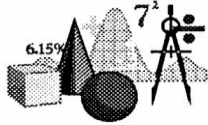




SPARKS

Daytona Section Newsletter
February 2015



FEBRUARY SECTION MEETING SPECIAL ENGINEER'S WEEK PROGRAM

**** NOTE DATE AND LOCATION ****

Wednesday February 25th, 5:30 PM
Embry-Riddle Aeronautical University
Lehman Bldg. Atrium, 1st floor
600 N. Clyde Morris Blvd
Daytona Beach

PRESENTATION TOPIC – NASA Exploration Systems

CHAIR'S REPORT



Thank you for renewing! I know it can be a bit of a financial gut-punch, but in addition to the many membership benefits to you (read the article from last month if you didn't—I'm constantly amazed by the services IEEE adds for members that so few people seem to discover), the IEEE serves a valuable and necessary role both in providing humanitarian outreach around the world and offering a wide range of science, technology, engineering, and mathematics (STEM) opportunities for not only K-12 students, but life-long learners.

Last month's speaker introduced the Section to a novel instructional methodology for using human-computer interactions to train educators, to help those with social interaction disorders, and to train medical and rescue workers using life-like automatons. It's truly a delight to see what the intersection of artificial intelligence, advancements in networking, state-of-the art robotics, and the study of the humanities can do.

This month contains National Engineers Week; EWeek, as it's more commonly known, was initiated by the National Society of Professional Engineers, and was initially celebrated during the week of March 17 (St. Patrick being the patron saint of both engineering and beer, two important components of proper EWeek celebration). Over the years, the week has become less focused on the celebration of engineers and engineering, and more focused on outreach to the engineers of the future through an emphasis on the importance and role of engineering in the modern world. In the present day, Engineer's Week is celebrated during the week of George Washington's birthday—February 22nd.

Embry-Riddle University will be hosting Dr. Naderi, the director of Solar Systems Exploration at

NASA's JPL, as the keynote speaker for Engineers Week on Tuesday, February 24, at 6:30 PM in the Henderson Welcome Center; the community is welcome to attend. The Department of Electrical, Computer, Software, and Systems Engineering at ERAU, in conjunction with the Daytona Section of the IEEE, will be hosting the Engineers Week banquet that Wednesday, February 25. More information on that is available further on in the newsletter, as that will serve as this month's speaker.

Several other organizations throughout the community will be hosting events during the week; I encourage you all to get involved. Some ideas: find a local children's event, and contact the organizers to see if they need volunteers; contact your local library and volunteer to go in and host a reading hour with a children's science book; use the excuse to buy a little quadcopter and fly it in your community commons area to answer questions. Have an event/community outreach activity planned that you need volunteers for? Let us know!

Remember: great acts of engineering change the future, but small acts today can make us great engineers.

Jeanette

IEEE MEMBERSHIP RENEWAL

Remember to renew your membership for 2015

FEBRUARY PROGRAM

NASA EXPLORATION SYSTEMS

Since the close-out of NASA's Space Shuttle Program, there have been rumors of shutdowns, closings and an end to exploration. On the contrary, NASA has been focused on a three-pronged approach to exploration under its aptly named Exploration Systems Development programs. These programs working together enable the agency to extend human existence beyond earth orbit for the first time since the Apollo program and beyond lunar orbit for the first time in history.

The first key to this is the crew vehicle, called Orion, which is being designed to support human exploration missions to multiple destinations in deep space. Its versatile design is planned to allow it to safely carry and sustain a crew of two to four for 21 days and can evolve to support a six-person crew on extended-duration missions. The second key is an evolvable rocket, called the Space Launch System, which will carry the Orion spacecraft as well as cargo and payloads to deep space. Its lift capabilities are being designed to evolve from 70 metric tons up to 130 metric tons based on future mission requirements. In its final form, the Space Launch System will be the most powerful rocket in history. Finally, the third key enabler of the NASA Exploration Systems is the transformation of Kennedy Space Center into a 21st-century spaceport with modern capabilities to launch spacecraft built and designed by both NASA and private industry. Currently in design and under construction are the pad and mobile launcher infrastructure as well as modular and flexible offline servicing systems for preparing the flight elements for launch.

