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Announcements

IEEE Awards



IEEE Maine Section: the clock is ticking towards the June 15th deadline to nominate candidates for the 2022 IEEE Medals and Recognitions. IEEE Awards inspire achievement and set a standard of excellence and a motive to aspire to shape the future for the benefit of humanity, one innovation at a time. Nomination forms, guidelines, and important deadlines can be found at <https://corporate-awards.ieee.org>. Please [contact the IEEE Maine Section Awards Committee](#) if you are interested in making a nomination.

Upcoming Events

Lightning Interaction with Transmission and Distribution Power Systems

Wednesday, April 21, 4:00 PM to 5:00 PM, Free via Zoom; meeting ID and passcode posted at <https://www.emcsbostonchapter.com/events>

The major mechanisms by which lightning over-voltages are produced in power transmission and systems will be discussed. The over-voltages’ general characteristics will be evaluated, along with their dependence upon the network configuration. The presenter will be [Prof. Dr. Alexandre Piantini, University of São Paulo, Brazil](#). Hosted by the [IEEE EMC Society Boston Chapter](#). Visit <http://ieeeboston.org/event/lightning-interaction-with-transmission-and-distribution-power-systems/> for more info.

New Hampshire Section Broadband Forum

*Wednesday, April 21, 7:00 PM to 9:00 PM, Online; **Free Registration required***

The Forum will address the challenges of providing broadband internet access to sparsely populated states. Panelists [Eric Burger](#), [Steve Camerino](#), and [Larry Press](#) will discuss the network technologies used and proposed for broadband access and address the technical and economic viability of each for urban, suburban, and rural areas. Hosted by [IEEE New Hampshire Section](#). Visit <https://events.vtools.ieee.org/m/269186> for more info.

[Continues Next Page]

Section Officers

Executive Committee:

Chair: [Betina Tagle](#)

Vice Chair: [Alisha Chaney](#) (she/her)

Treasurer: [Shengen Chen](#)

Secretary: [Ashanthi Maxworth](#)

Standing Committee Chairs:

Membership Development Chair:

[Rich Hilliard](#)

Newsletter Editor: [David Klein](#)

Webmaster: [Doug Sprague](#)

Public Relations Committee:

[Ron Brown](#)

Professional Activities Committee:

[Dick Wilkins](#)

Educational Activities Committee:

[Matt Ring](#)

Student Activities Committee:

[Lauren Mayhew](#)

Audit Committee: [Ron Brown](#) &

[Ali Abedi](#)

Member at Large: [Daniel Spacek](#)

IEEE Student Chapter faculty

advisors: [Jude Pearse](#) (UM) &

[Mustafa Guvench](#) (USM)

HKN Student Chapter faculty

advisor: [Ali Abedi](#)

Technical Chapter & Affinity Groups (AG) Chairs:

Young Professionals AG Chair:

[Matt Dube](#)

Women in Engineering AG Chair:

[Sonia Naderi](#)

Electron Devices + Solid-State Circuits Societies Joint Chapter

Chair: [Jifa Hao](#)

Communications + Computer Societies Joint Chapter Chair:

[Julia Upton](#)

Power & Energy + Industry Applications Societies Joint

Chapter Chair: [Jesse Shank](#)

Engineering in Medicine & Biology Society ME/NH/VT Joint Chapter

Co-Chair: [Rosemary Smith](#)

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Upcoming Events [continued from page 1]

Introduction to Blockchain Technology

*Friday, April 23, 10:00 AM to 11:00 AM, Online; **Free Registration required***

Since the introduction and rise of cryptocurrencies over the past decade, an interest in blockchain technology applications for various industry sectors has also arisen. This seminar will introduce participants to the background and history of blockchain technology, the discussion of both private and public blockchain solutions, the creation of smart contracts, and the various considerations an organization must make during a blockchain implementation. Hosted by the [Entrepreneurship and Technology Innovation Center \(ETIC\)](#) at NYIT. Visit https://www.nyit.edu/events/Introduction_to_Blockchain_Technology for more info.

