SPARKS

Daytona Section Newsletter
January 2015

JANUARY SECTION MEETING
Thursday January 22nd at the Halifax River Yacht Club, 6:00 PM
331 South Beach Street, Daytona Beach, Florida 32114

PRESENTATION TOPIC – TeachLivE™ a mixed-reality teaching environment
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CHAIR'S REPORT

Welcome to the New Year with IEEE! If you have not yet renewed, please remember to do so between now and the next meeting.

This is a landmark year for our Section, marking fifty years of providing IEEE member services in the Daytona area. A formal celebration of this landmark will be held later in the year (probably coinciding with the end of Spring semester), but it is important to reflect on what the IEEE Daytona Section has done for the profession, the community, and its membership over the past fifty years, what it should continue to do, and what it could choose to do in the future.

The Spring session is focused on outreach and education in the engineering profession; on January 31st the section judges and provides an award for the Tomoka Science Fair, a local event for middle and high schoolers performing scientific experiments and presenting their results to a public audience. In February, the Section, in collaboration with Embry-Riddle Aeronautical University, celebrates Engineers Week, the National celebration of Engineers and the work that we do, with a focus on outreach and education for K-12 students and the community at large. In April, teams from local colleges compete in the IEEE Region 3 Southeastcon Robotics Competition in Fort Lauderdale. If you would like to volunteer to assist with any of these events, or you have an idea on what other things we should be participating in, please contact our PACE Chair, Dr. William Barott (barottw@erau.edu).

The Section is continuing its focus on member advancement; if you are interested in pursuing Senior Member, please contact the Section Chair, Jeanette Barott (barottj@erau.edu) with any questions you have about the process. Another Senior Member and Resume Development Workshop event is planned for later in the Spring session, if enough interest is expressed.

And finally, thank you all for giving me the opportunity to serve as Chair of the Section. I look forward to seeing the programming under the direction of Dr. Keith Garfield (not only because I will be glad to not be doing it myself), and I encourage all of you to turn out for some of the

exciting meetings that he is planning for the semester. As usual, do not be afraid to let us know what the Section can do for you, or to ask what you can do for the Section!

Jeanette

JANUARY PROGRAM

TeachLivE™ is a mixed-reality teaching environment supporting teacher practice in classroom management, pedagogy and content. TeachLivE™ Lab, developed at the University of Central Florida, is currently in use at 55 university campuses and four school districts in the United States. Each partner utilizes TeachLivE in a unique manner depending on the needs of their students, teachers, professors, and community stakeholders. The system provides pre-service and in-service teachers the opportunity to learn new skills and to craft their practice without placing "real" students at risk during the learning process. For more information visit teachlive.org.

Charles Hughes' research expertise is in virtual environments, with his current activity primarily involving human surrogates – virtual and/or physical avatars remotely controlled by humans. The work in the virtual domain is focused on education and preparation of people for complex human-to-human interactions. The work with physical avatars focuses on situational awareness training and physical telepresence via robots and animatronics. In addition to avatar-based research, Charlie also does work in cultural heritage and its use in helping young people understand the opportunities and challenges in STEM disciplines, and the connections of these disciplines to the arts and humanities.

OUR SPEAKER

Charles E. Hughes holds Ph.D. and M.S. degrees in Computer Science, and a B.A. degree in Mathematics. He is a Professor of Electrical Engineering and Computer Science at the University of Central Florida (UCF). He is also Co-Director of the Synthetic Reality Laboratory (SREAL), Professor in the School of Visual Arts & Design, a member of the university's Modeling & Simulation faculty, and was honored as a Pegasus Professor in 2007 and a Dean's Research Professor in 2013. He served on the faculties of Computer Science at Penn State University and the University of Tennessee prior to joining UCF in 1980.

Active research projects on which Charlie serves as a principal or co-principal investigator are funded by the Bill & Melinda Gates Foundation, the National Science Foundation (NSF) and the Office of Naval Research (ONR). Recently completed projects were funded by the National Institutes of Health, the National Endowment for the Humanities, the Army PEO-STRI, and the US Department of Veterans Affairs, as well as NSF and ONR.

IEEE MEMBERSHIP RENEWAL

Remember to renew your membership for 2015! Service Deactivation is February 15.
Every year around this time, I, like many others in this Section and across the globe, sit down and analyze the value of my IEEE Membership.
For many in our Section, membership renewal is as simple as checking a box to say, "Yes, I would like to continue being a member of the world's largest technical and professional organization, as I have been for more than thirty years." The social networking, and continuing life-long learning opportunities, of the IEEE Life Members speak for themselves. If you don't know what is available for life members in your area, talk to your Life Members Chapter leadership.

