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THE IEEE SUNCOAST SIGNAL

IEEE Networking the World

June 1999

The Florida West Coast Section of the IEEE

Serving over 2,300 members in Charlotte, Citrus, DeSoto, Hardee, Hernando, Hillsborough, Lee, Manatee, Pasco, Pinellas, Polk, and Sarasota Counties

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

June PE/IA Meeting
Micro Electro Mechanical Systems (MEMS)
Joint with the American Society of Mechanical Engineers (ASME)
Plan Now to Attend This Special PE/IA Meeting

DATE/TIME: Wednesday, June 16, 1999 - 6pm Social, 7pm Dinner, 8pm Speaker

LOCATION: Radisson Bay Harbor Inn, 7700 W. Courtney Campbell Causeway

RESERVATIONS : Contact Helen Prince at 727-734-5546, Bring a guest; non-members welcome!

SPEAKER: Dr. James H. Smith, Ph.D. P.E., Manager of Intelligent Micro-machines Department, Sandia National Laboratories.

The future of MEMS may leave you wondering if you have entered the Twilight Zone.

Imagine, if you will, the possibility of a small device, a MEMS, entering your body through a catheter to help repair damaged organs, etc. This future may not be as far off as you think!!

Don't miss this evening of cutting edge technology presented by our distinguished speaker, Dr. James H. Smith, Ph.D. P.E., Manager of Intelligent Micro-machines Department, Sandia National Laboratories.

These infinitesimally small electro mechanical systems are getting closer to the real physical world and mimic the mechanisms we are more familiar with. There will be new opportunities for perceiving the controlling our machines, structures, and environments.

MEMS are used as actuators, inertial sensors, fluidic sensors and controls. They can handle jet and fluids, optical devices; used in measurement, modeling and simulation, packaging, bonding and materials fabrication. Yes, the 21st Century will be a continuation of the ever expanding, omnipresent world of engineering applications.

Chair's Comment

by Al Rosenheck

As your FWCS Chair, I am privileged to receive copies of our regions section newsletters. It is interesting to see how newsletters are laid out as well as the range of subjects they cover. Naturally, I am tempted to compare our sections activities with others, and I am happy to say our section rates high, especially in the range of our professional activities. For instance, this year through May, we have held twenty three quality meetings! Also, unlike many sections that reduce or eliminate meetings held during the Summer, we just keep right on trucking, as they say. No slowing down for us.

One source of our success is attributable to the interest and support we give to our student branch. We see this as a valuable investment that continues to secure our professional future. Some fifty students are graduating this semester and we hope to see these students join the GOLD program and take an active role in our Sections activities.

Another section strength is due to the large percentage of engineers in the section that belong to the IEEE. While most of our members renew their membership annually, I was alarmed to see a IEEE report for our section listing members who have not renewed their membership in the last six months. While normally we see member growth versus attrition being roughly equal, this year we are still way behind in renewals. Why has this happened? Is there something we can do better? Do you know any of your colleagues that have neglected to renew their membership? Communicate your thoughts and suggestions to me (rosenheck@aol.com) or any of the section officers.

IEEE-Computer Society Student Chapter

by Donovan Landgraff

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Inside this issue of the Suncoast Signal

The student chapter of the IEEE-Computer Society will not lie dormant this summer. We intend to match the excellent attendance we had in the Spring semester, even given the reduced attendance typical of the Summer semester. To stimulate membership the officers will be making brief presentations at the class meetings of some of the lower level courses. These classes are attended by students new to the department. Our meetings will be weekly, Tuesday's at 5:00 PM, and we will be having representatives from local engineering firms speak at these meetings. Please contact me if you or a representative of your company would like to speak at one of our meetings. We also intend to have at least one trip to a professional conference being held in Florida. We are also planning a field trip to a local engineering firm. Our goal this summer is to remain an active student organization in the Computer Engineering Department at USF.

PACE Report

by Mark McKeage

PACE stands for Professional Activities Committees for Engineers, and is structured as a Council under IEEE-USA. At the recent SoutheastCon '99 conference in Lexington, KY, I attended the PACE Leadership Training seminar. It was an intensive two-day seminar intended to teach me about IEEE-USA, where PACE fits in, and how to convey information with you.

As the Florida West Coast Section PACE Representative, I have several goals for this year:
1. Communicate IEEE-USA's message to you;
2. Offer Professional Development training and materials to you; and
3. Learn what your concerns are, related to professional issues, and share them with IEEE-USA.

This month, I will focus on communicating IEEE-USA's message to you. In future issues of the Suncoast Signal, I will attempt to meet my other goals.

IEEE-USA has four objectives in their strategic plan for 1998-2000. They are:

1. Continue to build IEEE-USA's influence in the national, state and local levels as a sought-after resource for technical advice to policymakers and as an effective voice for the career and technology policy interests of IEEE's U.S. members

2. Improve IEEE-USA' ability to communicate with U.S. members and with the public at large by refining and focusing its message and by taking advantage of new communications technologies

3. Develop a new generation of products and services that will not only help enhance the career vitality of IEEE's U.S. members, but also will generate revenues that reduce IEEE-USA's reliance on membership dues.