Predictor Antenna: A Technique to Boost the Performance of Internet-of-Vehicles (IoV) Networks

*Friday, April 23, 11:00 AM to 12:00 PM, via Zoom, **Free Registration***

IoV refers to serving the in-vehicle users and supporting the connected-vehicle functionalities, where both can be provided by the transceivers installed on top of the vehicles. Such dual functionality of the on-vehicle transceivers implies strict rate and reliability requirements, for which one may need to utilize large bandwidths/beamforming, acquire updated channel state information and avoid blockages. [Dr. Behrooz Makki](#) of [Ericsson Research](#) will discuss the concept of predictor antennas (PAs) as an efficient technique to improve the performance of such IoV links, and the potentials/challenges of PA systems. Co-sponsored by [IEEE Montréal Section](#). Visit <https://events.vtools.ieee.org/m/269144> for more info.

The Big Game: Hunting for Reliable Access to Secure Electronics

*Friday, April 23, 2:00 PM to 3:00 PM, Online; **Free Registration required***

Recent headlines exposing automotive electronic shortages that impact production have highlighted escalating U.S. electronic supply chain issues and the reliance on foreign design and manufacturing for key components. [Terence Yeoh](#) will moderate an IEEE-USA panel, as panelists [John Costello](#) (EVP, [Microchip](#)), [Dave Bass](#) (CTO, [Integra Technologies](#)), [Vern Boyle](#) (VP, [Northrup Grumman Mission Systems](#)), and [Kevin McTigue](#) (SVP, [Global Technical Systems](#)) discussing the FY2021 National Defense Appropriations Act's directive to protect access to advanced microelectronics. Gain insight from industry leaders into solutions to measurably secure electronics needed for critical capabilities. Hosted by [IEEE-USA](#). Visit <https://events.vtools.ieee.org/m/264981> for more info.



5G Multi-access Edge Computing (MEC) and Related Applications

*Monday, April 26, 5:00 PM to 6:00 PM, via Zoom; **Free Registration required***

[Dr. Sanyogita Shamsunder](#), Vice President of Technology Development and [5G Labs at Verizon](#), will discuss 5G MEC and related applications. The idea behind MEC is that by performing processing tasks closer to the cellular customer, network congestion is reduced and applications perform better. MEC technology is designed to be implemented at cellular base stations or other edge nodes, and enables flexible and rapid deployment of new applications and services. Sponsored by [NYIT](#), [IEEE NYIT Student Branch](#), and [IEEE R1 Student Activities Committee](#). Visit <https://events.vtools.ieee.org/m/263298> for more info.

[Continues Next Page]

Upcoming Events [continued from page 2]

IEEE Women in Engineering International Leadership Conference (Virtual)

Tuesday, April 27 to Friday, April 30, Online; see [registration webpage](#) for admission pricing info

The IEEE WIE ILC aims to support and sustain women leaders and technologists. Enhance your leadership skills and knowledge of the tech industry, while networking with 1000+ STEM leaders from around the world. This year's keynote speakers include [Dr. Mae C. Jemison](#), [Stacey Abrams](#), [Toshio Fukuda](#), [Sandy Carter](#), [Lynne Doherty](#), [Sandra L. Rivera](#), [Julie Coker](#), [Ann Francke](#), [Kavitha Prabhakar](#), and [Susan M. Armstrong](#). Visit <https://ieeewie-ilc.org> for more info.



Connecting the Oceans to Space: Developing A Floating Renewably-Powered Autonomous Underwater Vehicle Servicing Platform with LEO Constellation Data Uplink

Wednesday, April 28, 6:00 PM to 7:00 PM, via Zoom; **Free Registration required**

Autonomous Underwater Vehicles (AUVs) provide persistent ocean observations and measurements, but are limited by battery capacity and onboard processing power, and must be retrieved to download most data. [Dr. Maha Haji of Cornell](#) and [MIT](#) will discuss efforts to extend the range and endurance of AUVs while reducing data latency and operating costs, utilizing renewable energy and data uplink via low-Earth orbit satellite constellations. Hosted by the Boston Chapter of the [IEEE Geoscience and Remote Sensing Society \(GRSS\)](#). Visit <https://events.vtools.ieee.org/m/264832> for more info.

Managing Complexity in Tech Projects

Thursday, April 29, 11:00 AM to 12:00 PM, via Webex; **Free Registration required**

A panel will discuss workflow and capacity management issues unique to tech project management. More details and speakers to be announced. Hosted by the [Maine Technology Users Group \(MTUG\)](#). Visit <https://mtug.org/mtug-events/2021-04-29-exectechwebinar-managing-complexity-in-tech-projects> for more info.



