

THE SUNCOAST IEEE SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

<http://ewh.ieee.org/r3/floridawc>

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March 2002

Are They Hearing What You Said?

(Speech Mechanism, Coding, & ITS Scientific Assessment For Quality Communications)

Sponsored by Life Member, SP/COMM Chapter, and FWCS Section

- Speaker: Henri Suyderhoud
- Location: Sarasota Yacht Club, 1100 Ringling Blvd., Sarasota, FL
- Date/Time: March 13, 2002 at Noon (Lunch will be served)
- Price: \$15.00 (Salad, Almond crusted chicken, Veggies, & Beverage)
- RSVP: Jules Joslow 1-800-274-2383 or E-mail jjoslowemi@aol.com.
Space limited to first 40 reservations.

Speaking and its intricate mechanism that produces speech are taken for granted by most people. After all, each of us possess that capability. However, when it comes to transmitting speech over the telephone networks, some fundamental understanding of the production mechanism, and of the perception process, is necessary to ensure complete satisfaction by users of those networks. This presentation will address speech production analysis, and the methodology of how to assess speech quality that telephone networks can deliver. Many such methodologies have been developed over the past 75 years as the telephone networks evolved, and yet new techniques are still under investigation because we have entered the Internet Age. That fact alone poses yet a new set of challenges to the communications engineering profession. New speech coding techniques will be discussed, and their effects on performance will be explained. Appropriate assessment methods that have recently been developed will also be discussed with a view of the history behind these developments.

Henri Suyderhoud is an electrical engineer with more than 45 years experience. He holds MS degrees in EE (Delft, Holland), and Mathematical & Applied Statistics (Rutgers). He came to the USA in 1956 from the Netherlands, at which time he joined the Bell Telephone Laboratories, where he worked for 12 years on local and long distance networks. In 1968 he joined Comsat Labs in Clarksburg, MD., working for 20 years on R & D related to speech coding and systems, assessment techniques, and satellite networks, in particular the interfaces with terrestrial networks. He has been consulting for the past 13 years, for the most part for a Japanese telecom manufacturer, and for various large corporations.

He holds ten patents on speech related subjects, is the author of over 35 publications, including co-authorship of a book on Satellite Systems Engineering. He lives in Naples with his wife Jeanne. They have three sons and two daughters, and seven grandchildren between them.

Instructions to the Sarasota Yacht will be given when you make your reservation. We will try to arrange car pools where possible.

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Chair's Comment

By Quang Tang



Engineers Week Banquet was excellent. Everyone attended the banquet enjoyed it very much. About one third of all attendees are IEEE FWCS members. During the awards presentation at the banquet, Mr. Jim Howard, Region 3 Director, presented the Section's 50th Anniversary banner. Congratulations to Mr. John Luce for receiving the IEEE FWCS 2002 Outstanding Engineer of the Year Award. Congratulations John!

Last month in my Chair's Comment, I congratulated Mr. Al Darlington, who has received an award from IEEE Power Engineering Society. I found out recently that Al is the nephew of our Section first Chair, Mr. Benjamin Darlington. Please read more about our first Section Chair in the article on page 6 of this issue.

It is time again for Educational Activities Board (EAB) annual awards. Nominations are due April 30, 2002 (See page 8).

This is a very busy month for the Section. Section will have a joint meeting with Life Members Chapter and SP/COMM Chapter on speech mechanism at Sarasota Yacht Club. GOLD will hold their first meeting. MTT/AP/ED, USF, and IEEE Student Branch will have two joint meetings at USF campus. SP/COMM Chapter also holds their second meeting on modern digital transceivers.

Students' Corner

By Jeremy Baksh
IEEE Student Branch Internal Vice President
baksh@eng.usf.edu

Our student branch is once again sponsoring a bagel day, for all its members. This 'Bagel-Social' is typically scheduled on a Monday every month, but we may have to do some juggling, so please keep up to date with us if your in the mood for a light snack.

This year, our student branch can now boast 216 members, and we are always expanding it seems! With such a large membership, we have decided to show our support for our community by volunteering our time with Habit for Humanity. For such a worthwhile cause we hope to have the support of all our members, and we are continuously looking for other such programs to get involved with.

As always the IEEE student web page is constantly being updated, and we encourage all to use it. It is located at <http://org.eng.usf.edu/IEEE-EE/>

IEEE Signal Processing/Communications Society Chapter Meeting
**Signal Processing and RF Architecture Issues
Related to Modern Digital Transceivers**

Dr. Mohamed Nezami, Raytheon Systems Company

- Date/Time:** Thursday, March 28, 2002 at 6:00 PM
Location: Gill Rob Conference Room, Raytheon Systems Company
1501 72nd Street North, St. Petersburg, FL, 33710
Food: Refreshments provided at the meeting with a dinner at members expense after the lecture at a local restaurant to be announced at the lecture.

