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This Month's Meetings

August 4th: EXCOM Meeting Meeting starts at 5:30PM At TECO Plaza Register online at <u>http://time2meet.com/fwcs-excom/index.html</u> Meeting is open to all FWCS members

and guests

Presentation and Tour of Tampa Armature Works Friday, August 21, 2009 11:30am to 1:00pm See page 4

2009 IEEE/LEOS International Conference on Optical MEMS and Nanophotonics

> August 16 – 21, 2009 Location: Clearwater Hilton

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This Month...(Editor's Column)

Letter to the editor

IT'S TIME TO VOTE!

It is that time in the IEEE year to vote. Sadly, for many years the response to the ballot has been very poor. Electing persons and changing the constitution with less than a 25% return. So read the material and position statements of the candidates, then cast your ballot. Do it now, don't let it slide until it is too late.

Over the years, based on my knowledge of the candidates, I have been asked who I would vote for. I have usually had an answer. This year is no different. There are two positions on the ballot of particular interest. For IEEE President Elect, Joseph Lillie. I have known Joe since 1992. He is a foreword thinking person who really cares about the IEEE members.

He has had a world of experience in IEEE and knows how and where to get the job done. For IEEE-USA President Elect, James Howard. I have known and worked with Jim for over 20 years on IEEE activities. His knowledge on the history and activities of IEEE-USA is fabulous. He is the right person for the job.

James H. Beall, Life Fellow





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NEWS from IEEE-USA

Unemployment Rate for Electrical Engineers Soars to New Record, Engineering Jobless Rate Up for Second Consecutive Quarter WASHINGTON (7 July 2009) --The unemployment rate for U.S. electrical and electronics engineers (EEs) hit a new record in the second quarter, while the rate for all engineers increased for a second straight quarter, according to data released last week by the Department of Labor's Bureau of Labor Statistics (BLS). "Technology drives our economy, which means engineering unemployment is a bellwether for recovery and job creation," IEEE-USA President Gordon Day said. "These new data suggest we've got a long way to go as the United States attempts to regain its economic footing."

The news for EEs was particularly bad as the jobless rate more than doubled from 4.1 percent in the first quarter to a record-high 8.6 percent in the second. The previous quarterly record was 7 percent, in the first quarter of 2003. For all engineers, the unemployment rate jumped from 3.9 percent in the first quarter to 5.5 percent in the second quarter. The rate for computer professionals steadied at 5.4 percent, after a significant jump in the first quarter. The second-quarter unemployment rate for all professional workers showed a modest uptick, from 3.7 percent to 4.3 percent. The BLS reports that 29,000 EEs were unemployed in the second quarter, up from the firstquarter figure of 13,000. On a small positive note, the number of employed EEs seems to have stabilized, actually rising 2.3 percent quarter-to-quarter, but at levels well below those of the past decade.

"Taken together, these data may suggest that engineers laid off last year and early this year are having trouble securing the new engineering jobs being created," Day said. IEEE members can find career enhancement resources at <u>http://www.ieeeusa.org/careers/</u>. Help for unemployed and at-risk members is available at <u>http://www.ieeeusa.org/careers/help/</u>. IEEE-USA advances the public good and promotes the careers and public policy interests of more than 210,000 engineers, scientists and allied professionals who are U.S. members of IEEE. IEEE-USA is part of IEEE, the world's largest technical professional society with 375,000 members in 160 countries. See <u>http://www.ieeeusa.org</u>.





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Presentation and Tour of Tampa Armature Works

Date:	August 21, 2009						
Time:	Meeting: 11:30am-01:00pm (includes Lunch)						
Cost:	No Cost to Members, \$20 for Non-Members						
Speaker:	Jeff Shallbetter						
Location:	Tampa Armature Works						
	6312 78th St						
	Riverview, FL 33578						
RSVP:	Online at: <u>http://time2meet.com/fwcs-pes2/index.html</u>						
Space limited to the first 30 registrants!!!							

Questions: Serge Beauzile at 727-344-4123 or Serge.Beauzile@ieee.org

A presentation will be given on TAW's Customer Equipment's overall production process and the technical aspects of the products TAW Custom Equipment can produce at this location. After the presentation and lunch, the attendees will get the opportunity to tour the manufacturer facility including the testing operations for auto transfer switchgear, the fabrication shop, and the overall production/assembly process.

