr. Gabriel Jakobson, Chief Scientist, Altusys Corporation, jakobson@altusystems.com

Thursday, February 7, 2007 at 6:00 PM

BAE SYSTEMS Headquarters Building Auditorium

Abstract: According to modern US defense doctrine, the future war is characterized by high mobility of troops and weapon systems, increasing operational tempo, and fast evolving operational situations. As a result of that the military commanders need comprehensive and effective methods of battlespace situation management. Situation Management (SM) is as a synergistic goal-directed process of monitoring, control, and prediction of situations in dynamic systems (operational spaces) so that desired goal situations are reached within pre-defined quality, resource and time constraints. The tasks of instrumentation of the dynamic system, modeling the system and the world situations, reasoning about the situations, action planning, and situation prediction are essential technology ingredients of Situation Management. As a rule, the management of battlespace operational situations often involves large number of dynamic objects that change their states in time and space, and engage each other into fairly complex spatio-temporal relations.

Our interest will be mostly on cognitive (intelligent) situation management, i.e. on SM, which is associated with the meaning of situations, the intelligent methods of reasoning about the situations, and actions planning. In order to exhibit such intelligent capabilities, the systems should possess fairly elaborated conceptual knowledge about the domain (domain ontology). Examples of situation management applications: real-time monitoring of networks and complex engineering systems; tactical and asymmetric battlespace operations management; post-disaster emergency, rescue and relief operations coordination, physical infrastructure and cyber security monitoring, and several others. This presentation gives an overview of the concepts and technology of situation management, and gives several examples of application of the technology.

Biography: Dr. Gabriel Jakobson is the Chief Scientist at Altusys Corp., a consulting firm specializing in the development of intelligent Situation Management technologies for defense, cyber security and disaster situation management applications. During his more than 20 years tenure at Verizon (formerly GTE) he had increasing responsibilities of leading advanced database, expert systems, artificial intelligence, and telecommunication network management programs. Dr. Jakobson has authored or co-authored 90 technical publications, has awarded 4 US patents on innovative real-time event correlation methods, and has 4 US patents pending on situation management. He received PhD degree in Computer Science from the Institute of Cybernetics, Estonia. Dr. Jakobson is an IEEE Senior Member and Distinguished IEEE ComSoc Lecturer. He was the chair of the workshops on Situation Management SIMA 2005-2007 and is the current chair of the IEEE Communications Society sub-committee on Situation Management. From January 1st he will be the Director of the North American Region of the IEEE Communication Society.

BAE SYSTEMS Headquarters Building Auditorium, 65 Spit Brook Road, Nashua, NH, 1/4 mile east of Everett Turnpike, Exit 1. For more information contact: Kenric Nelson, kenric.nelson@ieee.org 603-589-4850 or Ravi Subrahmanyam, ravi_subrahmanyam@yahoo.com 603-560-6586



IEEE New Hampshire Section
Computer Society Chapter
IT Seminar Series



Speaker: Andy Knight VP of Web Design at Fidelity Investments

Subject: Everything I Needed to Know About Designing Great Customer Experience I Learned in Kindergarten
(or in some cases in High School and College)

Date/Time: Tuesday Feb 19, 2008 / 7:00 - 8:00 pm

Place: Southern New Hampshire University Manchester Campus, NH
Walker Auditorium, Robert Frost Hall
See: <http://www.snhu.edu/209.asp> for directions to the SNHU campus.

Contacts: Barbara Bancroft bbancroft@nhctc.edu / Jim Isaak j.isaak@snhu.edu

Biographical Sketch: Andy Knight is a Vice President of Web Design at Fidelity Investments. In his seven years with Fidelity, he has lead the design of planning tools, investment research, trading environments, and human resources software. Prior to his tenure at Fidelity, he spent several years with small start-ups and as a design consultant on a number of significant Internet products. Before the dawn of the Internet, he was a project manager for a small business software company. He holds a Master's Degree in Counseling Psychology from Boston University and a Bachelor's Degree in Psychology from Plymouth State College.

Abstract: A brief overview of some key tenets of designing great customer experiences -- from the perspective of web design, but more broadly applicable to "real world" models as well. The presenter will weave in examples from his 20-year software and Internet career, and will also offer tips for those contemplating careers in customer experience design.

Notes: 1- You do not have to be an IEEE member to attend. All guests are welcome.
2- For information about future seminars see:
http://acadweb.snhu.edu/Isaak_James/ITseminars/



®



New
Hampshire
Community
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College

IEEE NH Chapter of the Microwave Theory and Techniques Society (MTT-S)

Presents:

Whatever Happened to Design Productivity?

**Speaker: Dr. Michael Heimlich, Applied Wave Research
El Segundo, CA**

Wednesday, March 12, 2008 at 6:00 PM

BAE SYSTEMS Headquarters Building Auditorium

65 Spit Brook Road, Nashua, NH

1/4 mile east of Everett Turnpike, Exit 1.

A no host dinner will follow at Longhorn Steakhouse, 5 Harold Drive, Nashua

For more information contact Tom Perkins at (603) 885-5040, or thomas.perkins@baesystems.com

ABSTRACT

Prior to IBM's introduction of the personal computer, RF/microwave design engineers have endeavored to apply computing technology to the automation of product development. Electronic Design Automation (EDA) has seen many great successes but have all of the promises been fulfilled? Does design productivity ride Moore's Law year after year or have we hit the Sound Barrier that can only be punched through by looking at the design process in a fundamentally new way? This talk will provide an overview of design flow, a brief history of what has been accomplished in microwave EDA, and a discussion of what seems to be lacking and what lies ahead for high frequency design.

BIOGRAPHY

Michael Heimlich received his BSEE, MSEE and PhD EE degrees from Rensselaer Polytechnic Institute. He is the microwave market segment director for Applied Wave Research Inc. (AWR), with responsibility for AWR's flagship Microwave Office® design suite, as well as heading up the company's university relations program. Prior to joining AWR, Dr. Heimlich was with M/A-COM and co-founded two software companies. He has published papers in technical journals and proceedings in several important topical areas, including electro-optics, picosecond laser systems for broadband material diagnostics, MMIC and module design, and EDA tool integration. He holds a patent in the EDA tool integration area.

Group Picture



Governor John Lynch in the center, Liberty Gunter, Young Engineer of the Year, to the left of him and Robert H. Durfee, PE, Engineer of the Year, to the right of him. On the far right is Daniel Hudson, PE, NHSPE President holding the Governor's Engineers Week Proclamation. The others represent some of the Societies sponsoring the awards.