For others, it's more complicated: "I'm a student. This $32 is two weeks' worth of groceries. Is it more valuable to renew my IEEE membership, or to have fresh meat and vegetables with my ramen noodles, or to have my final report for my classes bound?" In addition to the having access to all of the benefits of a $193 membership, students receive lots of cool stuff for their membership, including:

- **Free Microsoft Visual Studio Developers Suite and Visio**. Student members of the Computer Society (an additional $10 to their membership) get free copies of valuable Microsoft Software not typically included in the University's Microsoft distribution license.
- **Labview student install license for $40.** Unavailable at many universities, and > $100 at most, access to a personal Labview license can really save last minute projects with busy campus computers.
- **Travel Grants, Scholarships, Fellowships, and Student Design Grants.** Looking for funding? Make sure to check out the list of "free money" available only to IEEE student members.

Members paying for their own membership have the annual self-examination: "Is it really worth the $325 charge to my Mastercard? What does my IEEE Membership do for me? Is this the best spend of my personal professional development budget? Which of these societies should I cut?"

All IEEE members (including students and life member) have access to:

- **Discounts with Dell, HP, Lenovo, and Rosetta Stone Total-E**. Replacing your computer this year? The discounts of IEEE membership readily add up to the base $193 membership fee. Learning a new language and planning on using Rosetta Stone? IEEE members get $280 off the MSRP (145% of the base membership fee).
- **Savings at UPS.** Doing holiday shipping? Depending on what you're sending, members can get between 19% and 70% off UPS published prices.
- **GoogleApps@IEEE.** Sick of advertising in your Gmail Box? Want a permanent, professional address that will follow you throughout your career? 15 GB of Google Drive storage not enough for you? GoogleApps@IEEE provides you with an official IEEE email address, 30 GB of Google storage, and advertisement free access to many of the most popular google services.
- **IEEE ResumeLab.** Applying for new jobs? Trying to maintain a profile of proficiencies so that generating an appropriate cv for each headhunter that calls is a fifteen minute task? Explore the IEEE ResumeLab, which gives you access to interview practice, video resume prompts and storage, a skills inventory, and automatic formatting and generation of a clean resume, ready to go in response to any prompt!

Other members have to make the decision on whether to present their employer with a $200+ bill for a professional society membership to the IEEE, or memberships to several related societies, such as INCOSE, or the ACM, or for their Professional Engineering membership. "How does this membership provide value to my employer? Is this the right professional development opportunity for me to choose?"

IEEE membership enables you to keep up with the technology and licensure necessary to be productive in your current job by offering benefits such as:

- **Discounts on IEEE Conferences and Publications**. As the world's largest organization related to electrical engineering and electronics, many of the latest and greatest advances are revealed and discussed through IEEE venues, which members can access at a steep discount.

- **Access to IEEE Continuing Education Units.** IEEE Continuing Education Programs are peer reviewed ten-hour professional development sessions that can be exchanged for ten professional development hours (PDH) required for P.E. licensure. These events are frequently offered free or at sharply discounted rates to Society members in the related areas.

You might have noticed in perusing the IEEE website that IEEE-USA members pay more than members from any country in the world, by at least $10. IEEE-USA Members have access to:

- **Five Free Uses of the IEEE-USA Salary Calculator:** A $65 service, if you complete the survey in May as to your current employment status/salary, you get five free uses of the salary calculator to see what you "should be making" in your position, or in a position for which you're applying. A valuable tool in salary negotiation and job searching, this is an important component of IEEE-USA's job offerings.
- **Congressional Visit Days:** Ever wanted to march on Washington with your own political lobbyists? IEEE-USA is actively engaged on Capitol Hill and plays an important role in the shaping of policies that directly impact you and your career in engineering.
- **Free EBook Every Month:** Every month, IEEE-USA offers all members an E-Book (usually between $4-$12 "sticker value"). All you have to do is go to the website and check out with it!
- **Consultants Network:** Have a valuable skill and want to use it to make money, without having an external employer? IEEE-USA's consultants' network provides you access to market yourself, and network with other qualified consultants, to form a lasting self-employed career as an engineering consultant.