OUR SPEAKER

Anton Kiriwas holds an M.S. degree in Electrical and Computer Engineering from University of Florida and M.S. and B.S. degrees in Computer Science from University of Central Florida. He is currently an Electrical Engineer with NASA Kennedy Space Center. He began his career

working in modeling and simulation of the Space Shuttle systems in support of launch processing at KSC while working for United Space Alliance. He transitioned to civil service with NASA in 2009 to work supporting maintenance and sustaining engineering of the many pad and mobile launch platform electrical systems that were used for Space Shuttle and Ares I-X launches. After the close out of the Space Shuttle program, Anton was the lead design engineer for the Thermal Control and Launch Release subsystems for Mobile Launcher of the Space Launch System (SLS).

In his current role, he now works for both the Orion, Multi-Purpose Crew Vehicle (MPCV) Program as the Electrical Ground Support Equipment (EGSE) integration lead as well as for the Ground Systems Development and Operations (GSDO) program as the team lead for the Electrical console in the Launch Control Center. He and his team have just successfully completed EFT-1, the first test mission of the Orion, and are working towards the first test launch of the Space Launch System in 2018.

DAYTONA SECTION NEWS

JANUARY'S PRESENTATION



Dr. Charles E. Hughes, Professor of Electrical Engineering and Computer Science at the University of Central Florida, is shown during his presentation on TeachLive™, 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.

LIFE MEMBERS COMMITTEE



Life members attended tours of two Thomas & Betts facilities in Ormond Beach during January. The Ormond Beach facilities produce power connectors primarily for electric utilities. Their connectors will handle up to 500KV or up to 4000 amperes – so can be quite large physically. We visited their facility at 12 Southland drive on Jan. 15, 2015. This facility is devoted to small volumes of many part numbers. All jobs start with aluminum bars that are shaped to size and configuration by 50 ton presses, and then machined for (usually) large set screws to accommodate various

wire sizes and types. The tools needed to manufacture the parts are organized in groups by connector size. Each tool has an operator and parts are moved by hand.



We also had an excellent tour of their test laboratory, where we saw equipment for doing the "shake, rattle and roll" reliability evaluations. One unusual test (shown on the left) was pumping current through these rather large wires and connectors to heat the wire to 350 C. The connector has to be cooler than the wire before and after many hours on test. It only took 1100 amperes on the test parts we saw, but they can crank 4000 amperes from their power supply if needed!!

HIGH CURRENT TEST FIXTURE

On January 29, 2015, we toured the Thomas & Betts facility at 1 Aviator way in the airport industrial park. Here production is geared to high volumes of few part numbers and is highly automated. Again, each connector size has its own set of tools, but each set is centered around a large robot. The robot does all the part handling. When a new part number is introduced, it only requires some software changes. The robot is an off-the shelf design, but all the

surrounding tools are custom designed and built by Thomas & Betts. One tool we looked at in more detail could handle up to 10 connectors in parallel, depending on build volume needed. The tool cluster required only one operator, who was also doing final inspection.

Thomas & Betts also has two automated plating lines at 1 Aviator Way. One line handles large parts that need to be dipped in the various plating and cleaning tanks. The other handles batches of parts in drums. Both were completely automated, requiring only one operator.

Thanks to Matt Cawood for hosting our Jan. 29th tour and to Ron Vallette and James England for being our tour guides on Jan. 15.

Ron Gedney

TOMOKA REGION SCIENCE AND ENGINEERING FAIR

The Tomoka Science and Engineering Fair was held on January 31st at Spruce Creek High School. The Daytona Section gives two special awards, one each for the senior division and junior division for projects involving electrical/electronic, computer science or related principles. Charlie Husbands judged and represented our Section for the awards ceremony.

This year's recipients were Daphne Forester of Spruce Creek High School in the Senior Division and Abigail Walrath of Southwestern Middle School in the junior division. Both winners and their parents will be invited to our April section meeting to meet our members.

IEEEmadC (Mobile Applications Development Contest) is a new international contest organized for all IEEE student members across the globe. The main goal of the IEEEmadC is to provide additional competitive activities for students in the scope of computer science. By competing, students will focus on developing their technical, social and team skills. IEEEmadC is organized in four main stages (Education, Idea, Development and Judging stage) within six months from November 2014 until April 2015. Teams of up to three students are invited to devise and develop mobile applications that could contribute to the IEEE community or apply technology for humanity. We invite all students to participate in this contest and win attractive prizes. More info is available on our official web page: <http://ieeemadc.org/> or Facebook page <https://www.facebook.com/IEEEmadC>.

