



Millennium Wishes and Resolutions

by Jim Woodyard, IEEE/SEM Chair

Since I have the privilege of serving IEEE/SEM as Chair when the new millennium arrives, I decided to put on my 2000th millennium hat and approach you all with wishes and resolutions instead of goals and objectives. People are looking forward to the arrival of the next millennium having reserved well in advance at leading hotels, clubs etc. I am not sure if the emphasis is on celebrating the past or the arrival of the future. In so far as IEEE is concerned, we have much to celebrate both in the past and future. In this article I will extend an IEEE wish and address two of my resolutions as chair of IEEE/SEM.

I will not be addressing you again via Wavelengths until the next millennium. Let me take this opportunity to wish you a HAPPY 2000th MILLENNIUM!!! I wish I could be more specific in my greeting, but my crystal ball is clouded. I witnessed the invention of the transistor in 1947 while a student in elementary school and did not anticipate its impact on society. The extent to my creativity in 1947, included using a balloon with a wire tether to receive distant radio stations. The hills around my hometown in western Pennsylvania interfered with radio reception and I thought a balloon was the answer. So much for my forethought and the power of my crystal ball!

As a youngster raised in a steel mill town, I did not have the foresight to see that one day it would be possible to use transistor and wireless technologies to fly balloons at 110,000 feet to characterize multi-junction solar cells. Glenroy Bowe (WSU student), Professor Richard Johnston (LTU faculty), and I (WSU

faculty) with NASA support are planning to fly a research package that includes a GPS receiver and a two meter band transmitter the size of a credit card. The package also consists of a microcontroller that is considerably smaller than a credit card but is able to execute over a million instructions per second. The total package weighs under two pounds! It employs capabilities that did not exist in 1947. It will be used to characterize high technology multi-junction solar cell in a nearly air mass zero environment for space applications. (If I have piqued your interest in this project, consider visiting the web site at URL: <http://ece.eng.wayne.edu/~woodyard/>.)



Seeing that I really missed the target on the impact of the transistor technology, you can understand why my millennium greeting is vague. However, I can extend to you a wish in which I do have confidence. Just as IEEE has played a very important role in my professional development, I wish you the same success with your involvement in IEEE. Involvement with IEEE, either as a member reading world-class journals, or active in some capacity, will afford you the opportunity to benefit from technology developments in fashioning a rewarding career and contributing to world technological needs.

Continued on page 6

WAVELENGTHS

IEEE/SEM Fall '99 Section Meeting

Date: Wednesday, October 27, 1999

Location: Fairlane Training & Development Center, 19000 Hubbard Drive in Dearborn, MI.

- Program:**
- 5:30 pm: Registration & Check-in opens
 - 5:45 pm: Concurrent technical meetings
 - 6:30 pm: Social period with cash bar, University Showcases and Vendor Exhibits on display in North Entrance
 - 7:15 pm: Check-in closes & Dinner in dining room B
 - 7:55 pm: Featured speaker: Capt. Al Haynes, United Airlines Ret.
 - 9:15 pm: The meeting will conclude

How to Register:

Mail in the registration by October 15. The registration is form on page 7. Late registrations will be accepted by phone or express mail until 5:00 pm on Monday, October 25. There is no fee for attending the technical sessions only, but registration is requested to aid in room assignments. Dinner is not guaranteed to attendees registering after October 25.

Student Registration:

Students must register through their student branch to receive the discounted rates. Procedures are posted on the section's web page, or by contacting Edzko Smid, smid@oakland.edu.

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IEEE/SEM Fall '99 Section Meeting Activities

by John M. Miller, IEEE/SEM Vice Chair



The IEEE/Southeastern Michigan Section fall 1999 meeting will be held on the evening of October 27th at the Fairlane Training & Development Center, North Building in Dearborn. This is the same location as we had for the Spring meeting. Parking is adjacent to the north building entrance. We are planning several technical sessions plus a student track session for this meeting. For further details on the topics for the technical session, see page 7 of this issue. The October issue of Wavelengths will contain the final program for this meeting. As always, advance registration is encouraged and to make this easier for our membership this year we will offer registration by major credit card. Please see the attached registration form for details.