Abstract: This seminar presents a brief tutorial on the fundamentals and current issues relating to digital receivers and transmitters. The presentation will review several design challenges with current receiver and transmitter architectures. The use of commercial ASICs, MEMs and advanced signal processing techniques for I/Q mismatch compensation, DC removal, channelization, and filtering techniques. Several design examples are discussed including direct receivers for PCS/GSM, MEM based SINCARS, and others. A brief presentation on the use of MATLAB modeling in analysis of DFT-based acquisition and Maximum likelihood Estimation (MLE) based tracking.

Biography: Dr. Nezami is an adjunct professor with the school of Electrical Engineering at the University of South Florida in Tampa and a Sr. Principal Design Engineer at the Raytheon Company. Dr. Nezami's industrial experience has been in the area of developing and designing wireless radios. He had worked in various radio fields, such as CATV, MMDS, Commercial Avionics, Proximity card readers, and tactical radios. He has a Ph.D. from Florida Atlantic University in Boca Raton, MSEE and BSEE from the university of Colorado.

Reservations: Please notify Bror Peterson (727) 302-4710 at Raytheon Systems Company at least 48 hours in advance if you are attending. You must specify if you are a US citizen. If not, special approval will need to be obtained. [Bror W Peterson@raytheon.com](mailto:Bror_W_Peterson@raytheon.com).

Directions: From Tampa, take I-275 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 the Sunshine Skyway Bridge to Exit (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 the complex. THE GILL ROB CONFERENCE ROOM IS ON THE 2ND FLOOR OF THE ENGINEERING BUILDING.



USF
Bull-arney 2002



The stereotype demands that engineers be serious scientists, perhaps sometimes even stodgy. But the University of South Florida's College of Engineering is shattering that stereotype with a fundraising dinner that will feature zanily clad engineers performing tricks and serving patrons.

"Bull-arney 2002" will be held March 23 at 6:00 p.m. at USF Embassy Suites. The cost of the event is \$25 for the food and beverage. However, all other items - including such things as silverware, napkins and condiments - are extra. Patrons decide how much to contribute for each item. Bull-arney (named after our mascot and the famous Irish stone), now in its sixth year, has already provided 32 student scholarships to deserving students who may not have been able to attend without this support. For ticket information contact Lourdes at 813-974-2541.

PES/IAS Spring Seminar

Theory, Application, Troubleshooting, and Repair of Variable Frequency Drives and Reduced Voltage Soft Starters



- Date:** Monday, April 8, 2002
- Time:** Registration and Continental Breakfast 8:00 – 8:30 AM
Seminar 8:30 AM - 1:00 PM
- Speaker:** Jim Mitchell, President
Motortronics, Inc.
- Location:** ETRC
3650 Spectrum Blvd., Suite 100
Tampa, Florida 33612
<http://www.etr.com/ETMtgFcilty.html#WhereAreWe>
- RSVP:** Online at <http://www.weiquality.com/pes/>
Art Nordlinger nordlinger@hotmail.com or 727-596-9319
- Price:** Members \$20.00; Non-members \$50.00; Students \$10.00
- PDH Credits:** Professional engineers will earn 4 professional development hours upon completion of the seminar. Please provide your license number and your name as it appears on your license when registering.

Jim Mitchell of Motortronics, Inc. will present a training seminar on the theory, application, troubleshooting, and repair of variable frequency drives and soft starts used to control 3 phase AC induction motors. Mr. Mitchell has been involved in the design, application, and troubleshooting of solid state devices for both motor and non-motor loads for over 20 years.

Agenda:

- Theory and application of reduced voltage soft starts in motor applications.
- Troubleshooting and repair of reduced voltage soft starts.
- Theory and application of variable frequency drives in motor applications.
- Troubleshooting and repair of variable frequency drives.

Price includes continental breakfast. Space is limited to 35 participants. Register early.

