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THE SUNCOAST SIGNAL

IEEE Networking the World

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

October Joint Section/CS/AESS Meeting
Telecommunications: Yesterday, Today and Tomorrow

Date: **Wednesday, October 21, 1998**

Place/time: **Dutch treat dinner at the Spaghetti Warehouse at Ybor Square at 6:00pm (Dinner attendance optional) and meeting at TECO Data Center (one block from Ybor Square) at 7:30pm**

Speaker: **Mr. Karl Lohman**
Field Team Administrator for Spring Southern Operations

Reservations: **Please call Al Rosenheck at (941)395-2117 or e-mail rosenheck@aol.com**

BIOGRAPHY

Karl L. Lohman, Field Team Administrator for Sprint Southern Operations, assists eleven Field Teams located within the state of Florida in deploying state of the art distribution, switching, and network connectivity for over 1.9 million Sprint customers (access lines). Leaving Rollins College (B.S.-Physics & Math, and MBA) located in Winter Park, Florida, in 1959 he became a management trainee and worked various positions/responsibilities including engineer (outside plant, PABX & Central Office equipment, traffic, transmission), supervising manager (engineering, inside plant, outside plant), director (engineering, central offices, toll, network planning), Assistant VP (engineering, network planning). Non-engineering positions included assistant VP General services, Budget Director, and Project Manager. Non-work related activities include being a member of the Advisory Board of SunTrust Bank, member of the Project Management Institute, and a Senior Member of IEEE.

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Inside this issue of the Suncoast Signal

Chair's Comment

IEEE-USA has released a free career vitality packet outlining its extensive career-development and employment-assistance services for professionals in the electrotechnology and information-technology communities. The packet is designed to serve human resource professionals as well as individual students, IEEE members and other electrical, electronics and computer engineers and computer scientists.

The packet's contents include detailed information on the Engineer's Guide to Lifelong Employability, the IEEE-USA Salary Survey and personal Salary Benchmarks workbook, IEEE-USA's employment and job-listing services, and the National Directory of Electrotechnology and Information Technology Consultants, plus a free copy of Today's Engineer magazine -- the only publication devoted exclusively to the professional development of engineers of all disciplines.

Recipients of the packet will learn about a range of IEEE-USA's career and employment services that can help technical professionals develop greater career vitality. These programs include the nation's number-one electrotechnology job listing service (with a new entry-level section), an alliance of local consultants' networks, career workshops, resume-referral services, job fairs, free employment assistance for IEEE members, and a series of career-oriented papers, guides and resource materials for technical professionals and their employers.

To request a career vitality packet, contact Mike Chaykovsky at 202-785-0017, ext. 337, or m.chaykovsky@ieee.org.

Students' Corner

We would like to welcome the new IEEE Student Branch Officers for the fall semester of 1998:

President	Keith Alton Hartless
Treasurer	Pete Kirby
Secretary	Han Li
Program Director	Kevin Thompson

We would like to take this opportunity to thank our advisors Dr. Paris Wiley and Dr. Worth Henley for their expertise on how to run the organization effectively. We would also like to thank Irene Wiley from the Undergraduate Program, Becky Brenner, and Gayla Montgomery of Electrical Engineering for their assistance with helping the officers adjust to their new roles within the organization.

Throughout the semester, we plan to have professional engineers from different fields come and discuss their jobs within the engineering community.

THE SUNCOAST SIGNAL is published monthly by the Florida West Coast Section (FWCS) of the Institute of Electrical and Electronics Engineers, Inc. (IEEE). THE SUNCOAST SIGNAL is sent each month to members of the IEEE on Florida's West Coast. Annual subscription is included in the IEEE membership dues.

All material for THE SUNCOAST SIGNAL is due by the Friday following the 1st Thursday of the month preceding the issue month. Address all correspondence to: **Quang Tang**
Seminole Electric Cooperative, Inc.
P.O. Box 272000
Tampa, Florida 33688-2000
Voice: (813) 963-0994 Fax: (813) 264-7906
E-MAIL: q.tang@ieee.org

October MTT/AP/ED Meeting
Neural Network Modeling In Microwave Antenna Design

DATE/TIME: **Tuesday, October 20, 1998 6:00 p.m.**

LOCATION: **Raytheon E-Systems St. Petersburg,**
1501 72nd Street North, St. Petersburg

SPEAKER: **Dr. Christos Christodoulou**

ABSTRACT
Neural networks have received widespread attention in a variety of applications. In particular, neural networks have been extensively applied in pattern recognition applications, in financial applications, in controls, and in communications, among others. Neural networks have also been applied in several areas in electromagnetic such as RF and mobile communications, scattering, radar, remote sensing, antennas, and computational techniques. In this seminar talk, several antenna applications which have been tackled successfully using neural networks, such as reflector antennas, adaptive array antennas, microstrip antennas, antenna synthesis etc. will be presented and discussed.

