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 SUNCOAST IEEE SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

http://ewh.ieee.org/r3/floridawc | Volume 47 - No. 10 | October 2004

Inside this Signal…

Joint SP/COMM Chapter Meeting

Joint Source and Channel Coding for Wireless Internet Robust Video Streaming

IEEE COMMUNICATIONS SOCIETY

IEEE Signal Processing Society

Date: Thursday, October 14, 2004
Time: 5:00 PM
Location: University of South Florida, Room **ENB 109**
Speaker: Dr. Chang W. Chen,ECE Dept., FIT
Reservations: www.ewh.ieee.org/r3/floridawc/

Abstract: We will present an overview of recent advances in streaming media and several major technical challenges in robust video streaming, and a joint source and channel coding approach to robust video streaming over Internet and wireless links. Since both Internet and the wireless channels are generally time varying, error prone, and often band-limited, the streaming of video poses significant challenges. On one hand, video signals need to be compressed to meet the various bandwidth constraints of heterogeneous users. On the other hand, the compressed video signals become very sensitive to packet loss and channel errors. Therefore, an optimal scheme for robust video streaming would need to balance between the compression (redundancy reduction) and error correction coding (controlled redundancy). In this talk, a novel scheme based on joint source and channel coding is presented. Through this scheme, we show that a robust streaming of video signals over Internet and wireless channels can be designed when we simultaneously consider distortions due to compression (source coding) and the distortion due to channel errors. Experimental results show that this approach is able to achieve an improved performance in video streaming over both Internet and wireless links.

Brief Biography: Chang Wen Chen is Allen S. Henry Endowed Chair Professor in the Department of Electrical and Computer Engineering and the Director of Wireless Center of Excellence at the Florida Institute of Technology since 2003. Previously, he was on the faculty of Electrical and Computer Engineering at the University of Missouri-Columbia and the University of Rochester. From September 2000 to October 2002, he served as the Head of the Interactive Media Group at the Sarnoff Corporation in Princeton, NJ. He has also consulted with Kodak Research Labs, Microsoft Research, Mitsubishi Electric Research Labs, and NASA Goddard Space Flight Center. He has received Awards from NSF, NASA, and the Whitaker Foundation. Two of his Ph.D. students have received Best Paper Awards in visual communication and medical imaging, respectively. He is serving as an Associate Editor for IEEE Trans. Multimedia and IEEE Trans. Circuits and Systems for Video Technology (CSVT). He is also an editor for the Journal of Visual Communication and Image Representation.

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 **7th day** of the month preceding the issue month. Address all correspondence to:

Prof. Srinivas Katkoori,
4202 E. Fowler Avenue, ENB 118, Tampa, FL 33620.
Voice: (813) 974-5737 Fax: (813) 974-5456
E-MAIL: katkoori@ieee.org

Chair's Comments

By John Conrad

It is with very mixed feelings that I must resign my position as Chair of the Florida West Coast Section. I recently accepted the offer of a job in Boston. We have sold our house and my wife, Carol, and I will probably have already moved north by the time you read this newsletter.

It was a very difficult decision for us both. We have been in Tampa for nearly seven years, made great many friends and really thought we were here for the duration. However we have reluctantly come to conclusion that I have to earn a living and need to return to the frozen north.

I want to thank every one of you who have helped me so much as I have struggled with all the issues associated with a leadership position in the IEEE. It has been a wonderful learning experience and as a result I am now eager to make new friends in Region One where I hope to continue as an active IEEE volunteer.

Art Nordlinger will finish out my term as Section Chair with the exceptional help from such dependable dedicated volunteers such as Jim Howard, Jim Beall, Ralph, Tom, Jules, Richard, and all the rest. I have no doubt that I am leaving you in very good hands.

Thank you for a wonderful time.

PES/IAS Meeting

CAE Flight Simulator Tour

WHEN: Monday, 11th October 2004 11:30AM – 1PM
COST/LUNCH: Due to security, no lunch will be provided
LOCATION: 4908 West Blvd., Tampa
DIRECTIONS: From Veterans Expressway, Waters Ave Exit, go East turn right on Anderson to West Blvd.
PLEASE RSVP: Number of attendance is limited to 20. Deadline is Monday 4th October. Call Ghaff Khazami at (813)-960-0990; Email: gkhazami@ieee.org
RESERVE ONLINE: http://www.weiquality.com/fwcs-meetings/

PES West Coast Chapter invites you to a tour of CAE USA Inc. based in Tampa, Florida. CAE designs and develops simulators, training systems and provides a range of training support services for the U.S. military services and others. The C-130 Training Center provides comprehensive aircrew and maintenance training to operators of the C-130/L-100/L-382 Hercules aircraft. Instructors will guide you around the facility, explain the simulators and perhaps take you to a simulated flight; you will see how their system of pilot training works and learn more about computerized flights and simulation technology. Pilots around the world regard the simulation as the closest thing to the true experience of flight. CAE delivers breakthrough visual realism, precise cockpit replication, and high-fidelity avionics simulation. Flight and ground-handling characteristics indistinguishable from the aircraft. CAE has supplied major and regional airlines, aircraft manufacturers and independent training centers with over 400 full flight simulators for more than 50 different aircraft types and helicopters.