DG protection standards and interfacing with the utilities

Plant Tour & Presentation by Beckwith Electric Company

Sponsored by PES/IAS Florida West Coast Chapter



- Date/Time:** Thursday, March 28, 2002, 5:00PM
- Location:** Beckwith Electric Company, 6190-118th Avenue North, Largo (South of Ulmerton Road, near Honeywell)
- Speaker:** Ron Westfall, Applications Consultant, Beckwith Electric
- Cost:** \$10.00 (for IEEE members), \$15.00 (for non-members)
*Included is the tour, presentation, and dinner catered.
- RSVP:** Contact Ara Rivera at 727-541-9513
Non-IEEE members and students welcome!
Online at <http://www.weiquality.com/pes/>

Beckwith Electric is a leading manufacturer of tapchanger and capacitor controls, protective relays, and equipment for system restoration, synchronizing, and motor bus transfer, along with custom systems. Incorporated in 1967 by Robert W. Beckwith, Beckwith Electric remains a privately-owned corporation, owned by the Beckwith family. The facility is a 48,320 square foot building that was rebuilt after a 1992 tornado destroyed the previous facility.

Speaker:

The speaker is Ron Westfall, Applications Consultant, who has 33 years of Electric Utility experience and 5 years with Beckwith Electric providing application assistance for the Beckwith line of products. He will be discussing technical issues associated with the intertie of distributed resources. There will be some discussion of the various interconnect documents and standards currently in place. Mr. Ron Westfall received the BSEE from Virginia Polytechnic Institute and is a Registered Professional Engineer in the state of Florida. He retired in 1997 from Florida Power Corp. as Director, System Protection and Control and is currently employed at Beckwith Electric Company as an Application Consultant. He is a member of IEEE. He is an active member of the Power System Relaying Committee where he has served on many working groups and is a former Chairman of the Line Protection Subcommittee.

GOLD Kickoff Meeting

If you are a Graduate of the Last Decade, then you are pure GOLD to the IEEE and the Florida West Coast Section.

"What's so special about me?" As a member of IEEE with GOLD status (10 years or less since graduation), you represent the up-and-comers -- the future leaders of the Engineering profession. You are in the best position to shape the future of the profession and the organization, and IEEE is very interested in ensuring your success as a new engineer.

Want to know more? Well, the Florida West Coast Section GOLD group is now forming, and we will have our first meeting on Thursday, March 21 at 6:00 PM. The meeting will take place at Hops Restaurant in Tampa, located at 327 North Dale Mabry Highway (south of I-275). Representatives from the FWCS as well as Region 3, including our Region Director, will be on hand to discuss the value of GOLD with you. We will also discuss the future activities of the FWCS GOLD group. Appetizers will be provided by IEEE.

Make plans to be at this very important first meeting of FWCS GOLD. All are welcome, but anyone who is a GOLD member or who is about to graduate is especially encouraged to attend. Please RSVP to the FWCS GOLD Chairperson, Dennis Trask, by e-mail at d.trask@ieee.org or by phone at 727-773-4685. Be sure to leave your full name and a way to contact you. Together we can make GOLD shine on the Florida West Coast.

IEEE Florida West Coast Section Celebrates 50th Anniversary

First Section Chair – Mr. Benjamin N. Darlington



Mr. Ben N. Darlington

Two important things happened 50 years ago in February. On February 1, the Tampa Section of the American Institute of Electrical Engineers, AIEE, was formed. On February 6, Elizabeth became Queen of England. The yearbooks at IEEE Headquarters show that the Tampa Section of AIEE was formed February 1, 1952. The first Section Chair was Mr. Benjamin Nicholson Darlington. In 1963, AIEE and the Institute of Radio Engineers (IRE) later merged to form the IEEE, using the Florida West Coast name.

Ben Darlington graduated from Tarpon Springs High School in the late 1920's and attended the University of Florida in Gainesville, Florida. He pursued courses toward a degree in Electrical Engineering. Returning home to Tarpon Springs, Florida, he acquired employment as a mechanic in the Western Auto store. Among his duties was doing machine work and rewinding electric motors. His interest in communication led him to taking a job with the Peninsular Telephone Company and moving to Tampa, Florida. He had advanced to a position of General Plant Manager when a merger with General Telephone Company occurred. He was the first Section Chairman of AIEE in 1952.

In a Dennis R. Cooper article titled "the People machine", an illustrated history of the telephone on the Central West Coast of Florida, it was reported that the General Telephone Company of Florida Employee Chorus was organized in 1962. It was led and directed by Ben. He was married to the former Doris Reed and together raised three sons.