BIOGRAPHY
Christos G. Christodoulou received the B.S. degree in physics and math from the American University of Cairo in 1979, and the M.S. and Ph.D. degrees in Electrical Engineering from North Carolina State University, Raleigh, in 1981 and 1985, respectively. He has been serving as a faculty member at the University of Central Florida, Orlando, since 1985. He is a senior member of IEEE and a member of URSI (Commission B). He has over 115 refereed journal publications and conference papers. He is also the general Chair of the APS/URSI 1999 Symposium in Orlando, Florida. In 1991 he was selected as the AP/MTT Engineer of the year(Orlando Section). He has served as the secretary, treasurer, and vice president of the Orlando IEEE Section between 1995-1998, and the Chair of the AP/MTT Chapter in Orlando twice. His research interests are in the areas of modeling of electromagnetic systems, neural network applications in electromagnetic, satellite and personal communication systems, and smart antennas

RESERVATIONS:
Leave name, number and country of origin with Steve Eason at (727)381-2000 ext. 2124, Fax at (727)343-7318 or email sdeb@eci-esyst.com. Join us for dinner after the meeting. Bring a guest; non-members welcome!

DIRECTIONS:
From Tampa, take I-75 South to I-275 south across Tampa Bay to Exit 12 (22nd Ave N.). From Sarasota, take I-75 North to I-275 north over Sunshine Skyway Bridge to Exit 12 (22nd Ave N.). Turn west on 22nd Ave. past Tyrone Mall to 72nd Street N. Turn left at the traffic light to the Engineering building. Park in the lot farthest south of complex. GILL ROBB WILSON CONFERENCE ROOM - 2ND FLOOR - ENGINEERING BLDG.

October Joint Section/CS/AESS Meeting
Telecommunications: Yesterday, Today and Tomorrow

Continued from page 1

ABSTRACT

He will speak on the topic of "Telecommunications Changes: Yesterday, Today, and Tomorrow". Having spent 39 years in the telecommunications "field", many changes that Mr. Lohman has experienced have already taken place. But, these changes taking place today, for tomorrow will be more profound. Mr. Lohman submitted the following summary of his presentation:

"Having spent most of my working life assisting a local telecommunications business build its distribution, feeder, switching and interoffice networks while making a good return for the investors has been not only interesting but rewarding. From a monopoly to a current state of non-regulated pricing the network must still meet the demands of all subscribers in one way or another. The points I will offer are based upon experience, common sense, recent trade articles, lab developments, and projections of the changing traffic needs from the customer base. Putting the options together will be covered moving from the circuit switched world to a point to point(s) world. Analog to digital, wire-line vs. wireless, and cabled systems (CATV) all must be capable of being integrated (connected) at some point if all are to have perceived value. Voice and data networking, like oil and water being mixed can be accomplished in some cases using the correct architectures. These are the technologies (LANs, BRIDGING, TCP/IP, ISDN PRI/BRI, ROUTING, PACTET SWITCHING, FRAME RELAY, xDSL, ATM, OC3/48) of today that will also be used in interfacing a new concept called Sprint's Integrated On-Demand Network (ION) communications link of tomorrow."

DIRECTIONS

For directions to both Spaghetti Warehouse and TECO Data Center, please call Al Rosenheck at (941)395-2117 or e-mail rosenheck@aol.com.

IEEE and ABET Seek Program Evaluators To Ensure Quality of Engineering Programs

The IEEE Educational Activities Board is now accepting applications for program evaluators for engineering and engineering technology programs at U.S. colleges and universities. The application deadline is **October 30, 1998.** Candidates sought are engineering professionals from industrial, government and academic sectors.

The goal of prospective evaluators is to assess the quality of engineering education. Selected applicants attend a one-day training session, sponsored by the IEEE, that explains the IEEE/ABET accreditation process. Following training, evaluators are prepared to assist with program evaluations that take place each fall and generally run for two to three days.