SECTION NOTES

- We are proud to announce 2015 is officially the Section's 50th anniversary as an IEEE section.
- 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

May the Bird of Paradise Fly up Your Nose

The Old Professor had a career in broadcasting that spanned only a few years but the experiences would fill a lifetime. My first job in broadcasting was with a non-commercial station in Philadelphia where I was the chief engineer. I was barely 19 years old but I had that piece of blue paper from the FCC that said “First Class Commercial Radio License”. I was hardly there for a year when I was contacted by a station in Camden, N.J., just across the river from Philly. The Camden station was AM and FM and was in the Philadelphia market which is a major market. It was not a Podunk 1 kW station. This was 5 kW AM and 20 kW FM station. Again, I was the chief engineer with my First Class License hanging on the wall by the transmitters.

I would work at the station from late afternoon to nearly midnight when we signed off on weekdays. I was attending college full time. I would work 12 hour or longer shifts on Saturday and Sunday and a couple of days during the week for a full 40 hour work week. During the summer break I would work a more normal five days a week.

Camden does not hold the record for the safest city in the United States. On the contrary Camden just lost its long-held ranking as the most dangerous city in the US to Detroit.

As soon as the daytime schedule was done, the staff would leave the station and all the doors were locked leaving me and the evening announcer in the station. The announcer was usually Del Dixon who did a country and western music show every weekday night. One summer evening before dark, the doorbell rang and I cautiously peered around the corner of the front lobby to see who was ringing. Through the full glass door I could see a very large man wearing a sequined shirt, cowboy boots and a large Stetson hat. In spite of his size he looked safe so I ventured further and unlocked the door and spoke to him through the slightly opened door. “Howdy Pardner, Little Jimmy Dickens is here to see Del Dixon”. One thing was for sure; if this guy was Little Jimmy Dickens I can only imagine what Big Jimmy Dickens was like.

Out in the driveway behind the big guy was a huge 1965 Cadillac Sedan DeVille. It wasn’t an ordinary Cadillac. A pair of large steer horns was the hood ornament, and the roof was finished in what looked like tooled leather. The top looked more like a giant horse saddle than a car roof. In the back seat I could see another man also wearing a sequined shirt and a cowboy hat. I figured that must be Little Jimmy Dickens.

I told the big guy that I would go tell Mr. Dixon that Jimmy Dickens was here to see him.

“Hey Del, there is some guy, uh, Little Jimmy Dickens is here to see you.” Del didn’t know what to think. “You’re joking right?” “No” I said. “There are two guys here in a big Cadillac. One is a giant and the other is much smaller. And they are wearing sequined shirts.” That did it. Just as soon as the shirts were described Del ran straight to the door and within a few seconds the sequined-duo was coming into the station. Jimmy Dickens certainly earned his title, “Little”. He was an inch short of five feet tall.



The two were quite pleasant and I set them up with a couple of microphones in the studio with Del while I ran the control room. Jimmy was a regular performer on the popular Saturday night radio show, "Grand Ole Opry" on WSM in Nashville. He was on a tour publicizing his recent release of "May the Bird of Paradise Fly up Your Nose", which made it to number 1 on the country charts and number 15 on the pop charts that year. While passing through Camden he heard our country and western show on the car radio. He found the radio station on the

outskirts of town and stopped for a visit.

The Old Professor is not much of a "Country" music fan so I forgot about my encounter with Little Jimmy until a friend recently asked me what interesting things happened at the radio stations I worked for. I have a lot of radio station stories but I related this tale to her. She, like me, wasn't a country music fan and never heard of Little Jimmy but found the story interesting. It was a few weeks later when our emails with the same text crossed; "Did you see Little Jimmy Dickens died yesterday?" Jimmy passed on to be with his Birds of Paradise at age 94. He performed from 1930 until just before his death on the second of January 2015. May you rest in peace, Jimmy.

Al Helfrich, 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: Mar 26th, and Apr 23rd

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FEBRUARY 2015 MEETING

Wednesday February 25th at Embry-Riddle
Lehman Bldg, Atrium, 1st floor
600 N. Clyde Morris Boulevard
Daytona Beach, FL 32114

TOPIC – NASA Exploration Systems

SPEAKER- Anton Kiriwas

Dinner 5:30 PM- Italian Buffet **Presentation-** 6:15 PM

Please contact Allan Jusko by Tuesday the 24st at noon
to give us a count for dinner or for further information

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