USF, the FWCS Student Chapter and the FWCS MTT/AP/ED chapter are co-sponsoring the following March and April Meetings:

How Propagation Affects HF to MM-Wave Transmission

a USF - E.E. Dept Wireless Seminar Lecture
Lecturer: Dr. Henry Helmken, Florida Atlantic University
Thursday, March 7th
Time: 2 pm
USF Engineering Building ENB, Room 110

Wireless LANs (exact title: TBA)

USF - E.E. Dept Wireless Seminar Lecture
Lecturer: Richard Abrahams, Intersil
Thursday, March 21st
Time: 2 pm
USF Engineering Building ENB, Room 110

Wireless & Microwave Technology 2002: An Industry/Government/Education Forum

Sponsored by: USF's WAMI PROGRAM., MTT/AP/ED & STUDENT CHAPTERS
Saturday, April 13th
Time: 8 am to 5 pm
Embassy Suites, Busch Gardens

IEEE members are cordially invited to join these meetings.



Wireless & Microwave Technology 2002

An Industry/Government/Education Forum

DATE: Saturday, April 13, 2002

TIME: Registration begins at 8:00 am,
Presentations and Panel Sessions from 8:30 am to 4:00 pm
Social Hour from 5:00 pm on.

LOCATION: Embassy Suites, Busch Gardens, 3705 Spectrum Blvd., Tampa
Phone- (813) 977-7066

ABSTRACT - The Wireless and Microwave (WAMI) Center at the University of South Florida invites you to attend this fourth annual event. The interactive forum will provide an opportunity for the exchange of information on the status and directions of wireless/microwave technology, and the educational and research challenges now being addressed. Activities will include 8 technical presentations by invited speakers and two panel sessions. Featured topics will include **RF MEMS, ultra wideband communications, non-linear measurements & modeling and software radio**. Lunch and refreshments will be provided during the day, along with a social hour and tour of USF's laboratories in the late afternoon.

RESERVATIONS - Please make reservations before March 29, 2002. We welcome late registration, but appreciate a timely response in order to accommodate our planning.

REGISTRATION FEES - IEEE Student Member: \$10 (refunded at the door), IEEE Member: \$20, Non-IEEE Member: \$30. Students who are not IEEE members may register for \$20 and apply this toward the IEEE Student Member Application fee.

RSVP and send payment to Becky Brenner, USF Dept. of Electrical Engineering, 4202 E. Fowler Ave. ENB118, Tampa, FL 33620. Voice: (813) 974-2369. Fax: (813) 974-5250. Email: brenner@eng.usf.edu. **Please make checks payable to IEEE FWCS**. You also have the option to pay on-site.

DIRECTIONS (from Tampa International Airport)

- ◆ Take I-275 to the Fowler Avenue exit, approximately 8 miles north of the I-4 interchange.
- ◆ Take Fowler Avenue east approximately 2 miles to Spectrum Blvd.

The Embassy Suites is on the north side of Fowler Avenue, immediately in front of the University of South Florida.

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2002 Educational Activities Board Awards

The following Educational Activities Board (EAB) Awards have been announced and all nomination forms must be in by April 30, 2002. For nomination form and detail information of these awards, please check out EAB website at: <http://www.ieee.org/organizations/eab/arc/awards/forms.htm>. Instructions are provided on forms. Please download forms for your use. All information must be typed and hard copies mailed; handwritten copy is not permitted. The IEEE Educational Activities Board has determined that only traditional HARD COPY (paper, not Fax) submissions of IEEE EAB Nominations sent through the mail will be considered. This includes all forms and letters. Any portion(s) submitted electronically will not be included in documentation considered by the IEEE EAB Awards and Recognition Committee.

- **IEEE EAB Meritorious Achievement Award in Accreditation Activities**
 - recognizes IEEE members for outstanding contributions in accreditation of engineering, engineering technology, and computer science programs. \$1000 plus an engraved walnut and brass plaque.
- **IEEE EAB Meritorious Achievement Award in Continuing Education**
 - recognizes IEEE members for the design, delivery, and support of continuing education courses and programs.
\$1000 plus an engraved walnut and brass plaque.
- **IEEE EAB Major Educational Innovation Award**
 - recognizes IEEE members for outstanding educational innovation in a field of interest of the IEEE.
\$1000 plus an engraved walnut and brass plaque.
- **IEEE EAB Pre-College Educator Award**
 - recognizes a pre-college teacher who has inspired an appreciation and understanding of math, science and technology and the engineering process in students and has encouraged students to pursue technical careers. \$1000 plus an engraved walnut and brass plaque. Special for this award only: all nominees will receive a certificate of recognition.
- **IEEE EAB Meritorious Service Citation**
 - recognizes IEEE members who are past members of the EAB or current or past members of EAB committees (other than currently serving on ARC) for outstanding and sustained service to the aims and objectives of the IEEE Educational Activities Board. An engraved brass and walnut plaque.
- **IEEE EAB Employer Professional Development Award**
 - recognizes organizations employing IEEE members for contributions to employee continuing education and professional development. An engraved brass and walnut plaque.
- **IEEE EAB Vice President's Recognition Award**

New Award: The EAB Vice President's Recognition Award was established in 2001 by the Educational Activities Board of the IEEE to give the Vice President for Educational Activities an opportunity to recognize IEEE Members who have had significant and substantial effect on the practice of engineering and of engineering education related to the mission of the EAB.