Following the concurrent technical sessions hosted by the various chapters, attendees will have an opportunity to visit various University showcase booths, vendor displays and student branch exhibits. All displays and exhibits will be set up in the FT&DC north entrance near the Ford Credit Lounge break area. This is also the location of the social gathering and registration desk. At the door registration will close immediately after the social break. Please register to obtain entrance to the dining room for dinner and the keynote speaker presentation.

The featured speaker for this fall section meeting will be Captain Al Haynes, United Airlines retired. His topic of discussion will be the flight of UA flight 232. Readers may recall that exactly ten years ago Capt. Haynes experienced the unexpected and improbable triple systems failure, a 10⁹ event, resulting in what would have technically been non-survivable. That 184 people survived the crash and successful landing can be credited to five main factors: luck, communications, preparation, execution and

cooperation. Luck involved the fact that the airplane remained flyable till the end, the weather was good, location of the accident was on flat terrain, and the accident happened during the daytime. Proper intra-communications training among ground units and proper use of available facilities contributed to the communications factor. Mock & live simulation and planning for a disaster coupled with thorough training of the cabin and cockpit crews contributed to the preparedness of everyone for this seemingly impossible disaster. Quick and total response by Air Traffic Control, cockpit and cabin crew contributed to the execution factor. Everyone responded as their training dictated and exerted a total team effort coupled with complete cooperation from every agency involved as well as the general population. These factors allowed what at first appeared to be a non-survivable accident to become one in which most of those aboard survived.

On July 19, 1989 United Airlines flight 232 departed Denver at 2:09 PM and climbed to a cruise altitude of 37,000 feet. At approximately 3:16 PM the flight notified Minneapolis Air Traffic Control Center that the number two engine had failed and the aircraft was marginally controllable. Please join us on October 27, 1999 to hear the rest of the story.

Also, please help us manage this meeting more effectively by registering early. Contact John M. Miller, jmiller24@ford.com, 313-322-7486 for further information, to volunteer, or to communicate suggestions.

IEEE/SEM Section Award Judges Needed For January 2000 Future City Competition

by Don C. Bramlett, PE - IEEE/SEM Advisor



This is the second year that IEEE/SEM will provide a dedicated team of judges and a special professional organization award for projects having the most innovative application of electrotechnology in the design of a city in the future. Judging for the 2000 Detroit Regional Future City Competition will be conducted in January 2000, tentatively at Henry Ford Museum, 20900 Oakwood Blvd. in Dearborn. Judging will be from 8:00 AM to 11:00 AM, followed by lunch. Free parking, coffee, juice, sweet rolls,

and lunch are available that day for the judges. This pleasurable and fulfilling task only takes half a day and you are done by noon.

Time is short, please volunteer to be among those to comprise the desired team of eight (8) or more IEEE judges. More information on the Future

City Competition can be found in the related article on that subject in this issue of the Wavelengths on page 8.

I encourage anyone that has an interest in the science and math education of our youth or in student outreach programs to consider being a judge at the Detroit Regional Future City Competition. As a general category judge myself in previous years, I have found the experience of talking with the students, finding out their interests and observing their projects/presentations to be very rewarding. So come out and spend the morning with us as we meet with some of the potential engineers, scientists and city planners of the future.

If interested in more information concerning being a judge for the IEEE/SEM professional awards at the Detroit Regional Future City Competition, contact Don Bramlett at 313-235-7549 during normal weekday business hours, or at home at 313-525-5422 or by email at d.bramlett@ieee.org or bramlett@dtenergy.com

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- IV Trident:** Electron Devices (ED-15), Microwave Theory & Techniques (MTT-17) and Antennas & Propagation (AP-03)
- V Computer:** Computer (C-16)
- VI Geoscience & Remote Sensing:** Geoscience & Remote Sensing (GRS-29)
- VII Power Eng. & Ind. Apps.:** Power Engineering (PE-31) and Industrial Applications (IA-34)
- VIII EMC:** Electromagnetic Compatibility (EMC-27)
- IX Power & Ind. Electronics:** Power Electronics (PEL-35) and Industrial Electronics (IE-13)
- X Engineering Management:** Eng. Management (EM-14)

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Visit the following IEEE World Wide Web sites:

Section: www.ieee.org/regional/section/se_michigan

IEEE: www.ieee.org

IEEE Region 4: www.ieee.org/regional/r4/



Calendar of Events

Tuesday September 7	Meeting: Time: Location: Sponsor: Contact:	Executive Committee Dinner at 6 p.m., meeting 6:30 p.m. Eaton Corp., 26201 Northwestern Highway, Southfield IEEE/SEM Kimball Williams, 248-354-2845
Wednesday October 27	Event: Time: Location: Contact: Comment:	IEEE/SEM Fall Section Meeting Check in begins at 5:30 p.m. Fairlane Training & Development Center, 19000 Hubbard Drive in Dearborn, MI. John Miller, 313-322-7486, jmille24@ford.com See information on page 1, 2, 6 and be sure to register using the form on page 7.