As for me and my household, we shall continue to renew. Along the path from graduate student member, to GOLD member (now Young Professionals), to Senior Member, I have gained many benefits from my IEEE membership. As with most things in life, ***you get out of it what you put into it.***

Through attending the monthly local section meetings, I have developed a valuable network of experienced engineers, who have served as references for my continuing professional development, as well as a significant source of information on both the history of and current trends in a variety of hot button topics. It is impossible to put a price-tag on these opportunities; however, the $13,000 I estimate I will spend on my IEEE dues between my initial joining and my hoped-for retirement age seems a small price to pay for access to multiple lifetimes of experience.

By choosing to volunteer my time to the IEEE, I have received countless opportunities for **free** professional conferences, with a multitude of networking and professional and career development opportunities. The direct cost of the PACE/IEEE-USA conferences, with career development workshops, and of the Sections Congress, that I have been offered the opportunity to participate in already approaches the cost of a lifetime of IEEE membership. Don't know how to get involved and get access to these? ***Ask your Section leadership.*** There are a multitude of opportunities just waiting for you to reach out and grab them.

If you want some unsolicited advice? Renew your membership today. Then start taking advantage of what IEEE can do for you—it's not just a magazine and a resume line item!

DAYTONA SECTION NEWS

OUTGOING CHAIR PRESENTATION

Newly elected Section Chair Jeanette Barott presents outgoing Chair Tracy Wichmann an oversized martini glass with the IEEE logo at the December section meeting for his dedication and service to the Daytona Section.

DECEMBERS PRESENTATION

ERAU student member Jorge Torres is shown doing his presentation "ROCKIN' ROCKETS WITH RF" at the December section meeting.

- We are proud to announce this is officially the Section's 50th anniversary as an IEEE section.

- Congratulations to Daytona Section member Morrison Obeng who made Senior Member during the November Senior Member elevation cycle.

- We are looking for volunteers to start a Women in Engineering Chapter, a Young Professionals Affinity Group, a Communications Society Chapter, a Power Electronics Society Chapter, and a Robotics and Automation Society Chapter. Interested? Contact the Section Chair, Jeanette Barott (barottj@erau.edu).

- The IEEE is offering loyalty pins to reflect landmark years of membership for members. If you would be interested in receiving one of these pins, please contact the Section Chair, Jeanette Barott (barottj@erau.edu)

ANOTHER TALE FROM THE OLD PROFESSOR

"DOES ANYBODY REALLY KNOW WHAT TIME IT IS?"

Lyrics of a 1969 song of the same name by The Chicago Transit Authority, now known as "Chicago"

Time is the most measured and most accurate measurement mankind can make. Every person alive consults a clock at least once per day; probably more like ten or twenty times a day. Compare that to measuring the other MKS units; mass and length. Sure, many of us measure those parameters but ten times a day? Twenty? Because of that there are plenty of clocks in our lives.

I decided to take an inventory of the clocks in my house. Here are the results;
I have four computers, two laptops a desk computer and one that runs my software defined radio, SDR. They all have clocks. The radio shack also has a stand-alone clock so I can see the time without running the SDR computer.

In the kitchen; the coffee maker, oven, thermostat, microwave oven all have clocks and there is a big analog "kitchen clock"; (that's one with hands, Kiddies), hanging on the wall that can be seen at a distance.

In the foyer there is the only all-mechanical large clock in the house, a 7 foot high grandfather's clock.

In the bedroom and guest room there are two clock radios. Also there are two operating wrist watches, two heirloom pocket watches and a portable travel clock radio.

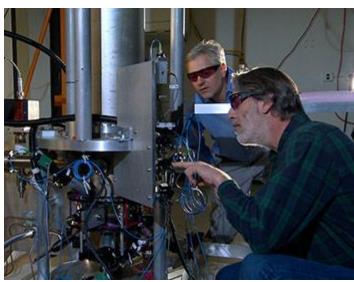My cordless telephone system has two handsets each with a clock.

I have two television sets each with a clock.

I have two cars, each with a clock and one of the two has a GPS with a clock.

Finally even my 3 bicycles and tricycle have "cycle computers" each with a clock.

That's a total of 28 clocks.

Precise time is often kept by an ensemble of clocks. The most accurate clock in the world is the National Institute of Standards and Technology, NIST's, F2 master clock. This clock will not drift more than one second over a period of 300 million years. How do they know that? What do they compare it against? But even that's not good enough. GPS time and UTC and all the other timing systems of the world are kept by averaging a large number of accurate clocks.

NIST's F-2 Master Clock

So, owning 28 clocks, I thought I would see how accurate my own ensemble is.