IEEE Florida West Coast Section loses a dedicated member to Region 1!!

John Conrad, the president of the IEEE Florida West Coast Section is leaving to Boston to take up a new job!! John has been a dedicated president of the Section and we will miss him very much!! John is a dynamic and visionary leader. The Section has gained new energy and enthusiasm under his leadership. He has motivated several members to contribute their best to the Section. He has revitalized the link between the Section and the several IEEE student chapters. Under his leadership, high school science fairs have been supported by the IEEE Section. John has been responsible to bring online the IEEE Section seminars and executive committee meeting organization. With John's move to Boston, we lose a dedicated member and leader. The IEEE FWCS congratulates John and his wife, Carol, on his new job and wishes them the very best.

Seven FWCS Members Elevated to IEEE Senior Membership

The following Seven Florida West Coast Section Members were recently elevated from Full Membership to Senior Membership: Edward J. Foster, Mace D. Hunter, Thomas W. Huseby, Erwin T. Jauch, Miguel A. Labrador, Anthony D. Leotta, and Joseph P. Prezzama.

Hearty Congratulations!!

CAREER OPPORTUNITIES

Beckwith Electric Co., Inc., located in Largo, Florida, is a leading manufacturer of innovative high quality products, technical services and solutions for the electric utility industry. We are seeking qualified candidates for the following positions.

TEST ENGINEER FOR R&D ENGINEERING

Performs design type testing of Electrical Power System Protective Relays and Controls. Studies product specifications, product design documents including hardware schematics, software flowcharts and prepares product test procedures both for type testing and production testing. The design type testing includes: product functional (firmware) testing; user interface (both front panel HMI and graphical user interface software using PC); communications protocols such as DNP and MODBUS; hardware/environmental testing such as EMC, hi-pot, Surge Withstand Capability, ESD etc.

BSEE with three to five years (Associate degree with five to eight years) of experience at an electrical power industry dealing with power system protection and control products and their applications is required. Familiarity with relay/control test equipment from Omnicron, Doble or Pulsar and their automated software is required.

RELAY APPLICATION ENGINEER

Responsible for the proper application of Protective Relay Systems for our customers in the power utility industry. With new or existing customers, provides technical and commercial proposals and solutions. Responds to customer calls regarding products and their application or operation. Works closely with Marketing and Sales departments to achieve company objectives and goals. Must have a four-year degree, BSEE preferred, and have three to five years of related experience. Familiarity with test equipment, control diagrams, and one-line diagrams with the ability to analyze and troubleshoot operations is required. Knowledge of Act, MS Word and Outlook required. Domestic and international travel is required.

QA TEST ENGINEER

Responsible for the proper application of Protective Relay Systems for our customers in the power utility industry. With new or existing customers, provides technical and commercial proposals and solutions. Responds to customer calls regarding products and their application or operation. Works closely with Marketing and Sales departments to achieve company objectives and goals. Must have a four-year degree, BSEE preferred, and have three to five years of related experience. Familiarity with test equipment, control diagrams, and one-line diagrams with the ability to analyze and troubleshoot operations is required. Knowledge of Act, MS Word and Outlook required. Domestic and international travel is required.

Our Compensation Package includes a Competitive Salary, Paid Vacation and Holidays, Profit Sharing & 401(k) Retirement Plan, Health/Dental Insurance, Life and Short/Long Term Disability Insurance and Educational Assistance.

BECKWITH ELECTRIC CO.INC.

6190 118th Av. N., Largo, FL 33773
Fax: (727) 544-2015
Job Line: (727) 545-7660
jobs@beckwithelectric.com
www.beckwithelectric.com
Drug Free Workplace EOE

DESIGN ENGINEER FOR R&D/ENGINEERING

Responsible for research, design, develop, debug and integrate real-time embedded software, in conjunction with hardware product development for power systems protection and control products. With new or existing customers will design embedded control software using Assembly, C, or other higher level languages; have knowledge of DSP algorithms (Discrete Fourier Transform, convolution, signal filtering, correlation techniques, sampling theory) for use in power systems protection and control applications; use C++/Visual C++ to develop MS Windows based software packages; develop software for communication protocols (such as DNP, MODBUS); and have solid knowledge of RTOS and BSP development. Knowledge of TMS320C55xx and the Motorola cold-fire architecture is a plus. Should also have excellent communications skills (verbal and written).