The Magnetic Monopole Ninety Years Later

Friday, April 30, 3:00 PM to 4:00 PM, via Zoom; link and meeting ID on info page

Since its invention ninety years ago, the magnetic monopole has fascinated physicists and mathematicians alike. On the one hand, experimental detection of a monopole would provide an explanation of charge quantization, a smoking gun for grand unification, and a new window into inflationary cosmology. On the other hand, the study of mathematical representations of monopoles has spurred developments in geometry and topology and has brought physics and mathematics closer together. [Dr. Andy Royston](#) from [Penn State Fayette](#) will discuss the magnetic monopole and highlight some of its achievements. Hosted by [NYIT](#). Visit https://www.nyit.edu/events/the_magnetic_monopole_ninety_years_later for more info.

RFID for Human Activity Sensing: Challenges, Solutions, and Applications

Sunday, May 2, 8:00 PM to 9:00 PM, Online; **Free Registration required**

With the rapid development of radio frequency (RF) sensing in the Internet of Things (IoT), human activity sensing, detection and tracking have attracted increasing attention. Among the various RF sensors, [radio-frequency identification \(RFID\)](#) tags can be used as wearable sensors on the human body, and have the unique advantages of low-cost, small form factor, battery-free, and robustness to surrounding interference. [Dr. Shiwen Mao](#), an IEEE Distinguished Lecturer, will talk about the various technical challenges on fully exploiting RFID for human activity recognition and tracking, such as frequency hopping and noisy/sparse RFID data, and examine potential solutions. He will review recent works on RFID-based human vital sign monitoring, drowsy driving detection, and 3D human pose monitoring and tracking, and provide his thoughts on future work in the area. Co-hosted by the [IEEE Maine Section Joint Com/CS Chapter](#). Visit <https://meetings.vtools.ieee.org/m/265684> for more info.



IEEE Maine Section Executive Committee (ExCom) Meeting

Monday, May 3, 5:00 PM to 6:30 PM, via Zoom

Upcoming Events [continued from page 3]

From Top-Level Design Specification to Detail Design

Tuesday, May 4, 12:45 PM to 1:45 PM, via Zoom; **Free Registration required**

Ed Palacio of P&L Technical Management Solutions Corp. will discuss the process of breaking down top-level system specifications into detailed design requirements that an individual designer can address. Sponsored by NYIT, IEEE NYIT Student Branch, and IEEE R1 Student Activities Committee. Visit <https://events.vtools.ieee.org/m/263299> for more info.

Artificial Intelligence for Healthcare

Thursday, May 6, 3:00 PM to 4:00 PM, via Zoom; **Free Registration required**

The topic will be developments in AI for Healthcare. The speakers will be announced prior to the presentation. Part of the [University of Maine Artificial Intelligence Webinar Series](https://ai.umaine.edu/webinars/). Visit <https://ai.umaine.edu/webinars/> for more info.



The Role of AI in 5G/6G and IoT-Enabled Smart Grids

Monday, May 10, 12:00 PM to 2:00 PM, Online; **Free Registration required**

Dr. Melike Erol-Kantarci of the [Networked Systems and Communications Research Lab](#) at the [University of Ottawa](#) will discuss how AI-enabled wireless networks provide a bridge from 5G to 6G communications. Dr. Hadis Karimipour of the [Smart Cyber-Physical Systems Research Lab](#) at the [University of Guelph](#) will discuss intelligent cyber-security analysis in Internet of Things (IoT) enabled Smart Grids. Co-hosted by [IEEE Montréal Section](#) and several [Young Professionals](#) chapters. Visit <https://events.vtools.ieee.org/m/265629> for more info.



It's All in the Noise – Universal Noise-Centric Decoding

Thursday, May 13, 6:00 PM to 8:00 PM, Online; **Free Registration required**

In 1948, [Claude Shannon](#) identified the greatest rate (capacity) at which data can be communicated over a noisy channel. His proposed algorithm used a code-centric Maximum Likelihood (ML) decoding, where channel outputs are compared to all possible input codewords to select the most likely candidate based on the observed channel output. Despite its elegance, Shannon's ML decoding algorithm is impractical from a complexity perspective. [Prof. Muriel Médard](#) of [MIT](#) will introduce a new algorithm, Guessing Random Additive Noise Deceasing (GRAND) for a noise-centric, rather than code-centric, ML decoding. Results show that, with GRAND, even extremely simple codes match or outperform state of the art code/decoder pairs. Hosted by [IEEE Montréal Section](#). Visit <https://events.vtools.ieee.org/m/268217> for more info.