The computers are automatically synchronized with NIST and the SDR computer is synchronized every 15 minutes when it is on because of my irrational habit of bouncing signals from the moon which requires very accurate timing. So I will assume those four computers are accurate within 100 ms.

The GPS unit in my car needs extremely accurate timing as that's what makes it work. It gets that accurate timing from signals from the satellites. But it is seldom on so we will eliminate that from the ensemble.

The heirloom pocket watches don't run unless they are wound and then only for a day, so I will eliminate them from the ensemble. The travel clock radio is reading "Central Time" from my last trip but that will be included with a correction factor. The alarm clock in the guest bedroom has been flashing 12:00 for almost a year so that will be eliminated.

The two televisions get their time from the cable system but they only read out in whole minutes so we need to declare a quantizing error of plus or minus half a least significant digit or half a minute.

The computers on the bicycles and tricycle are never set and are subject to temperature variations of the garage and they were off by quite a bit with one 15 minutes off. However as luck would have it they averaged out to the correct time within a minute.

Out of the remaining 24 clocks not eliminated, the mean was amazingly within a minute or so of being correct. But the standard deviation was more like 15 minutes. Certainly my ensemble is not about to replace NIST any time soon. That means if I wished to know the exact time I would run to each of the 24 clocks and average them. Then I would know to within a minute of the time kept by NIST.

Armed with this information, if were asked; "What time is it?" My answer would be; "I have no idea. Do you think I am NIST? I only have 28 clocks. You can't expect me to know the time."
I will conclude my tale with more of the Chicago lyrics; *"Does anybody really know what time it is?.......Does anybody really care?"*

Al Helfrick, Ph.D

DAYTONA SECTION SHIRTS

We are pleased to offer Daytona Section polo shirts for our Section members. The shirts are embroidered with the IEEE Logo and DAYTONA SECTION on the left and your name and grade, if desired, on the right. The shirt is a high quality 5 oz, 65/35 poly/cotton pique in Royal Blue with white embroidery. Available in S - 2XL in men's as well as ladies sizes. Price is $27, including tax, for S-XL size's, 2XL size is $3 additional.

For more information or to order shirts contact:
Allan Jusko
3706 Longford Circle
Ormond Beach, FL 32174
386-671-3706 or a.jusko@ieee.org

Indicate shirt size and name and grade if desired. Shirts must be paid for before ordering, typical turn around time is 2 weeks. Arrangements can be made to pick up shirts or have them shipped to you.

DAYTONA SECTION COFFEE MUGS

The Daytona Section has available coffee mugs with the IEEE Daytona Section Logo and are available for $7.00. Purchase one or more to show you support and pride in our Section.

Contact Roger Grubic at 386-441-8958 or roger_grubic@ieee.org for more information.

EDITORS NOTES

The **SPARKS** newsletter is also available on our website **http://www.ieee.org/go/daytona**

Region 3 website
http://www.ewh.ieee.org/reg/3/

Melbourne Section website
www.ieeemelbourne.org

Orlando Section website
www.ieee.org/orlando

FUTURE MEETING DATES:
The meeting dates for the 2015 spring session are: Feb 25th, Mar 26th, and Apr 23rd

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JANUARY 2015 MEETING

Thursday January 22nd at the Halifax River Yacht Club

331 South Beach Street, Daytona Beach, Florida 32114

Just south of the Fire Station at the corner of Beach and Orange

AGENDA

5:30 PM Cocktails

6:00 PM Dinner

7:00 PM Program

TOPIC – TeachLivE™ a mixed-reality teaching environment

SPEAKER- Charles E. Hughes, Ph.D.
University of Central Florida

January 22nd Dinner Menu

<u>Grilled 6 oz top sirloin</u> with a mushroom demi. Rice Pilaf and vegetables

<u>Red and blue tortilla crusted tilapia</u> with lime and cilantro rice and vegetables

<u>Leg and Thigh, 1/2 chicken</u> roasted with garlic and rosemary with natural pan jus. Rice Pilaf and vegetables

All entrees served with rolls an**d** butter, house salad, coffee and tea

Unless noted, dinner entrées are $20.00 each. Students $10.00 each

A Veggie plate is available on request for $10

Please contact Allan Jusko with your dinner selections or for program information.

Selection's must be in by <u>Wednesday the 21st at noon</u> so the club has time to order and prepare

Allan Jusko   Editor   386-671-3706   a.jusko@ieee.org

If you make reservations and are unable to attend, call at least 12 hrs prior to the event to cancel.

The Section is charged for all dinners ordered, please let us know if your plans change

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