Must have a BS in EE or CE with 4+ years experience in embedded system, DSP software development and graphical user interface design using C++. Or a MS in EE or CE with 2+ years experience in embedded system and DSP software development and graphical user interface design using C++. Must also have experience using digital oscilloscope, digital logic analyzer, in-circuit emulator, MathCad, Window-based and Linux-based platforms, PVCS, MS office.

Our Compensation Package includes a Competitive Salary, Paid Vacation and Holidays, Profit Sharing & 401(k) Retirement Plan, Health/Dental Insurance, Life and Short/Long Term Disability Insurance and Educational Assistance.

BECKWITH ELECTRIC CO.INC.

6190 118th Av. N., Largo, FL 33773
Fax: (727) 544-2015
Job Line: (727) 545-7660
jobs@beckwithelectric.com
www.beckwithelectric.com
Drug Free Workplace EOE

Programmable Logic User Group

PL-UG FEST 2004

WHEN: Thursday, October 28, 2004 at 8:00 am to 5:00 pm
LOCATION: Holiday Inn, 3535 Ulmerton Road, Clearwater.
RESERVE ONLINE: www.ewh.ieee.org/r3/floridawc/
CONTACT: Mr. Jack Killingsworth**,** Email: j.killingsworth@ieee.org

Bring a guest; non-members welcome!

The Programmable Logic Users Group (PL-UG) is sponsoring a day of presentations for designers and users of FPGA, CPLD and other programmable devices. Applications engineers from leading device manufacturers and EDA companies will be presenting. See www.pl-ug.org for developing details and registration or you may register on this Computer Society / AESS site

There will also be the following presentations and tutorials by local engineers:

- Technical Report on Reconfigurable Computing by Jermy Ramos
- TUTORIAL - Bus Functional Model Development by Jack Killingsworth
- TUTORIAL - Code Coverage by Kent Ulrich

Additional Information: FREE ADMISSION TO EXHIBITS, FREE TECHNICAL PRESENTATIONS, FREE TUTORIALS, FREE LUNCH, FREE BREAKFAST, FREE MID AFTERNOON SNACKS.

Wow, Joint PE/IA and Section Meeting - A Great Hit!!

Were you one of the attendees that braved the weather (heavy, heavy rain) to attend last month's meeting on "Hybrid Car Technology in 2004"? If so, you were provided with a great deal of information on the current technology of the Hybrid vehicles and a chance to view them as well. Four of the attendees brought they own Hybrid's for the audience to view, ask questions about, and have the opportunity to seat in. A Special Thanks to these attendees for sharing they vehicle and experiences with us. Some of the key factors we learned about these vehicles:

- They are getting better and better with each new model.
- They are heavy - about 3,400 lbs.
- The batteries come with a 8 year warranty.
- The power trains come with a 10 year warranty.
- The entire vehicle has a 3 year, 36,000 mile bumper to bumper warranty.
- The AC on the new models utilizes a 3 phase, 240 volt electric motor.
- In some cases, there is presently a waiting list for purchasing a Hybrid.
- Miles per Gallon ranged from 40 to 60.

Don't miss the next PE/IA tour of CAE, so you can view and experience a factory where simulators are created.

Attendees listen to the guest speaker - Mr. David Wright from Stadium Toyota.

Mr. David Wright from Stadium Toyota gave a very interesting presentation on Hybrid Vehicles.

Attendees gather around the Lakeland Electric Hybrid car. Lakeland Electric presently has four of these vehicles.

Attendees gather around the Lakeland Electric Hybrid car. Lakeland Electric presently has four of these vehicles.