Creating Web Applications with C#

Friday, May 14, 10:00 AM to 11:00 AM, Online; **Free Registration required**

Since the introduction of web-based development tools, there has been an increased demand for web developers. One of the most popular and powerful web-based development applications is the .NET framework from Microsoft and more specifically the C# programming language. C# enables developers to program web, mobile, and desktop applications. Participants will receive an introduction to developing powerful web-based applications using C#. Hosted by the [Entrepreneurship and Technology Innovation Center \(ETIC\)](#) at NYIT. Visit https://www.nyit.edu/events/Creating_Web_Applications_with_C1 for more info.

Reconfigurable Intelligent Surfaces: A Signal Processing Perspective

Monday, May 17, 12:00 PM to 1:30 PM, Online; **Free Registration required**

Underlying physics makes delivery of wireless broadband services inherently complicated: the signal power vanishes very quickly with the propagation distance and is absorbed or scattered when interacting with objects in the way. [Dr. Emil Björnson](#) of the [KTH Royal Institute of Technology](#) will discuss reconfigurable intelligent surfaces—an emerging concept for beyond-5G communications—that support the transmission from a source to a destination by deploying metasurfaces to reconfigure how incident signal waves are scattered. Co-hosted by [IEEE Montréal Section](#) and several [Young Professionals](#) chapters. Visit <https://meetings.vtools.ieee.org/m/266024> for more info.



[Continues Next Page]

Upcoming Events [continued from page 4]

Programming with Python

Friday, May 21, 10:00 AM to 11:00 AM, Online; **Free Registration required**

Python has become one of the most popular languages to solve organizational challenges. The Python language has interfaces to popular electronic devices like Raspberry Pi and Arduino control boards and has dozens of libraries that allow users to interact with large datasets, machine learning algorithms, and object recognition. This introduction will help you quickly get started programming in Python. Hosted by the [Entrepreneurship and Technology Innovation Center \(ETIC\)](#) at NYIT. Visit https://www.nyit.edu/events/Programming_with_Python for more info.

Progress Reports for the University of Maine's Artificial Intelligence Seed Grants

Thursday, June 3, 12:00 PM to 1:00 PM, via Zoom; **Free Registration required**

In July, 2020, the University of Maine announced seed grant funding for four artificial intelligence projects (<https://ai.umaine.edu/2020/07/17/seed-grant-announcement/>). The project teams will provide an update on their progress. The speakers will be announced prior to the presentation. Part of the [University of Maine Artificial Intelligence Webinar Series](#). Visit <https://ai.umaine.edu/webinars/> for more info.



IEEE Maine Section Executive Committee (ExCom) Meeting

Monday, June 7, 5:00 PM to 6:30 PM, via Zoom

Melt Probes for A Future Europa Lander

Tuesday, June 8, 6:00 PM to 7:00 PM, via Zoom; **Free Registration required**

Jupiter's moon Europa is believed to harbor not only liquid water but also easily available energy and biologically essential elements. However, these are not readily available at the surface—an ice crust up to 30 km thick covers the liquid water. [Paula do Vale Pereira](#), an Aerospace Engineering PhD Candidate at MIT, will discuss having built and experimentally tested the performance of a set of melt probes under thermodynamic conditions similar to those of Europa. The probes are designed to test the fundamental thermal properties of melt probes in cryogenic ice. Hosted by the Boston Chapter of the [IEEE Geoscience and Remote Sensing Society \(GRSS\)](#). Visit <https://events.vtools.ieee.org/m/265360> for more info.

IEEE International Conference on Communications (Virtual)

Monday, June 14 to Wednesday, June 23, Online; see [registration webpage](#) for admission pricing info

One of the [IEEE Communications Society's](#) two flagship conferences. This 5-day event includes distinguished keynote speakers from industry, academia and government sectors; panels and forums; technical sessions featuring peer-reviewed technical papers; workshops focusing on the latest trends in various technology; and tutorials delivered by experts in respective disciplines. Hosted by [IEEE Montréal Section](#). Visit <https://icc2021.ieee-icc.org> for more info.