IEEE Invites Member to Review Pre-College Engineers Training Program

Additional information is available on the section's website.

Those interested in testing the PET training site should contact Christy Bouziotis at c.bouziotis@ieee.org, or call 732-562-6526

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IEEE/SEM Fall 1999 Meeting Professional Activities Program

By: Tarek Lahdhiri

The IEEE/SEM Fall Section Meeting will have Vendor Exhibits, University Showcases and Student Table Sponsorships to allow companies and universities to network with section members. We anticipate attendance of over 50 student members and 100 regular members representing all levels of electrical and computer engineering profession at this year's meeting. Attendees will include representatives from the big three automakers and other high tech businesses. Within this region, the IEEE Section sponsors ten student branches at universities and few technical schools, all with electrical engineering programs.

The section offers a Professional Activity program which will provide your representatives a superb opportunity for your company/university to meet future electrical and computer technology and engineering degree recipients, publicize your products and services, talk about engineering employment challenges with your company and begin an effective recruitment process.

All companies and universities are invited to join us and participate in the Section's Professional Activities Program, which includes the following:

Vendor Exhibits An exhibit table, in the social period area. This setting will provide you with an opportunity to publicize your products and services. The fee for vendor-exhibit table is \$50 USD.

University Showcase An exhibit table to lay out material for advertising your graduate and undergraduate programs, meet prospective electrical engineering students, talk about your programs, and begin effective recruitment process. The fee for the university showcase exhibit is \$50 USD.

Student Table Sponsorship A sit-down banquet at a table for eight. We will reserve seven places for students, with an eighth place for a representative from your company to interact with the students. The fee for student-table sponsorship is \$200 USD.

Contact: Tarek Lahdhiri (Director of Professional Affairs) at 248-685-5634[O], 248-676-1266[fax], TL007@ieee.org
Mail address: Tarek Lahdhiri; P.O. Box 71275; Madison Heights, MI 48071

Congratulations to . . .

Two outstanding IEEE-SEM Section members as recipients of Region 4 awards in 1999.

Following are the winners of the 1999 Region 4 Awards:

Outstanding Member: David McKendry;
Southeastern Michigan Section

Outstanding Engineer: David Horvath, PE;
Southeastern Michigan Section

The plaques for 1999 IEEE Region 4 awards to David McKendry and David Horvath will be available for presentation at the IEEE/SEM Fall Section Meeting in October.

Don Silversmith!!

The IEEE-SEM Section nominated Donald Silversmith, Ph.D., a past Section Director of Professional Activities, recently past Section Treasurer and incoming Section Secretary, for the Professional Achievement Awards to be presented by IEEE-USA in 1999. We recently received notification from IEEE-USA, that Don has been selected as a 1999 recipient of the Professional Achievement Award. This award as well as other awards are traditionally presented at the Awards Ceremony at the IEEE-USA Professional Development Conference (formerly called the PACE Conference), to be held in Dallas, Texas over Labor Day weekend this year. Don will be unable to attend this conference, so presumably the award should be able to be presented to him at the Section Meeting in October.

Millennium Wishes and Resolutions

Continued from page 1

I am sure your crystal ball is not as clouded as my was in 1947, and therefore I expect you will benefit even more than I from using, as well as contributing to, technology that is disseminated through IEEE journals, meetings, tutorials, workshops and conferences.

Let me now address the resolution part of my message. Again, I am very limited in this regard and my resolutions do not measure up to the standard for far reaching millennia resolutions. In fact they are two 1999-2000 program year resolutions. It is my intention as chair of the section to determine membership needs. In particular, I would like to interact with IEEE members employed by small companies in southeastern Michigan to determine their professional needs. It is clear that the number of small companies is going to continue to increase. Engineers in these companies have much more diverse responsibilities than their counterparts in large companies. What are the professional needs of engineers in the small companies? How can IEEE/SEM play a role in their professional development? How can the section help these engineers keep abreast of and contribute to technology? I believe if we can make some inroads in this area, southeastern Michigan will be more competitive in the international marketplace.