MTT/AP/ED November Meeting

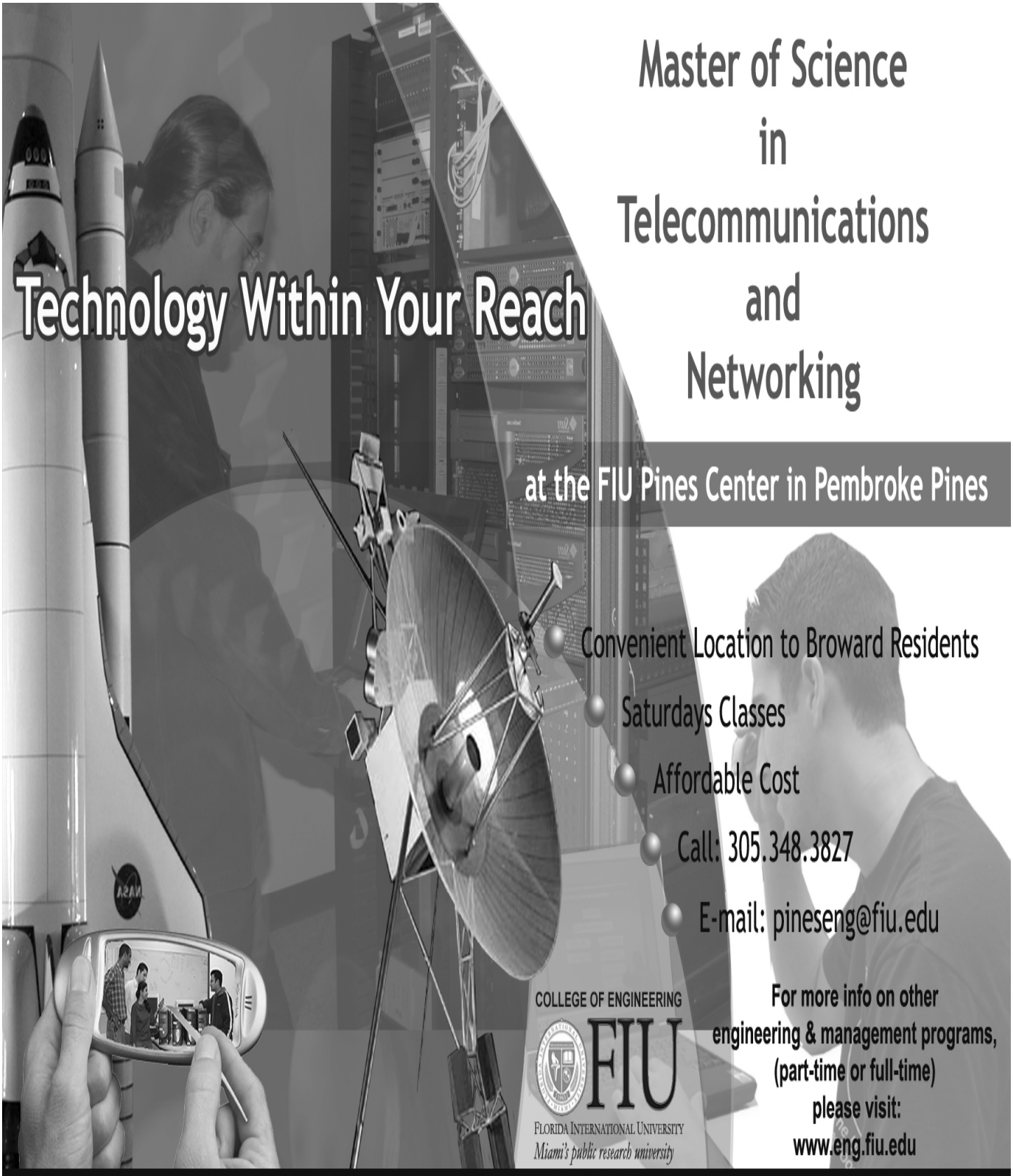
Recent Advances in High Performance Communication Modules and Circuits

WHEN: Thursday, November 11, 2004 6:00 pm
SPEAKER: Dr. Joy Laskar, School of Electrical and Computer Engineering
Georgia Electronic Design Center, Georgia Institute of Technology
LOCATION: To Be Announced
PLEASE RSVP: Leave name & country of citizenship with Ken O'Connor at (727) 302 2357.
Email: kenoconnor@ieee.org

Bring a guest; non-members welcome!

ABSTRACT: There is no question that the networks of the future require functional improvement along each of the important transmission media: wireless and wired (optical and copper). However, an even more daunting challenge is the integration and coexistence of these technologies in both function and form. We present several important enabling technologies for future integrated multifunctional systems. The System-on-Package (SOP) paradigm provides a highly integrated, microminiaturized, multifunctional systems technology that optimizes the IC and the package implementation. In this presentation, we will review the evolutionary trends in IC and module integration and how these trends are bounded by advanced communication applications. We consider the development of new module technologies for applications to mmW Gb wireless nodes and for active isolation in wireless systems.

BIOGRAPHY: Dr. Joy Laskar received the Ph.D. degree in Electrical Engineering from the University of Illinois at Urbana-Champaign in 1991. Prior to joining Georgia Tech in 1995, Dr. Laskar held faculty positions at the University of Illinois and the University of Hawaii. At Georgia Tech, he holds the Joseph M. Pettit Professorship of Electronics and is the Director of Georgia's Electronic Design Center. He has authored or co-authored more than 200 papers, several book chapters (including three textbooks in development), numerous invited talks and has filed 25 patents. Most recently his work has resulted in the formation of two companies: an advanced WLAN IC Company: RF Solutions, now part of Anadigics (Nasdaq: Anad) and a next generation interconnect company: Quellan which is developing collaborative signal processing solutions for enterprise applications. He is a 1995 recipient of ARO's Young Investigator Award, a 1996 recipient of the NSF's CAREER Award, the 1999 co-recipient of the IEEE Rappaport Award, the faculty advisor for the 2000 IEEE MTT IMS Best Student Paper award, 2001 Georgia Tech Faculty Graduate Student Mentor of the year, the 2003 Clemson University COE Outstanding Young Alumni Award and the 2003 recipient of the Outstanding Young Engineer of the IEEE MTT Society. For the 2004-2006 term, Professor Laskar has been appointed an IEEE Distinguished Microwave Lecturer for his seminar entitled "Recent Advances in High Performance Communication Modules and Circuits."