ReVision Energy Virtual Tour and Q&A Webinar

Thursday, June 24, 12:00 PM to 1:00 PM, Free Online; registration details to follow

[ReVision Energy](#), an employee-owned New England solar company, will provide a video tour of their facility, followed by a live half-hour question-and-answer session with the company's co-founder, [Fortunat Mueller](#) (PE). He leads the operational side of the company, overseeing design, engineering, and installation operations. He also is lead engineer on new product development, including microgrids, battery storage, solar parking canopies, electric vehicle charging, and heat pumps. Hosted by [IEEE Maine Section](#) and [IEEE Maine PES/IAS Joint Chapter](#).



See the [IEEE Region 1 Calendar \(https://r1.ieee.org/calendar/\)](#) and [IEEE vTools \(https://meetings.vtools.ieee.org/events/search\)](#) for more events.

Chair's Corner



By *Dr. Betina Tagle*

The IEEE R1 (Maine) Section leadership and committees want to extend an invitation to be a part of our Maine section. We are here for

our members and our purpose is to help you develop your goals. We are working on some events and activities that we hope will be of

interest. In the meantime, we would love to hear from you. Please feel free to reach out. You can send us a note through our Contact page on the Maine website: <https://r1.ieee.org/maine/>. Or, please feel free to [contact me directly](#).

We appreciate our members and rely on each of you!

R/IEEE R1 (Maine) Section Chair

Thank You for Sponsoring the Maine State Science Fair



By *Stefany Burrell*
STEM Education Specialist,
Maine Mathematics and Science
Alliance (MMSA)

I would like to thank IEEE for being one of Maine State Science Fair's event sponsors. It was an amazing day! After a busy morning of judging that involved more than 150 students and 100 judges, we had a live-streamed presentation from [Dr. Nirav Shah](#) of [Maine CDC](#). The students had some great questions for him!

Once that concluded, the students entered a virtual space called "Gather" where they moved tiny video game characters around a virtual conference space. The students were able to look at each others' posters, hear presentations from their peers, play games together, and have impromptu video chats. We concluded the day with a live-streamed awards ceremony. This year, we asked students to submit their headshots. It really personalized the event. While we couldn't see their excitement in person, it was still touching to see so many of the young faces

we'd been working with throughout the winter and spring.

Please check out our list of winners either on the [MSSF website](#) or in our [awards slideshow](#). If you look at the awards show, you will see the IEEE logo right before our Engineering award winners.

The student who took the top prize in the Engineering category was Vetri Vel from [Bangor High School](#). He developed a system that combines artificial intelligence with thermal imaging to detect if a person has fallen. The system sends a text

to family members to let them know that their loved one may have had a fall. Vetri also earned second place overall for this project. On the web link above, you will see a video carousel where you can watch a video Vetri made to demonstrate his device. In fact, all three of our Grand Award winners had engineering-based projects; one in Environmental Engineering and the other in Biological Sciences. These kids are amazing!

Again, thank you for supporting Maine State Science Fair.



You've always set yourself apart.

IT'S TIME TO MAKE IT OFFICIAL.

APPLY

for Senior
Member grade

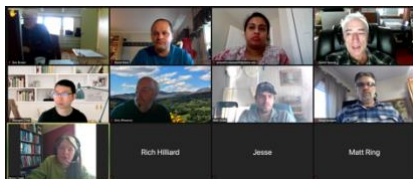


Executive Committee Session

Editor's synopsis based in-part on draft minutes

On April 12, the IEEE Maine Section Executive Committee (ExCom) held their monthly session on Zoom.

Meeting minutes from the March 1, 2021 meeting were approved unanimously.



Section Chair **Betina Tagle** presented the chairperson's report, summarizing the information from the IEEE Region 1 (R-1) governance meeting. A first topic she addressed was the need to have a quorum for voting: in order to approve policies, procedures and other proposals, a quorum should be met; if there is no quorum, the Section should move to e-vote or another form of voting.

A second topic addressed was how small IEEE sections (i.e., 500 or fewer members) can engage with the local community and other nearby IEEE sections. In this regard, Betina mentioned funding is available for humanitarian projects through R-1. Betina requested comments from the Executive Committee on this matter.

A third topic of Betina's report was about forming a volunteer committee comprised of senior, life, and other membership categories. Similarly, she proposed forming a committee to help the Section and Section members compete for IEEE Awards.

(Editor's Note: an Awards Committee has since formed; a hyperlink to email the Committee is embedded above in the IEEE Awards Announcement on Page 1).