Nomination packages are available from: Accreditation Administrator, IEEE Educational Activities, 445 Hoes Lane, Piscataway, NJ, USA 08855-1331; Telephone (732)562-5484; e-mail: "accreditation@ieee.org" or via the World Wide Web:

For engineering: http://www.ieee.org/eab/accredit/eval1.html;

For engineering technology: http://www.ieee.org/eab/accredit/eval2.html

October PES/IAS Meeting
Fuzzy Control in Industrial Applications

DATE/TIME: **Thursday, October 22, 1998 11:45 - 1:00pm**

LOCATION: **Seminole Electric Cooperative, Inc., 16313 N. Dale Mabry Hwy., Tampa, Florida**

SPEAKER: **Mr. Butch Shadwell**

COST: **Members - $8; Non-Members - $15; Students - $5**

RESERVATIONS: **Quang Tang, Seminole Electric Cooperative, Inc. (813)963-0994**
Diane Hanecki, REPS, Inc. (813)926-0804
Mary Ellen Thacker, Tampa Electric (813)228-4647

Butch Shadwell, the current Florida Council Chair, will present a program on "Fuzzy Control in Industrial Applications". The talk will offer a brief introduction to artificial intelligence and the theory of operation of fuzzy control, and then progress into how it is an important adjunct to traditional PID. Mr. Shadwell has been working in applied R&D for over twenty-five years and has developed many instances of embedded micro-computers in industrial control. He has also done extensive work in waste water management and the application of fuzzy control to improve energy conservation.

Butch tells everyone that he has known what he wanted to do since he was three years old. To hear the extensive list of projects and accomplishments, one would think that he must have started his professional career about that time. Actually, that didn't come until he was twelve. Now he has been designing and fabricating electronic circuitry for thirty-five years.

Graduating high school in 1969, he received a Presidential appoint to the U.S. Naval Academy. After two years there as an EE major, he resigned from the Navy to pursue his interest in physics at FSU, where as an undergraduate he was hired as a faculty adjunct to teach a post graduate course in digital electronic testing techniques in psycho-motor learning. Married in 1974, he moved to Chicago with his wife and continued his studies in opto-electronics at Northwestern University. He has lead research and development teams at several major corporations and universities and continues to be a popular lecturer for many institutions today. His career includes work in nuclear medicine, opto-electronics, electronic warfare, robotics, industrial automation, machine vision, neural nets, fuzzy logic, digital television systems, and communications. He has had a successful consulting practice since 1995. Coincidentally, Butch is also the current Chairman of the Florida Council of the IEEE.

IEEE Student Branch Meeting: Robotic Design Considerations

DATE/TIME: **Thursday, October 22, 1998 3:15pm - 4:45pm**

LOCATION: **USF, New Engineering Building, Room ENB 313. For more information, please call (813)974-4776**

For several years Butch Shadwell has offered a short lecture series on "Robotic Design Considerations" as a primer for the students at UNF to begin work on the Region 3 Robot Competition. The program is usually two meetings of 1 ½ hours each. The first relating to "Power Conversion and Distribution" and the second on "Motion Control". The students have found it very useful, and it may have contributed to the excellent presentations from UNF in past competitions.

As part of his "Section Trek" as Chairman of the Florida Council of the IEEE, Butch is willing to take this program to any school that would like to hear it. Since three hours is a bit much for one sitting, it will be a condensed version.

Words from IEEE-CS Student Chapter President

My name is James Black and I am the current president of IEEE-CS student chapter at USF. My goal for the club is to see its membership grow, as we work toward helping the students to achieve their professional and academic goals. I am writing to see if I can get some response from companies and IEEE members in the professional chapter for three different purposes. The first is that I would like to make a list of speakers, their topic(s) and a way to contact that person so that we can start to build a local speaker list for both IEEE and IEEE-CS student chapters. The other purpose is that both IEEE and IEEE-CS is working in conjunction with the student chapters for the mechanical and chemical engineers to have a "Meet the Industry Banquet". It will be the first or second Thursday in November. We would like to have as many companies as possible represented there. This is an opportunity for the students to sit down with representatives from industry and talk with in an informal setting. The banquet will be held at the Embassy hotel right by USF. Details are still being firmed up, but this is being led by the chemical engineering society. The last purpose is that I would like to find out from the professional membership whether there are job skills that employers would like us to be exposed to before we graduate, as we could then start some focused seminars to expose the students that are interested in these skills. A couple of topics I have discussed with others has been Oracle DBA (database administration), Cadence and I am curious if we should know some about how to program in LabView. We are co-hosting, along with MISS (Management Information Systems Society) a contest currently a web programming contest to make web pages for local charities. The sponsor is Andersen Consulting. The final judging will be held October 1st at Andersen Consulting's SolutionWorks in St. Pete. If you would like to attend our meetings and meet some of the students then check our web page @ www.csee.usf.edu/ieee-cs/welcome2.html. Any responses can be sent to me at black@eng.usf.edu.