Technology Within Your Reach
Master of Science
in
Telecommunications
and
Networking
at the FIU Pines Center in Pembroke Pines
Convenient Location to Broward Residents
Saturdays Classes
Affordable Cost
Call: 305.348.3827
E-mail: pineseng@fiu.edu
COLLEGE OF ENGINEERING
FIU
Florida International University
Miami's public research university
For more info on other
engineering & management programs,
(part-time or full-time)
please visit:
www.eng.fiu.edu
The M.S. in Telecommunications and Networking (Systems and Networks Track) at FIU is an interdisciplinary, innovative blend of courses in telecommunications, networking, software, engineering and management policy, taught by world renown faculty.

IAS Distinguished Lecturer Series

Industrial Power Systems: A Facilities Engineering Perspective

Date: Monday, November 15, 2004 **Time**: Registration and Lunch 11:00 AM - 12:00 noon Lecture - 12:00 NOON - 1:00 PM **Speaker**: BARRY C. BRUSSO, Principal Facilities Engineer and Manager Electronic Systems Support, S & C Electric Company **Location**: TECO Hall, Tampa Electric Company, 702 N. Franklin Street, Tampa **Space is limited to 35 attendees.**	**Cost:** Members $10, non-members $15, student members $5 Please make checks payable to: IEEE – FWCS **Parking:** Metered street parking is available. Reasonably priced parking is also available at the Ashley Street Garage next to the Public Library, approximately two blocks from TECO Plaza. **RSVP**: http://www.ewh.ieee.org/r3/floridawc/ **Questions**: Tom Blair at 813-228-1111, ext 34407 or thblair@tecoenergy.com

Abstract: Typically the resident plant facilities engineering staff for an industrial facility are ultimately involved in the day to day on site performance, application, operation and maintenance of the plant power systems. It is critical to have this staff take the lead in planning, design, preparation of specifications, installation oversight and commissioning of new power systems. We will focus on the facilities engineers' role as the owner's representatives and the engineering steps they must follow to reach the project objectives associated with new and retrofitted industrial power systems.

Brief Biography: Barry C. Brusso received the B.S.E.E. degree from the University of Illinois (Champaign-Urbana) in 1967 and joined the Westinghouse Electric Corp. the same year. He joined Fidelity Electronics Ltd., in 1975 as Senior Engineer in the Biomedical Engineering Division, with overall responsibility for development and production. In 1978, he joined the S&C Electric Company as Facilities Engineer in the Plant Engineering Division and presently holds the dual positions of Principal Facilities Engineer and Manager – Electronic Systems Support with overall responsibility for electrical engineering of the manufacturing facilities and design and fabrication of the product's quality inspection testing equipment. For over 21 years, he managed the Metrology and Communication Systems Department maintains corporate standards and performs calibrations of the measuring and test equipment for the entire company. Barry has served as a member-delegate to the National Conference of Standards Laboratories for over 10 years. He is an IEEE Fellow, recipient of the IEEE Third Millennium Medal and a member of the following IEEE Societies: Industry Applications, Dielectrics and Electrical Insulation, Instrumentation and Measurement, and Power Electronics.

Brain Teaser Challenge Column

By Butch Shadwell

September BTC Last time I was discussing a special TES device employing an "infrared photo-detector, or QWIP. …, we illuminated it with an IR LED at 1 meter distance, with the sensor in the center and perpendicular to the transmission axis of the LED. Our QWIP has an area of 0.1 cm^2 and the LED emits 20 mw/Sr. With a photo-responsivity at this wavelength of 0.6 A/W, what current should we see from this detector during this test?"

This problem is really a pretty simple matter of calculating the number of steradians subtended by the area of the receiver and then multiplying that figure times the emitter output power per steradian and then the receiver responsivity.

So to calculate the steradians on the receiver we take the distance in cm and square it, which gives us 10,000 cm^2. Then this figure is divided into the area of the receiver, yielding a solid angle of 1×10^{-5} steradians. This figure times the output power per steradian tells us that the receiver will be exposed to 2×10^{-7}watts of IR illumination. The final step is to apply the receiver photo-responsivity value, which tells that the receiver current in this case will be 1.2×10^{-7} amps. But I bet you already knew that.