My second resolution relates to the use of technology to communicate with the membership. Our main method of communication with members is through Wavelengths. None of us know how effective it is and therefore

are unable to fashion policies that direct the flow of section resources for communications. The section has been able to support Wavelengths in the past with the "belief" that it is important to the membership. We can no longer base our policies on "beliefs" because the section's budget is becoming increasingly limited. The section's main source of income is through the IEEE rebate program that is based on the number of members. Rebate income has remained approximately constant for the past several years while printing and mailing costs have escalated. The executive committee of the section has adopted a policy of obtaining co-sponsorship for section meetings in order that they not be a drain on the budget. Even with this policy, the section is on a spending course that suggests, unless Wavelength can generate revenues, the resources are inadequate for supporting Wavelengths as it is currently published. Increases in costs, as well as the lack of volunteers to carry out the many tasks associated with publishing a newsletter, suggest that the section needs to revisit its policies for communicating with members. Proliferation of the Internet comes at an opportune time and we need to be creative in using it to communicate with members. I will work with the section during the 1999-2000 program year to deal with this issue.

HAPPY 2000 MILLENNIUM and help me clear the clouds out of my crystal ball, i.e., send me your suggestions at woodyard@eng.wayne.edu, for dealing with the resolutions!!!

IEEE/SEM 1999 Fall Section Meeting Registration Form

Complete and mail form with an early registration fee of \$30 per person. The registration fee includes technical session attendance and dinner. If this form is for multiple people, you must provide full contact information for one person plus Name, Technical Session Preference, and Meal Selection for each additional registrant. Please make check payable to **IEEE/SEM** and forward along with a completed registration form to: **Dr Ece Yaprak, Wayne State Univ., College of Engineering, 4855 Fourth Street, Rm.1152 Detroit, MI. 48202.**

There will be express check in for registered attendees.

Please type or print:

Name: _____
 Company: _____
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Technical Session # _____ (* Select from list at right, 0 for none)

Meal Selection: [] None, [] Chicken, [] Vegetarian

Total amount enclosed: \$_____ Registration (\$30 per person)

[] Check enclosed in US dollars [] Visa [] Master Card

Credit Card Number _____

Expiration Date _____

Signature _____

Credit card registrations are non-refundable after Oct. 25

Fees:	Amount	Deadline
Registration:	\$30 US	Received by mail before October 15
Late registration:	\$35 US	Received by 5:00pm October 25
Contact:	Ece Yaprak, (313)-577-8075, yaprak@eng.wayne.edu	
Student branch:	\$15 US	Register and pay through student branch by October 15

Contact: Edzko Smid, 248-370-2082, smid@oakland.edu

Technical Sessions: (Indicate selection by #):

1. **Chapter I** Circuits & Signal Processing
"AFRL/Rome"
2. **Chapter II** Vehicular Technology
"Fuzzy Systems as Tools for Intelligent Control"
3. **Chapter III** Comm. & Aero. Engineering
TBD
4. **Chapter IV** Trident
"Electric Utility Deregulation from an Engineer's Viewpoint"
5. **Chapter V** Computers
TBD
6. **Chapter VI** Geoscience & Remote Sensing
NO Technical session planned
7. **Chapter VII** Power Eng & Ind. Appl.
8. **Chapter VIII** EMC
"New Techniques for Reducing Printed Circuit Board Common-Mode Radiation"
9. **Chapter IX** Power & Ind. Electronics
"IGBT Technology Review"
10. **Chapter X** Engineering Management
"Leveraging Product Development for Competitive Advantage"
11. **Student Track** "Artificial Genetic Optimization"

Additional Registrants (Non-Students Only)	Company	* Tech. Session #	Meal Selection (one only)			Fee \$30
			None	Chicken	Vegetarian	