Brain Teaser Challenge Column

By Butch Shadwell

February BTC Solution

My last BTC certainly caused many folks to wax reminiscent. The good old days in the family De Soto when you would turn on the radio and have time to light your cigarette before the sound started coming out. These vacuum tube radios had an A voltage to operate the heaters in the tubes (usually 6 or 12vdc), and the B voltage supply for the plate voltage. The plate required upwards of 200 volts to operate efficiently so they used a step-up transformer. In order to make the transformer work on the automobile DC power system, a "vibrator" or "inverter" was employed. This was an electromechanical device using a simple buzzer type circuit to modulate the DC supply for the transformer. One of my 8th grade projects was to make just such a device. See the attached drawing.

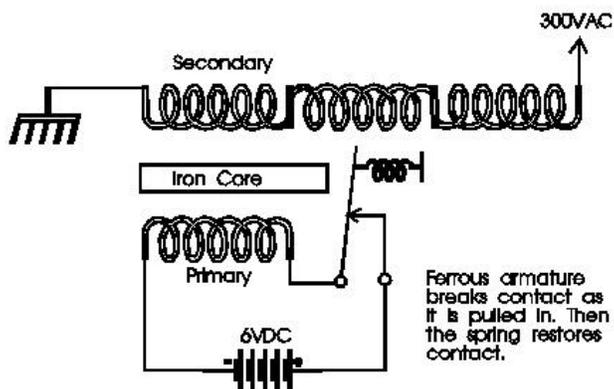
March BTC

By the year 3027AD man has developed amazing technology. People are transported wherever they wish in the twinkle of an eye by their in-home teleportation devices. Energy is abundant as we have discovered ways to use light and the higher energy radiations in ways 21th century man never imagined. All of our clothing is 100% disposable and recyclable. But, in spite of centuries of intensive research, the best way to buy beer is still in the glass bottle.

Besides the technical improvements man has also evolved spiritually. There is no more war on earth and, without racial prejudice, humanity has become a large homogenous family with a global human culture and similar range of physical traits. Of course some folks still prefer to live where they can see the leaves change color, while others like it hot. Our occupations now have no impact on our choice of locale as communication and transportation technology, have made that concern moot.

Most would assume that people of this age could not possibly find a source of anxiety (besides teenage kids of course). But one problem still plagues this Utopian society. Yes, keeping track of the remote control for the TV still leads to arguments and unrest in many households the world over. For a first grade project the children have been asked to design a device to help solve this problem. In this futuristic world a special piezo electric transducer has been developed that, when someone whistles near by, produces a 10uA DC current for 1mS. This signal is integrated by a capacitor (low pass filter) that develops 0.1 volts when stimulated in this fashion. This voltage is sensed and in turn an audible tone is generated to help folks find the errant remote. What is the capacitance of the integration cap described above?

Questions or comments to the Brain Teaser Challenge, please contact Butch Shadwell at 904-223-4465 (voice), 904-223-4510 (fax), b.shadwell@ieee.org (email), 3308 Queen Palm Dr., Jacksonville, FL 32250-2328. <http://www.se.mediaone.net/~butchs/>



March 2002 Calendar of Events

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5 <i>EXCOM at TECO Center Guest are always Welcome!</i>	6	7 <i>Joint USF, Student Branch, & MTT/AP/ED Meeting, 2PM at USF ENB 110</i>	8 <i>Material Due For the Signal</i>	9
10	11	12	13 <i>Joint Life Member/Section/ SP/COMM Meeting, Noon Sarasota Yacht</i>	14	15	16
17	18	19	20	21 <i>GOLD First Meeting, 6PM at Hops Restaurant S. Dale Mabry USF/MTT Mtg.</i>	22	23 <i>USF Bull-arney 2002 6:00PM at Embassy Suites</i>
24	25	26	27	28 <i>SP/COMM Meeting, 6PM at Raytheon Co. PES/IAS Tour Of Beckwith</i>	29	30
31						

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