Continued on Page 10…

October BTC Have you ever really considered the importance of toes? I have recently had occasion to visit a podiatrist and he went on at some length about how I had some messed up toes. I would never have given them a second thought if this medical genius hadn't decided to give me an emotional trauma that I may never get over. If your toes are healthy and normal, you should thank your lucky stars. Believe me, the heartbreak and embarrassment one can experience when forced to wear flip-flops is not for the faint of heart. You find yourself watching everyone's eyes to see if they are glancing downward excessively. And you know that if they drop something, it can only be a ruse to get a closer look at your physical deformity.

I have to go back on Tuesday to see about getting orthodics fitted. I suspect they are of little value, but you like to humor these people. I noticed on my last visit, the doctor had his assistant take a series of x-rays with their own special foot x-ray machine. In an x-ray tube the x-rays are produced by bombarding a metal plate with an electron beam. If the assistant controls the x-ray flux density by setting the current of the beam, who can tell me what happens when she adjusts the voltage? I'll let you know how the orthodics workout in a future column.

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.

Developing New Coding and Modulation Methods to Exploit Space, Time, and Frequency Diversities

IEEE COMMUNICATIONS SOCIETY

Raytheon

IEEE Signal Processing Society

Date & Time: 6PM, Thursday, November 11, 2004
Location: Raytheon Company, 1501 72nd Street North, St. Petersburg, FL
Speaker: **Dr. K. J. Ray Liu,** Dept. of ECE and Institute of Systems Research, Univ. of Maryland, College Park
Reservations: Please http://www.ewh.ieee.org/r3/floridawc/ or notify Dr. Mohamed Nezami at (727) 302-3412.

Abstract: First, we will briefly review some of existing space-time block codes (STBCs) that can guarantee full diversity in space and time domains. Then, we will focus on the STBCs from orthogonal or block-orthogonal designs. These codes not only achieve full diversity, but also have a very simple maximum-likelihood (ML) decoding algorithm. Finally, we will talk how to combine orthogonal or block-orthogonal designs with sphere packing to further increase the coding advantage. We will briefly review previous works on Space Frequency (SF) coding. Then, we will introduce a systematic design method to construct full-diversity SF codes by taking advantage of the existing Space-Time (ST) codes and discuss an approach to design SF block codes that can guarantee full-rate full-diversity transmission in MIMO-OFDM systems. Finally, if coding delay is allowed, we will discuss how to obtain a Space-Time-Frequency (STF) code that reaches the maximum achievable diversity in space, time, and frequency.

Speaker Brief Biography: Prof. K. J. Ray Liu received the B.S. degree from the National Taiwan University in 1983, and the Ph.D. degree from UCLA in 1990, both in EE. He is a Professor and Director of Comm. and Signal Processing Laboratories of ECE Department and Institute for Systems Research of University of Maryland, College Park. His research contributions encompass broad aspects of wireless communications and networking in which he has published over 300 refereed papers. Dr. Liu is the recipient of numerous honors and awards including IEEE Signal Processing Society 2004 Distinguished Lecturer, the 1994 NSF Young Investigator Award, the IEEE Signal Processing Society's 1993 Senior Award (Best Paper Award), George Corcoran Award in 1994 and Engineering Faculty Award in 1996 (both from the University of Maryland). Dr. Liu is a Fellow of IEEE. Dr. Liu is the Editor-in-Chief of IEEE Signal Processing Magazine and was the founding Editor-in-Chief of EURASIP Journal on Applied Signal Processing.

Students' Corner

One of the responsibilities of the IEEE Student Branch is to host an S.P.A.C. Conference. The Student Professional Awareness Conference (S.P.A.C) is specifically designed to cater to all engineering students, with topics ranging from Engineering Careers to the importance of a P.E. License. This year, SPAC will be held in conjunction with the Engineering Career Symposium at the Gibbons Alumni Center from 4pm – 6pm. Ms. Erna Grasz of Nellcor, California and Mr. Art Nordlinger of TECO, Tampa will be our featured speakers. Ms. Grasz will focus on "Opening and Closing the Deal – Successful Interviewing and Offer Negotiations" and Mr. Nordlinger will discuss "The Importance of a P.E License". This event presents a chance for students of all engineering disciplines to gain excellent interviewing tips and to interact with industry professionals and other students. Get those resumes in order for the Engineering Symposium and your notepad for SPAC and we'll see you there!! Visit SPAC online: www.ieee-spac.org.

Other events for October include the semi annual FWCS-IEEE Student Branch Picnic. Our picnics have had an excellent turnout since their debut in the Spring of 2003 and we hope to see all our old friends as well as make some news ones, mark your calendars - October 23rd as the social picnic of the month!

IEEE T-shirts are now on sale! Stop by the IEEE Office (ENB 380-C) and get yours today, shirts cost $10 and are available in sizes S, M, L, XL.