TAW Custom Equipment is a division of Tampa Armature Works founded in 1921 and brings innovative solutions for the supply, control and use of energy by Utilities, Industrial, Commercial and U.S. Military Clients around the Globe. They specialize in, but are not limited to, mechanical and electrical design/engineering and manufacturing of Custom, Low and Medium Voltage Distribution and Substation Switchgear up to 35kV; Indoor/ Outdoor Power Equipment Centers, Relay Panels, Portable Substations, Non Segregated Bus Duct, Generator and Custom equipment enclosures and Specialized Military Power Generation and Distribution Equipment. The facility encompasses 140,000 square foot and has unique capabilities for developing specialized, state of the art equipment for its Customers. TAW Customer Equipment is ISO 9001-2000 certified.

Speaker's Bio: Jeff Shallbetter has been in the electrical manufacturing business since 1973, beginning with a family business in the Midwest and then starting his own company in 1983. Jeff and his brother Greg grew this business (Shallbetter Bros Inc.) into a nationally recognized electrical manufacturing company.

After selling his interest to Greg in 1999, Jeff moved his wife and daughter to Southwest Florida and pursued other interests. With a desire to return to the electrical industry and TAW's need for someone of Jeff's experience, Jeff joined TAW in February of 2009 as a switchgear sales specialist.



Brain Teaser Challenge Solution - May 2009 Butch Shadwell

I took a lot of pictures at the International Science and Engineering Fair this year. It made me think of how these images were stored. "Most images and video stored and reproduced digitally, such as JPEG and MPEG, use a lossy type of data compression. This is accomplished through a mathematical transform that converts the image information into coefficients of sinusoids at various frequencies. Can you name this mathematical transform?"

Of course I am referring to the discrete cosine transform. It turns out that the DCT is much more efficient for representing these signals in a compressed form. It is similar to a DFT using only real numbers. But I bet you already knew that.

Brain Teaser Challenge – June 2009

I attended a conference recently at the National Academy of Sciences in Washington DC, called the Humanitarian Technology Challenge. It was sponsored by the IEEE and the United Nations Foundation, among others. The objective



to relieving human suffering.

Even though I am not really a power guy, I found myself engaged in a number conversations about power quality. We were talking about the amount of energy that gets converted to heat from harmonic distortion of the power waveform. Your challenge this month, should you choose to accept it, is to explain why most of the harmonic energy you find on the power mains is in the odd harmonics of the fundamental?

was to organize volunteers from around the world to come up with better ways to apply technology

Reply to Butch Shadwell at b.shadwell@ieee.org (email), 904-410-9751 (fax), 904-410-9750 (v), 3308 Queen Palm Dr., Jacksonville, FL 32250-2328. (http://www.shadtechserv.com) The names of correct respondents may be mentioned in the solution column.

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IEEE-USA Honors NASA on 40th Anniversary of Lunar Landing

WASHINGTON (6 July 2009) -- IEEE-USA is honoring NASA on the 40th anniversary of the lunar landing on 20 July 2009 in a commemorative print publication and through public radio announcements. One tribute appears as an advertisement in "The First Giant Leap for Mankind: A Publication Celebrating the 40th Anniversary of Apollo 11," which has been distributed to NASA facilities and contractors, government agencies, professional and trade associations, as well as to the general public at NASA visitor centers. In it, IEEE-USA stated: "Members of the Institute of Electrical and Electronics Engineers, working for NASA and its industry contractors, helped make those historical first steps with Apollo 11 a reality. And 40 years later, engineers, computer scientists, and allied professionals are still helping to push back the frontiers of space while developing new technologies that fuel our economy and create jobs here on earth." To view the ad, go to: <u>http://www.ieeeusa.org/communications/promolibrary/files/Apollo11_ad.pdf</u>.

On 20 July 1969, NASA's Apollo 11 mission was the first in which man set foot on the moon. After Commander Neil Armstrong descended the lunar module Eagle, he declared, "That's one small step for a man, one giant leap for mankind." He was followed by Edwin "Buzz" Aldrin, Jr. The third member of the crew, Michael Collins, remained in lunar orbit aboard the command module Columbia. In addition, during July, IEEE-USA is highlighting the 40th anniversary and recognizing the role of NASA's Goddard Space Flight Center in Greenbelt, Md., through IEEE-USA's weekly promotional announcements on WETA-FM, Washington's "all classical" public radio station, with some 400,000 local listeners.