As the next item on the agenda, Section Treasurer **Shengen Chen** presented the Treasurer's Report. There were two sponsorships in February: \$1,750.00 to the Maine State Science Fair and \$500.00 to the Maine Engineering Virtual Expo. Shengen also mentioned that IEEE is changing banks, so the Section's account will be moving.

As the next item, Membership Development Chairperson **Rich Hilliard** said that Maine Section currently has 380 members. That number includes 8 renewals and 8 new members. A majority of this membership belongs to the [Computer Society](#) followed by the [Communications Society](#) and [Young Professionals](#).

[PES/IAS](#) Joint Chapter Chair **Jesse Shank** expressed concerns about membership declining from last year. Newsletter Editor **David Klein** expressed the same concern, based on statistics he received in February. Following a discussion about the overlap of member numbers between the societies, Public Relations Chair **Ron Brown** emphasized the importance of knowing the actual numbers when organizing events.

David and Webmaster **Doug Sprague** presented an analysis on social media platforms that might be suitable for outreach. Their presentation addressed a variety of platforms, including Facebook, Instagram, LinkedIn, Twitter, and Meetup.

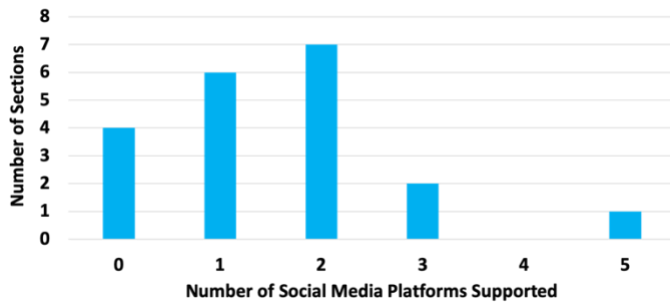
As laid out at the start of the presentation, the objectives for social media include: 1) boosting Member retention and engagement, 2) attracting potential new Members, 3) promoting Section events, 4) driving traffic to the Section website, and 5) being sustainable for the Section.

The analysis included the findings of [a study on Social Media Use](#) published by the [Pew Research Center](#) on April 7, 2021, and a survey they made of the social media efforts of 20 selected IEEE sections in the Northeast U.S. and Eastern Canada (excluding the large Sections in NYC, Montréal and Boston).

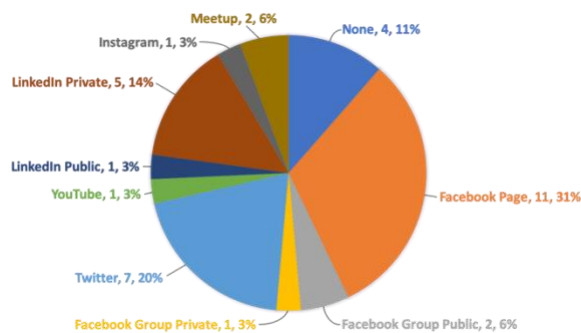
Based on Maine Section demographics, platform features and reach, and their review of the other sections' social media, they concluded that having a Facebook Page would be the best way to promote Section events. They also suggested having multiple people manage the page to improve sustainability.

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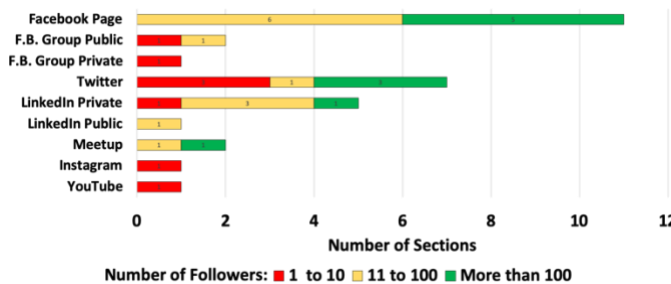
From the presentation, here is the number of social media accounts supported by each of the sections:



Here is a pie chart showing the social media options chosen by the sections:



Here is a bar chart showing engagement by platform, based on the number of follower/subscribers:



Young Professionals Chair **Matt Dube** mentioned that many sections post their IEEE vTools links on Facebook to attract members for the events.

Although Facebook was suggested for promoting events, the idea of also launching a private group on LinkedIn was discussed, to help facilitate communications with, among, and between Section Members. There was also discussion of having a YouTube channel to act as a media repository for Section event videos.

Following the presentation, Ron asserted that it is important to have a single person in-charge of social media even if multiple people are allowed to post. In response, Doug explained that everyone would be working as a collaborative team, rather than posting individually. Ron also suggested reaching out to nearby New Brunswick and Nova Scotia Sections, due to similarities in section size and member distribution, to see what other tools (besides social media) they might be using for community outreach.