October 9th – 16th – Homecoming Week
October 13th – IEEE Student Branch Meeting
October 18th – Student Professional Awareness Conference
October 23rd – FWCS – IEEE Student Branch Picnic @ Riverfront Park
November 10th – IEEE Student Branch Meeting
December 3rd – Fall Senior Awards Banquet

IEEE Research Experience for High School Students

By Carlomagno B. Dionson

Earlier this year, the IEEE FWCS supported a program that was geared towards allowing exceptional high school students to participate in various fields of engineering research at the University of South Florida. The idea came about from IEEE's involvement with the local science fairs and Dr. Rudy Schlaf's Research Experience for Undergraduates program. IEEE members participated as science fair judges and recommended the top notch participants. Thus, the Research Experience for High School Students (REHS) was born.

The initial run consisted of the following:
(1) Aaron Wise mentored by Suzie Harvey; (2) James Chiappone mentored by Anthony Joseph Cascio; (3) Michael Vente mentored by Igor Tarasov; (4) William Paul Skelton mentored by Praveen Kumar Sekhar; (5) Lina Zukov mentored by Maciej Dybiec; (6) Kristin Koslowski mentored by Chris Braunagel.

The students helped out on various projects such as electrospray, photoluminescence, characterization of silicon wafers, etc. One student even showed off her carpentry skills by building a platform to protect the wires scattered on the floor, which increased lab safety and the reliability of the instruments (no more tripping the wires). Another student managed to learn AutoCAD in a very short time and ended up teaching some of the researchers a few tricks and shortcuts.

Overall, the initial IEEE REHS run was deemed a success. It was concluded by a social gathering at USF on August 4, 2004. Although many of the mentors were not able to make it, most of the high school students were there to share their experiences. All of them agreed that it was a great program.

"It was amazing to see how much research is going on," said Kristin Koslowski, "I learned a lot in a very short amount of time." Michael Vente added, "I learned that a lot of knowledge is right under our noses and through simple tests we can learn much." Very true, indeed! As shown by our simple test of a research experience program, there is much we can learn --- and teach. This program has a great potential, and we hope to continue it in the future.

FREE Admission to Exhibits

Southcon®/2005 *FREE VIP Registration*

February 16-17, 2005
Orange County Convention Center
Orlando, Florida

Save $25 / Fax Back to 813-996-4460

Priority Number

9-90101

How to Register

Mail Deadline - January 21, 2005
Southcon 2005
1514 First Street
Manhattan Beach, California 90266

FAX Deadline - February 11, 205
813-996-4460
Please do not both fax and mail

Electronically www.southcon.org
After January 21, 2005 badges will be held for pick-up at the Orange County Convention Center.

On-Site
Bring this form with you to Southcon/2005 for FREE admittance.

1.

First Name _____ Last Name _____

Job Title _____ E-mail _____

Company _____

Mailing Address _____ Mail Stop _____

City _____ State _____ Zip _____ Country _____

( ) _____ ( ) _____
Telephone Fax

2. Principal Job Function
(check only one)

- ☐ AA Engineer - Design
- ☐ AB Engineer - Manufacturing
- ☐ AC Engineer - Quality/Test
- ☐ AD Engineering Services
- ☐ AE Engineering Management
- ☐ AF Corporate/General Management
- ☐ AG Press
- ☐ AH Purchasing/Procurement
- ☐ AJ Marketing/Sales
- ☐ AK Student/Educator
- ☐ AL Other

3. What is the Primary End Product at this Location
(check only one)

- ☐ CA Communication Systems
- ☐ CB Components/Materials/ Hardware Supplies
- ☐ CC Computers/Systems and Sub-systems
- ☐ CD Consumer Products, Automotive & Appliances
- ☐ CE Contract Services-Design/ Manufacturing/Test/ IC Foundry etc.
- ☐ CF Controls
- ☐ CG Military/Government/ Avionics
- ☐ CH Medical Electronics
- ☐ CJ Semiconductors/ICs
- ☐ CK Test/Measurement/ Inspection
- ☐ CL Distributors
- ☐ CM Other

4. Product Interest - Which of the following do you specify, recommend, approve, purchase or influence the purchase of?
(check all that apply)

- ☐ BA ASICs, PLDs, FPGAs
- ☐ BB Board Level Products
- ☐ BC Semiconductors/ICs
- ☐ BD Components other than IC's
- ☐ BE Computers/Peripherals/ Software
- ☐ BF Contract Services - Design/Manufacturing/Test
- ☐ BG EDA Tools & Engineering Software
- ☐ BH Interconnection Devices
- ☐ BJ Laser & Electro-Optical Devices
- ☐ BK Microwave Components
- ☐ BL Packaging Hardware/ Enclosures
- ☐ BM Power Sources
- ☐ BN Production Equipment
- ☐ BP Production Tools & Supplies
- ☐ BQ Sensors & Transducers
- ☐ BR System Boards
- ☐ BS Test & Measurement Equipment
- ☐ BT Other