F.I.R.ST. Robotics

Some FWCS-IEEE members learned about FIRST robotics through the recent S.T.E.M.inar hosted by the Tampa Bay Technology Alliance, and met Rose Mack, who administers a FIRST program in coordination with the Youth Engineering Society in St. Petersburg. This is a great example of FIRST in action, and one opportunity of many to be part of FIRST in Florida. Learning is for Everyone's LIFE Robotics program, anchored by Team Duct Tape, our community based FIRST Tech Challenge team in Tampa, is another.

Founded in 1989 by inventor and entrepreneur Dean Kamen, FIRST, which stands for "For Inspiration and Recognition of Science and Technology" aims to design "accessible, innovative programs that motivate young people to pursue education and career opportunities in science technology, engineering, and math, while building self-confidence, knowledge, and life skills."

It does just that in a wildly successful format combining character education, frenzied sports competition and robotics, while employing sophisticated programming, building, research and team work skills. Supported by over 85,000 volunteers and over 3000 corporations, educational and professional institutions, and individuals, that's still barely enough to meet the needs of the nearly 200,000 youth in nearly 18,000 teams across all grade levels, from elementary through high school.

There are four levels of FIRST robotics programs:

- FIRST Robotics Competition (FRC), a large scale high school program
- FIRST Tech Challenge (FTC), a more accessible mid-level high school program
- FIRST LEGO League (FLL) for 9 to 14 year-olds
- Junior FIRST LEGO League (Jr. FLL) for 6 to 9 year-olds

Our goal with FTC Team Duct Tape is to promote community level FIRST robotics programs throughout the Tampa Bay area. Community level teams like ours draw public, private and home schooled students from all areas of the community. While they may lack the funding and facilities support of public schools, like Scouts and 4H they can expand access to learning opportunities where FIRST programs don't exist, and enjoy greater flexibility for meeting and mentoring experiences.

We've made it our hallmark to expose team members to as many facets of science, technology, engineering and math careers and experiences as possible. Mentors from a variety of groups have donated money for parts and expenses, worked with our students to help them learn how to use Pro/ENGINEER (provided by PTC free to FIRST Tech Challenge students this year), welcomed them to informational dinners, and invited our students on tours of various plants, facilities and more.

We'd like to invite FWCS-IEEE members to become part of our professional network of FIRST mentors and supporters. Funding is always helpful, of course, but so is time, attention and professional guidance. Our students value the expertise and experience of professional engineers, and can deeply benefit from seeing hands on applications of the many skills and tools about which they're learning. Visit <u>www.TeamDuctTape.com</u> to learn more about our efforts, and <u>www.usfirst.org</u> to learn more about FIRST robotics, and please consider ways you can help expand this remarkable S.T.E.M. education program in our area.

A great opportunity to see all of the FIRST programs in action will be on October 24 at the USF Sun Dome, at the Tempest 'N' Tampa event, hosted by the East Lake Robotics Boosters: <u>http://www.roboticsboosters.com/</u> The event is free to the public, and Team Duct Tape will be on hand to demonstrate their FTC robot, along with other FIRST teams. Contact us at info@Learningis4everyone.org if you'd like to help mentor or support our team, or for more information about FIRST robotics.

Welcome to TryNano.org

TryNano.org is a resource for anyone interested in learning about Nanoscience and Nanotechnology. Nanoscience and Nanotechnology are technical fields that focus on matter at the nanoscale - dimensions that are roughly 1 to 100 nanometers $(1nm = 10^{-9}m)$.

The term Nanoscience often refers to research that discovers and characterizes new behaviors and properties of materials at the nanoscale. Nanotechnology describes how discoveries at the nanoscale are put to work, especially by controlling the behavior of matter and building useful devices. Some of these devices have demonstrated applications in medicine, electronics, robotics, and energy production.