Win Big with IEEE-USA Anniversary Web Contest!

In honor of its 25 years of service to U.S. electrical, electronics and computer engineers, IEEE-USA is sponsoring an anniversary trivia contest on the Web. By answering just six questions correctly, contest entrants are eligible for the random prize drawing that includes more than $800 worth of prizes such as "career vitality survival packs" full of valuable IEEE-USA books and publications; IEEE merchandise; and even a one-year (new or renewal) IEEE membership. Enter the URL http://www.ieeeusa.org/usab/ANNIVERSARY/contest.html to see details and rules, and to try your luck!

New FWCS Senior Members

Congratulations to the following new IEEE Senior Members for the Florida West Coast Section:

Aaron, William C.	-	PES
Killinger, Dennis K.	-	LEOS
Nordlinger, Arthur L.	-	PES
Sullivan, John C.	-	PES
Tang, Quang C.	-	PES

1999 Engineers Week Banquet

National Engineers Week was found in 1951, by the National Society of Professional Engineers to increase public awareness and appreciation of the engineering profession. Local engineering societies will join together for an evening of fellowship to celebrate the engineering profession and honor some of the Bay Areas outstanding engineers and engineering students of the year at our annual banquet.

1999 Engineers Week Banquet will be held on Friday, February 19, 1999 at Sheraton Grand Hotel. Further information will be on future Signal or call Quang Tang at (813)963-0994 ext. 1222 or e-mail q.tang@ieee.org

October Brain Teaser Challenge

by Butch Shadwell

As I sit on the beach there's a gentle breeze from the northeast as the sun is setting. Eight pelicans pass overhead in vee formation. Their flight appears magical as they relentlessly move to the north with no effort. Suddenly the picture is modified by the ejection of waste matter from the bird in front. Like some sort of instinct or primordial reflex, "9.8 meters per second squared" leaps to mind as I consider the appropriate action to take in order to avoid an unhappy collision with the falling mush. Beyond the obvious question as to why the MKS value for g (acceleration due to gravity) should be encoded in my genes, I am sure you are pondering what types of electronic sensors one might use to measure acceleration?

This month I am offering to immortalize your name in this renowned column if you can identify such a device and tell me which physical principles make it work.

Reply with the 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. Only the names of correct respondents are mentioned in the solution column on the next Signal.

September Brain Teaser Challenge Solution

Unfortunately, there were no correct answers to the BTC this month. Maybe, since the problem was placed in the context of a funeral, people might have thought it was a trick question.

Strain gauges, though remarkably versatile, are subject to errors introduced by temperature and time. In brief a strain gauge is a resistive element that is manufactured and mounted in such a way that it can be stretched (usually along one axis) and this stretching results in the resistance being increased. Since a strain gauge has a temperature coefficient, the absolute value of the resistance will also vary with environmental conditions. The simplest configuration to monitor a strain gauge is to place it in series with a resistor and monitor the output as a voltage divider. This is very susceptible to thermal effects. The next best configuration is to place a second strain gauge on the object of interest orthogonally so that it will experience the same thermal stimulation but not the strain. If you can mount this second device so that it experiences strain 180 degrees out of phase then you can increase the gain while eliminating the thermal problem. Finally, the best design is to use four gauges in a bridge configuration. With the opposite sides of the bridge attached to the object with the same phase of compression or expansion. This will double the gain again while eliminating the thermal effects when the output is read by a differential amplifier. If the bridge is biased with a voltage source, then the output should be very stable over a wide range of conditions.

October 1998 Calendar of Events

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6 IEEE Executive Committee Mtg TECO Data Ctr 6:00pm	7	8	9	10
11	12	13	14	15	16	17
18	19	20 MTT/AP/ED Meeting at Raytheon E-Sys 6:00pm	21 Joint Meeting Section/CS AESS TECO Data Ctr 7:30pm	22 PES/IAS Meeting at Seminole Electric 12:00pm	23	24
25	26	27	28	29	30	31

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