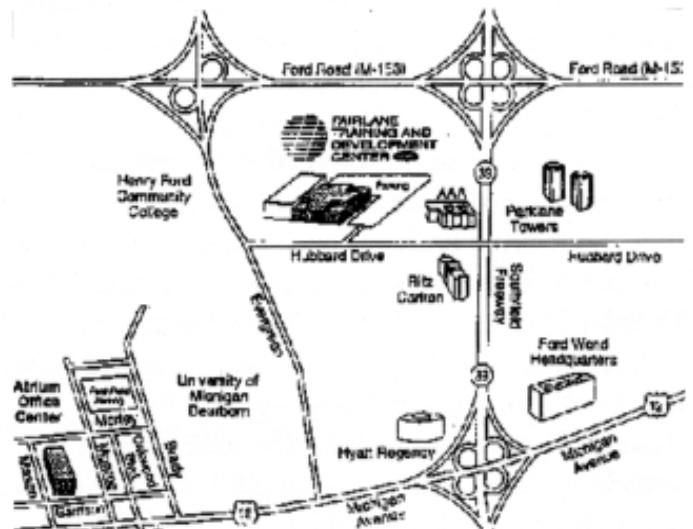
Directions to the 1999 IEEE/SEM Spring Section Meeting at Fairlane Training and Development Center

If traveling from the north, exit the Southfield Freeway at Ford Road, Exit 7. Follow the Southfield Service Drive to Hubbard Drive and turn right. The Fairlane Training and Development Center is located on the north side of Hubbard.

is located on the north side of Hubbard.

Enter the Fairlane Training and Development Center and follow the IEEE signs to the north side of the building. Park and follow the IEEE signs to the north entrance.

If traveling from the south, exit the Southfield Freeway at Michigan Avenue, Exit 6. Follow the Southfield Service Drive to Hubbard Drive and turn left. The Fairlane Training and Development Center



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Volunteers Needed for Future City Competition

by Don C. Bramlett, PE - IEEE/SEM Advisor

Volunteers are needed as advisors, counselors and judges for upcoming Future City Competitions. An additional article describing the need for judges can be found on page 2.

IEEE/SEM Section members are invited to participate in the Seventh Annual National Engineers Week (NEW) Detroit Regional Future City Competition. Each team in this competition consists of a group of middle school students, a teacher & an engineer. The teacher & engineer serve as advisors as students take part in a hands-on education to design a "future city" using computers.

You can be a part of this Regional Competition, which is one of the most exciting, stimulating and rewarding pre-college educational programs that I have had a privilege to become involved.

Volunteer engineers are needed to help teams of seventh and eighth grade students and their teachers to use a computer to design and model a city of tomorrow. As a volunteer engineer, you will share practical engineering skills such as teamwork, problem-solving, Computer Aided Design (CAD) and applied math and science.

A volunteer engineer will typically spend 18 to 24 hours, as an advisor or counselor to a team of students, from mid-October through the date of the 2000 Detroit Regional Future City Competition, during the third week in January 2000 at a location to be announced. The volunteer engineer for the winner of the Detroit Regional Competition will also accompany a three student team and the teacher advisor on a free trip to the national competition in Washington DC during NEW, February 20-27, 2000.

If are not able to devote the time to be a volunteer engineer advisor, engineers are also needed as judges on the day of the Detroit Regional Competition in late January 2000.

The project each team of students works on consists of five phases:

1. Design future city using SimCity 2000 software by Maxis (provided free).
2. Produce a color CAD drawing presentation of an aerial view (map) of the future city using the Urban Renewal Kit, add-on software from Maxis (provided free).
3. Build a scale model of one city section; 30"(w) x 60"(l) x 24"(h) maximum.
4. Write a 500-word essay on a specified subject related to city planning.
5. Give an oral presentation at the Detroit Regional Competition.

The role of the volunteer is to serve as a mentor to the students. The engineer may be involved in all phases of the project as an advisor to provide input and technical assistance. It is important to tie in real life engineering experiences as students work on the project. However, the students are to do all of the actual work, such as the computer design of the future city, building the table top model, writing the essay and giving oral presentations.

ESD-The Engineering Society will serve as the primary sponsor of the 2000 Detroit Regional Future City Competition. As a member organization of the ESD Affiliate Council, composed of representatives of the local sections or chapters of some 40 engineering, technical and professional societies, the IEEE/SEM Section strongly encourages members to participate in this worthwhile endeavor.

A comprehensive Teacher / Engineer Volunteer Handbook is available, detailing contest specifics and providing answers to the types of questions that you as a volunteer engineer may have. To receive this free handbook or to register as a volunteer engineer, call Betsy Mellen at ESD, The Engineering Society, at 248-355-2910. Thanks for your support to this worthy cause.



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