Teacher in Service Report

I hope you all had a great Independence Day! Please let me know how the IEEE can help you this coming fall. We are going to be present at the Professional Study Days for Hillsborough and Pinellas. Larry Plank informed me the Hillsborough Professional Study Day is on August 19 at Alonzo High School near Oldsmar. Directions and Topics to discuss will be provided very soon. Blythe Lamy of Pinellas informed me, "Pinellas County's District wide training day is August 21^{st} , we will again be at Clearwater High School and we have Ralph Painter and yourself scheduled with "Get Connected with Ohm's Law" from 1:30 - 3:10. Thanks so much, we really appreciate your coming to present this to our teachers." The Teacher In Service lesson plans can be found at

<u>http://www.ieee.org/web/education/preuniversity/home.html</u> or TryEngineering.org. Please save these web addresses. Try them out for yourself and p lease contact us to do a lesson plan or two in an hour or so. Please give me enough time to gather the volunteers and materials.

I will be attending the planning committee for the Tampa Bay Engineering Banquet next February. Our first meeting is August 17th, 2009. I am in charge of collecting the Lignell Awards. We want to ask nominators of the Outstanding High School Teachers for the next year spread the word to all schools in Pasco, Hillsborough, and Pinellas as soon as the school year begins. I will send electronic copies of the nomination form in October or November. We want to collect them before the Christmas Break because a lot of work goes into making this a reality. The winners will be announced at the Engineering Banquet. Please help with this important event.

Sean Denny TISP Chairman 727-678-0183 venner20@ieee.org

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FWCS Consultants Network Affinity Group

The FWCS IEEE Consultants Network Affinity Group held its second meeting on June 30th, the last Tuesday of June (just before the EXCOM Meeting) at CDB's Southside Restaurant in Tampa with the participation of several of its members to include Jim Anderson our President Emeritus and Jim Lumia, Computer Society Chairman (thank you very much) who came to listen to the presentation of our keynote speaker, Mr. James K. Hansen, Systems Engineer and past Director of Engineering at Honeywell/GNO, a good friend of mine for many years and avid Ham Radio Operator, President of the Honeywell Emergency Amateur Radio Team. James chat centered on "*Consultant Utilization by the Electronics Industry*". He touched base on the quality of the consultants competency, their typical rates, reasons for their hiring and do's and don'ts that the consultant has to heed in order to achieve longevity on the job. His expertise in the industry attracted several questions from the audience who were interested in eliciting James's comments on his views about consulting and he certainly dedicated a good part of his time to talk to the members present at this event. This event was indeed a success due to our speaker's charisma and the excellent food provided by CDB's Southside. We look forward to our next meeting to take place at the same location (Tuesday July 28th) when we'll have another interesting keynote speaker's presentation on the legal ramifications of consulting. Please go to http://time2meet.com/fwcs-section/index.html and sign up to attend.

Hermann Amaya

Chairman

FWCS IEEE Consultants Network Affinity Group



IEEE ComSoc Regional Chapter Chair Congress 2009



The IEEE ComSoc had their annual Regional Chapter Chair Congress (RCCC) meeting held in Long Island at the Marriot Hotel from June 3-5, 2009. The Society made the effort to bring together over 23 chapter chairs from the East side of the United States, Canada and Jamaica. The location was excellent and the hotel included amenities that I haven't been able to find for free anywhere else such as indoor pool and gym.

The ComSoc RCCC was a great opportunity to meet the ladies and gentlemen that make things happen for the society. Those that were able to make it are just a fraction of the total. The Communications Society is the second largest technical society of IEEE and it takes a lot of energy and effort to make that big mountain move. In addition to employees of the society, the volunteers play a huge role giving back and helping members get the most out of their memberships.

The highlights of the Congress were:

- 1. Wednesday night the congress attendees were invited to the reception to meet and greet all the ComSoc representatives. Shortly after, we all received an invitation to the after-party of the IFIP/IEEE International Symposium on Integrated Network Management which was taking place in the same hotel.
- 2. Thursday's agenda included recognition of successful and inspiring chapters, report on marketing efforts, information technology resources update, and administration. There were also interesting discussions on membership development issues and plans; a very detailed ComSoc financial management report, the chapter's yearly activities, contributions and lessons learned, and an extensive panel discussion on how to plan and maximize the benefits from the Distinguished Lecturer Program.
- 3. On Friday morning, there was an interesting presentation on "History of Computer Communications" and "The ComSoc value through Marketing and Industry Relations; what are the Critical Issues currently and in the Future". There were detail discussions on updated ComSoc website services with all the valuable resources available for our members. Finally there was a closing discussion into how we can offer better services to our members.

