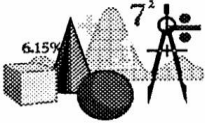




SPARKS

Daytona Section Newsletter
January 2021



SECTION MEETING

**Due to continuing Covid-19 considerations
there will be no Daytona Section Meeting for January**

CHAIR'S REPORT



Hello members of the Daytona Section of the IEEE. My name is Shawn Wilkerson, the 2021-2022 Section Chair. As way of introduction, I typically serve as a technical analyst / consultant and previously held the Chief Information Officer, and the Chief of Operations positions for a pay-as-you-go cellular company. I recently began creating YouTube content concerning privacy within computer and Internet technologies. I am currently performing the final edits on a PhD dissertation researching the intersection of social engineering and personal information.

I would like to begin by thanking each of our volunteers who have taken on Executive Committee (EXCOM) roles for this term as well as those who have served before and who remain indispensable resources of experience and information. I would also like to thank those Section members involved in the SRT project at the Burns Science and Technology Charter School. Your efforts to restore, repair, and release a working SET have received attention, appreciation, and applause in our community and across the state. Thank you one and all.

Near the end of January 2021, the EXCOM will meet to discuss, define, and designate the Daytona Section goals, priorities, and strategies for the 2021-2022 term as well as begin to contemplate a post Covid-19 world. What does this mean for each member? Participation, interaction, and engagement. These will be unpacked and discussed in future newsletters and meetings.

In closing, this is your Section. Hundreds of you, in dozens of disciplines, are members of the Daytona Section of the IEEE. Within our ranks, there are those who are either thinking of a project, actively working on a project, or would consider helping a project move forward. We would like to hear from those in these three groups and look forward to the creative and innovative ways each of you link with one another to accomplish projects. It is my hope we will see many types of community partnerships happening across the Daytona Section during the coming months by our members.

I look forward to meeting each of you and hearing about your endeavors.

Shawn

W. Shawn Wilkerson
Chair, IEEE Daytona Section
386 322-7999

A WELL DESERVED AWARD



In November, 2020, the IEEE Florida Council announced that Dr. Keith Garfield had won their Outstanding Engineering Educator Award. This prestigious award is granted to educators “In recognition and appreciation for Service to IEEE and to the Engineering Profession”.

Excellence in Teaching:

Dr. T. Wilson, Chairman of the EE and CS Department at ERAU notes:

In certain of his courses, Dr. Garfield employs a method he developed where students explicitly demonstrate the degree to which they are achieving learning outcomes. Those outcomes are made explicit, and the degree (or lack thereof) to which students attain them is an artifact developed over the term. His effort to develop novel ways of providing effective feedback to students is an example of the thoughtfulness with which he approaches the seriousness of instruction.

Service to the Community:

Dr. Garfield has taught an introductory course in computer programming at the Father Lopez High School in Daytona Beach after school hours and a week long Computer Camp during the summer. Dr. Garfield championed an increase in the awards the Section provides to the local Tomoka High School Science Fair for engineering excellence.

Service to IEEE:

In 2018, Dr. Garfield assumed the role of Student Advisor for ERAU. That year, the Daytona Section was the only Section in Region 3 to increase its membership, and the increase was due to new student members.

We have seen a substantial increase in activity in both the student branch and WIE affinity group at ERAU, because Dr. Garfield has inspired students to join the branch and to participate in events and activities. For example, in Oct., 2019, ERAU had three teams participate in the IEEEExtreme Programming competition. Dr. Garfield was the proctor for the competition on the ERAU campus.

A list of Dr. Garfield's other IEEE activities are:

IEEE Daytona Section Vice Chair: 2015-2016

IEEE Daytona Section Chair: 2017-2018

IEEE Daytona Founder & Chair Computer Society Chapter: 2010 – 2020

IEEE Daytona Awards Chair 2019 – 2020

ERAU IEEE Student Advisor 2018 to date

ANOTHER TALE FROM THE OLD PROFESSOR

DIT....DIT....DIT....

On a cold and windy December 6th, 1901, a young man and two assistants arrived in St. John's, Newfoundland after a long steamship trip from England. After five days of arduous work, the trio had assembled all their equipment and buried a couple of zinc plates in the ground. On the 12th of December, after the relentless wind destroyed their hydrogen-filled balloons, they raised a 600-foot wire using a kite. The trio then set about listening for wireless signals sent from Poldhu, Cornwall, England.



Marconi, far left, and his assistants getting the kite ready for launch.

Later, on that day, it was reported that the Morse code letter S, dot, dot, dot, or dit, dit, dit, was received several times over a 3-hour period starting at noon.

December 15th, the St. Louis Republic newspaper's headline was: "Marconi Announces Successful Transmission of a Signal Across Atlantic Without Wires"! Other newspapers followed with similar stories of Marconi's triumph.

Notice the headline said "Marconi Announces". Only Guglielmo Marconi and his two assistants listened for the "dit dit dit" from Poldhu and one of the assistants reported he didn't hear it.

In spite of the lack of proof, news of the achievement was a potential blow to the all-powerful telegraph industry of the early 20th century. The idea that electrical

communications could take place without wires threatened their very existence and their stocks tumbled.