5. Years Involved in Industry

- ☐ DA 1 - 2
- ☐ DB 3 - 5
- ☐ DC 6 - 9
- ☐ DD 10 or more

6. Size of your organization

	At Your Location	In Entire Company
1 - 49	☐ EA	☐ EB
50 - 99	☐ EC	☐ ED
100 - 499	☐ EE	☐ EF
500 - 999	☐ EG	☐ EH
1,000 or more	☐ EI	☐ EJ

- ☐ GA **I would like to receive show and conference updates via e-mail**
- ☐ GB **Send me complete Technical Program Information**

I am a member of (or referred by) ☐ IEEE ☐ ERA

Southcon®/2005
February 16-17, 2005
Orange County Convention Center
Orlando, Florida

Persons under 18 years of age not admitted. Students 18 or older admitted on Thursday, February 17, only.

Also, please register my colleagues: Express Registration Free Admission-Exhibits Only.

First Name _____
Last Name _____
Job Title _____
Mail Stop _____

5-90101

First Name _____
Last Name _____
Job Title _____
Mail Stop _____

5-90101

www.southcon.org **310-937-1006**

Re-thinking your applications with AC drives

Date: December 2, 2004

Time: Registration and Coffee – 8:00 AM - 8:30 AM
Morning Session - 8:30 AM – NOON
Lunch Provided– NOON – 12:30 PM
Afternoon Session 12:30PM – 3:00 PM

Speaker: Norm Lindner, Drive Applications Engineer, Eurotherm Drives
Stacy Matin, National Sales Manager – HVAC Industry, Eurotherm Drives
Brad Hagar. President, Motion-Controls Inc.

Location: TECO Hall, Tampa Electric Company, 702 N. Franklin Street, Tampa
Space is limited to 35 attendees.

Cost: $20 Members, $30 Non-Members, $5 Student Members

PDH Credits: 4 PDH credits will be offered for completion of the morning session. Be sure to enter you name and PE number as it appears on your license. Florida exempt provider #00015.

RSVP: Online at: **http://www.ewh.ieee.org/r3/floridawc/**
Questions: Tom Blair at 813-228-1111, ext 34407 or thblair@tecoenergy.com

If you've ever been confused about how to justify using drives on your application, this seminar is for you. *Learn to avoid the pitfalls and gotchas when using AC drives! If you want practical real-world payback examples in action, this is the place to be!* In one short day, you will walk away with a thorough, practical understanding of drives as they relate to your industry. *The morning session will cover the technical aspects of drive applications and must be attended for PDH credits to be awarded.* You'll discover:

- ✓ *AC drives regeneration and common bussing – what's it all about?*
- ✓ *Hidden installation costs when applying drives*
- ✓ *Which drive type to select for your application and why.*
- ✓ *Why AC vs. DC isn't always a straightforward decision.*
- ✓ *Why holding off on using drives can cost you now.*
- ✓ *How to easily calculate drive payback* ***and save many times your original investment.***

Key topics that will be covered:

- Payback: economics of the drive decision: Real-world energy savings and applications examples.
- Deciding whether DC or AC or Servo drives are right for the application
- Benefits and pitfalls of each drive type
- Dealing with regenerative loads
- Motor issues on DC and AC drives
- Open vs. closed loop: V/Hz, Vector & Sensorless Vector drives unraveled.
- Performance issues on DC, AC and Servo Drives
- How future trends in the drives industry will affect you
- Power Factor, harmonics and power quality concerns
- Learn about servo lines, the 637 and the new 890+ Series Servo drives

October 2004 Calendar of Events

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5 *5:30PM IEEE FWCS EXCOM Mtg., TECO Hall, Tampa*	6	7	8	9
10	11 *11:30-1PM: PES/IAS Mtg., CAE Flight Simulator, West Blvd., Tampa*	12	13	14 *5:00 PM: SP/COMM Mtg., Wireless Internet Video Streaming, USF*	15	16
17	***18*** *4-6PM: SPAC Conference, Gibbons Alumni Center*	19	20	21	22	23 *IEEE Student Branch Picnic, Riverfront Park*
24/31	25	26	27	28 *8AM – 5PM PLUG FEST 2004, Holiday Inn, Clearwater*	29	30

Institute of Electrical and
Electronics Engineers, Inc.
Florida West Coast Section
3133 W. Paris
Tampa, Florida 33614

Sections Congress 2005 is coming to Tampa!

NON PROFIT
ORG
U.S. POSTAGE
PAID
TAMPA, FL.
PERMIT
No. 1197

DATE SENSITIVE MATERIAL. DO NOT DELAY

Change of address? IEEE Web Contact Update http://www.ieee.org/membership/coa.html
Or send address changes including your name, IEEE Member number and all pertinent information to:
IEEE, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331 or call (800) 678-4333
Or fax your address changes to (732) 562-5445