4. Improve IEEE-USA's organizational effectiveness by focusing resources on high-priority activities that will have a clear impact, by making more effective use of volunteers, and by strengthening its interaction with other components of the IEEE.

With an eye on these objectives, IEEE-USA has developed its IEEE-USA: What Have We Done for You Lately? document. For June, I have listed IEEE-USA's career support initiatives. Throughout the summer, I will provide information on additional initiatives on enhancing your profession, and shaping U.S. Technology policy.

IEEE- USA Working to Support Your Career

- Unveiled an Older Workers' Initiative to identify career vitality problems and develop products and services to help U.S. IEEE members.
- Created a new employment resource page on age discrimination and the high-tech workforce.
- Helped establish an education and training reserve for U.S. workers with funding from a $500 fee on specified foreign visa applications.
- Unveiled a year-round, members-only resume referral service to complement the previously existing job listing service.
- Held 10th national workshop for practicing or aspiring consultants in electro technology and information-technology consultants.
- Created a new employment resource page on age discrimination and the high-tech

workforce.

Continued on page 4

June Brain Teaser Challenge

by Butch Shadwell

The following is a reprint of the BTC from 1995 -

While waiting at an airport recently, I found I had time for a bite to eat so I went to the nearest airport food joint. As is often the case, there were not enough tables, so I asked this lady if I could join her at her table. Being the outgoing type, I engaged her in conversation and was fascinated to learn that she was a clinical psychologist on her way to a conference in New York. I thought she might find it interesting, so I started telling her about some work I had done with artificial neural nets. I was surprised to find out that she had no idea that technologists had built electronic analogs to actual neurons to such a degree.

We reviewed various aspects of neuro-physiology and how we could make an electronic device mimic those functions. I also made the point to my new friend, that often a neural net is computationally cheaper that other processing options. One reason this is true is because the typical perception or artificial neuron only involves two very basic mathematical operations, which may or may not be followed by a threshold level test. The challenge this month is to name those two math functions. I will discuss their use in more detail next month.

Reply with the IEEE Florida West Coast Section Suncoast Signal reference to Butch Shadwell by the 20th at (904)223-4465 (voice), 904-223-4510 (fax), b.shadwell@ieee.org, 3308 Queen Palm Dr., Jacksonville, FL 32250-2328. (http://www.ccse.net/~butchs/). Only the names of correct respondents are mentioned in the solution column on the next Signal.

May Brain Teaser Challenge Solution

Beyond the fact that I suspect most of you have doubts about the authenticity of my extended family as it was described last month, cousin Zeke's problem is fairly obvious to those accustomed to dealing with micro-switch inputs. The problem is contact bounce. The fact is that the spring loaded contacts in a switch are not critically damped mechanically, so when the contacts are thrown together by the actuating spring, they have an partly elastic collision and bounce apart again. This damped oscillation, the contact bouncing against the spring, may have a duration of from 5 to 100 mS, with varying numbers of short connections. If your electronics signal processor is sampling the contact fast enough, it will see each bounce as another event. Thus the additional moonshine was measured. The typical technique used to deal with this phenomenon is to start a timer at the first contact made and then to ignore all future signals for a period that is determined to be longer than the bouncing. You might want to think about whether there is a similar problem for a switch contact opening.

PACE Report - *Continued from page 4*

Finally, I would like to announce a PACE meeting coming in July. It will be a presentation by the Electronic Commerce Resource Center, a federally funded agency which helps companies and individuals do business on the Web. The ECRC provides training and development seminars to aid large and small businesses to market their goods and services on the Internet. Much of their training is offered at little or no cost, so please make plans now to attend this presentation. The date is July 15, at the ECRC's Largo office, the old DOE site on Brian Dairy Road. Much more information will be provided in the July Suncoast Signal.

Please feel free to contact me if you have any ideas for future meetings.

1999 Review Seminars For PE Electrical and EIT/FE October Examinations

Review seminars for the PE (Electrical) and Engineer In Training / Fundamentals of Engineering (EIT/FE) exams will begin:

Tuesday, August 10 for the EIT/FE Exam

Thursday, August 12 for the EE Exam

Seminars are conducted from 7-10 P.M. (Tues or Thurs) for ten weeks. The registration fee is $200 and includes text. The seminars will be held at the St. Pete Campus of the University of South Florida

To register, contact: Alan M. Keith, P.E., P.O. Box 14042, (EC51), St. Pete, FL 33733.

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Phone (727) 384-7937 FAX (727) 384-7994
Pinellas Chapter, Florida Engineering Society

June 1999 Calendar of Events

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 IEEE-FWCS Executive Committee Mtg at TECO Data Ctr 6:00PM	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16 Joint PE/IA & ASME Mtg Radisson Bay Hotel Inn at 6:00 PM	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

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