Overall it was a fantastic first experience for me to attend this congress. Great food, great hotel and I even got to meet the president of the Communications Society. How cool is that?

The Regional Chapter Chair Congress was a perfect opportunity to meet other chairmen around the country and more. It was a unique way to meet all those individuals who have been volunteering for the Society for a long time. Those who attended shared their journey by explaining the valuable experience they gained, professional and personal development they received, and not to mention the countries they get to visit with the Society. I can close out by telling you that I wouldn't miss the next congress and I would encourage everybody to "get to it" with your societies. It is worth the effort!

Hector Martinez SP/COMM Chapter Chair, FWCS



Overcoming the No's to Joining IEEE

Ever try to persuade friends or colleagues to join IEEE but just couldn't get past their objections? To help you get around them, the IEEE Membership Recruitment and Recovery Committee has come up with responses to six common reasons people give to explain why they don't want to join.

No. 1: I've recently become unemployed and can't afford the dues.

That's not the problem you might think. IEEE has a <u>reduced-dues program</u> for unemployed members. It cuts dues in half. As a member, you'll be able to access all IEEE's services, including those that might help you find a new job. That includes networking events at section and chapter meetings, the <u>IEEE Job Site</u>, and continuing-education programs that feature workshops, webinars, tutorials, and certification exams.

No. 2: My employer will not pay for my dues.

We realize that employers are tightening their belts, and we are grateful for those that still pay IEEE dues. But membership is about individuals who take ownership of their careers, regardless of an employer's willingness to reimburse them for dues.

No. 3: Membership is too expensive.

When you think about it, membership dues are reasonable based on the quantity and quality of <u>benefits</u> offered. Membership offers a good return on investment. It often pays for itself through discounts on IEEE products and conference registrations. Members are also eligible to participate in IEEE's <u>Member-Get-a-Member program</u>, which earns you US \$15 for each new member you recruit. That money can be used toward IEEE dues, society fees, or products and services.

No. 4: I have no time to read the publications.

It's a constant challenge to find the time to stay informed so that you don't one day discover that you're no longer technically current. IEEE publications rank with the world's best technical information sources. Taking the time to read them keeps you up to date on current trends. Investing even 30 minutes with one journal could spare you 40 hours of research. After all, no one has the time to reinvent the wheel or worry about the integrity of information found through basic search engines.

No. 5: I can get all the information through my employer, so why should I belong?

Organizations worldwide rely upon IEEE's information to be technically current and competitive—it speaks to IEEE's quality. But what happens if you lose your job and can no longer access that material? Or if your new employer doesn't subscribe to the <u>IEEE Xplore</u> digital library? With your own membership, you'll always have access.

No. 6: I can get all the technical information I need from search engines, so what's the value of membership? Search engines are certainly great for finding lots of information. But IEEE publications aren't available for free through them. Moreover, the quality of technical information found via search engines is random and does not adhere to consistent standards of technical excellence, as do IEEE's peer-reviewed publications. Besides, IEEE membership is much more than having access to information. It's about professional development, networking with your peers, and taking personal responsibility for your career. Membership is also about meeting new people from around the world and forming friendships that can last a lifetime. And what's more, as a member you could influence the direction of the world's leading professional association for the advancement of technology. (Search engine users can't vote in IEEE elections.) And among other things, you could help the public understand technology issues, foster technological innovation, and work to encourage young people to choose technical careers.

By Kathy Kowalenko

IEEE

2009 IEEE/LEOS International Conference on Optical MEMS and Nanophotonics

The 2008 International Conference on Optical MEMS & Nanophotonics will bring together the latest technical advancement in the fields of optical micro-electro-mechanical systems and integrated micro-optics. The conference will also include the growing fields of nanophotonic devices and integrated systems. Integration and miniaturization of photonic and optical MEMS components and systems towards micro- and nano-scale for various applications will be the main theme of the conference. Dates of the conference are August 16 - 21, 2009 at the Hilton in Clearwater, Florida. Go to the conference website for more information!

http://www.ieee.org/organizations/society/leos/LEOSCONF/MEMS2009/index.html

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August 2009 Calendar of Events (For more information see P. 1) inside this Signal..

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