Marconi returned to England and in February 1902 crossed the Atlantic again but this time on the SS Philadelphia to New York. Marconi had radio receiving equipment installed on the ship. Poldhu transmitted its now-famous dit, dit, dit during Marconi's ocean crossing. During the voyage, Marconi made a startling discovery. Once reaching 1120km from the transmitting site, the signals were no longer received during the day. But it was also discovered that the Poldhu signals were heard out to 3360km at night.

Marconi knew a lot about radio for that time period; probably more than any other person. His knowledge stemmed from experimentation but he never sent wireless signals a distance that would span the North Atlantic. What Marconi and all other wireless experts didn't know about was the effect of the ionosphere on radio signal propagation. In fact, although speculated, the very existence of the ionosphere wasn't known at that time. It wasn't until 1923 that the ionosphere was scientifically characterized.

When atmospheric researchers such as Oliver Heaviside and Arthur Kennelly learned more about the ionosphere, it was clear that the wavelength used by Marconi's 1901 test, about 300m, would not have spanned the Atlantic during daylight hours using Marconi's rudimentary equipment so Marconi did not hear the dit, dit, dit from Poldhu in 1901.

Starting in December 1902, Marconi transmitted and received two-way wireless messages using a 1100m wavelength from much larger transmitting and receiving stations at Glace Bay, Nova Scotia and Poldhu. From Marconi's SS Philadelphia tests, it was known that propagation across the Atlantic would only work when the entire path was in darkness. But the nighttime communications were erratic and spotty. This time, however, there were many witnesses to verify Marconi had spanned the Atlantic with wireless.

What is Marconi's legacy in wireless? Was he the first to span the Atlantic with radio waves? Yes. But not in 1901. Did he "invent" radio as some would say? No. No one invented radio. Radio waves were always there. In fact, radio waves were called Hertzian waves when Marconi was experimenting with them. Marconi figured out how to generate and use Hertzian waves and got quite wealthy as a result. I would suggest that Marconi's greatest contribution to the radio art was opening the door to understanding long-range radio propagation from his 1902 tests on the SS Philadelphia. Through that open door, Heaviside and Kennelly entered and pioneered understanding the ionosphere. Neither Kennelly or Heaviside got wealthy from their contributions to the radio art but do have an ionospheric layer named after them. The E region is the Kennelly-Heaviside layer.

The takeaway from this Tale is "what you know" sometimes isn't as important as "what you do with what you know".

Al Helfrick, a.k.a. The Old Professor

PE CORNER

FBPE Update

The biennial license renewal deadline is upon us. Don't be "that person" that waits until the last minute to renew. It only takes a few minutes, so if you haven't yet renewed, do it today. Hopefully you've completed all of your continuing education hours by now. But if you haven't, you can still renew today just so long as you complete all of the required hours prior to February 28.

The illness and numerous deaths over the last ten months, and the current vaccine distribution challenges, are undoubtedly a very dark time in our history. I hope that all of you and your families are weathering it well. However, there have been a few rays of sunshine during the pandemic. Working remotely has given all of us a different perspective in many areas, including how we perform our work and set our priorities.

The activities of the Florida Board of Professional Engineers and its office operations are no exception. Due to the ongoing COVID-19 pandemic and "Safer at Home" guidelines, the FBPE staff are continuing to primarily work remotely. I'm happy to report that all activities appear to be continuing without any significant interruption, including the current renewal of all licenses. Much credit must be given to the Board's Executive Director, Zana Raybon, and all of her staff for their hard work. They quickly developed a plan to deal with the challenges of working remotely, executed that plan flawlessly, and have adjusted as needed. If you need to contact the Board's offices, email is generally the preferred method, as there may be delays in returning phone calls. Additional information may be found on the Board's website: <https://fbpe.org/>

A significant change for Board activities is that at least for now, all meetings are being held virtually where most were previously only in-person. This presents a unique opportunity to attend a Board meeting without having to travel; you can attend from the comfort of your own computer. Board meetings have always been open to the public and that has not changed. The calendar for all meetings, including meetings of the Florida Engineers Management Corporation (FEMC) and various standing and ad hoc committees, is on the Board's website. I would note that some meetings have a limited agenda, such as reviewing applications, or disciplinary hearings for example. If you would like to attend a meeting, you will need to contact the Board office to register. The office can also tell you what is on the agenda for each meeting so you can attend one(s) matching your interest.

Whether you are a PE looking to attain required CEHs, or an engineer looking to learn something new or keep current with the latest trend in the profession, IEEE has seminars that will meet your needs. And if you haven't completed your required continuing education for the 2021 PE renewal, no time to waste! You only have until February 28!

Art Nordlinger, PE, Senior Member

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 \$30, including tax, for S-XL size's, 2XL size is \$3 additional.

For more information or to order shirts contact: Allan Jusko 386-671-3706 or a.jusko@ieee.org

FUTURE MEETING DATES:

Planned 2021 meetings, depending on the coronavirus situation at the time:

Spring semester: Feb 25, Mar 25, Apr 22

Fall semester: Sep 23, Oct 28, Dec 2

EDITORS NOTES

Visit our Daytona Section website: <https://ewh.ieee.org/r3/daytona/>

ENGINEERING HUMOR



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