Along the same lines, Betina raised the question of who will be the person in-charge of getting the Section’s social media started. There was a discussion about this being a suitable internship opportunity for a student. Matt suggested that for the proposed internship, the supervisory role be shared by the IEEE Young Professionals Chair and the Maine Section Webmaster.

Ron suggested that it is necessary to come up with a detailed set of objectives for social media outreach beyond the high-level objectives offered in the presentation, and to then prepare a formal job description for the student internship position. David and Doug agreed to take on this responsibility and provide a draft of the description for the next ExCom meeting.

Jesse shared that the IEEE Technical Activities sub-committee and the Power & Energy Society will be hosting a virtual tour of [ReVision Energy](#) this summer, followed by a question and answer session with its co-founder. Details are being finalized.

Following this, there was discussion of uploading and sharing a video of the tour/presentation with IEEE members and non-members. David pointed out that the Section should get permission from ReVision Energy before doing so. Member-at-Large **Dan Spacek** said that he will verify their proprietary material sharing policy with them.

Advocating for Rural Broadband Improvements



By *David Klein*
Newsletter Editor

[IEEE New Hampshire Section](#) Chair
[Jim Isaak](#) has been advocating for
broadband in rural New

Hampshire, and NH Section [PES](#) Chair [Tom Mongeon](#) worked to create [a broadband co-op](#) that received grant money to bring broadband to a rural NH community as an alternative option to the mainstream broadband service provider.

Maine also needs broadband advocates, as private providers have been slow to build-out broadband in rural communities where the population is sparse and return-on-investment is low. Even some of Maine's more densely populated areas lack high-speed service. Moreover, some Mainers have difficulty affording commercial broadband.

In an effort to begin closing the digital divide, in 2006, Maine created the [ConnectME Authority](#) to facilitate the universal availability of broadband to all Maine households and businesses. [Duties of ConnectME](#) include:

- Establishing criteria defining unserved and underserved areas;
- Promoting use of broadband service;
- Supporting broadband investment;
- Facilitating state support of deployment of broadband infrastructure;
- Collecting and disseminating information; and
- Administering funds.

While that was a good start, ConnectME was initially hobbled by state laws and a lack of funding that hindered its ability to carry out its mission. Change has been slow, but momentum has been picking up.

In 2015, the Maine legislature [adopted](#) a bill (passed without the Governor's signature) that allows the establishment of regional municipal utility districts to support broadband communications. The bill, as

amended, modified Maine's laws governing interlocal agreements to expressly allow an agreement that establishes a regional municipal utility district to provide or, through public-private partnerships, to support or promote the provision of broadband and Internet services, and to issue revenue bonds in support of any of those activities. See [Maine Revised Statutes, Title 30-A, Section 2203, Sub-Section 9](#).

An early success story that benefited from that change was the Town of Islesboro, which in 2016, approved a \$3.8M bond to fund construction of a dark fiber-to-the-premise infrastructure capable of delivering 1-gigabit Internet access to every home or business on Islesboro as well as the neighboring Minot, Seal and 700 Acre Islands. Visit the [Islesboro Municipal Broadband webpage](#) for more info.

In 2018, [Maine's Department of Economic and Community Development \(DECD\)](#) put forward [A Broadband Action Plan](#), which among other things, provided a blueprint for improving rural broadband in the state. And in 2019, the State adopted a law designed to help communities provide broadband, exempting municipalities from paying make-ready fees to use utility poles in unserved and underserved areas. See [Maine Revised Statutes, Title 35-A, Section 2524](#). ConnectME was given the authority to determine the criteria for what constitutes an "unserved" or "underserved" area. See [Maine Revised Statutes, Title 35-A, Section 9202\(5\)](#) and [Section 9204-A\(1\)](#).

However, as things stood in 2019, Maine continued to be among the lowest ranked states for internet speed and accessibility in the country, holding back the state's economic development. For example, see [this 2019 New Center Maine article](#).

"Maine households subscribe to broadband services at a rate of a little better than half of the national average. The lower the so-called "take rate," the

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less the financial incentive there is for a private company to invest to extend a broadband line into a new neighborhood. This points out that the issue is not simply the availability of broadband, but also its affordability.” See [Maine Economic Development Strategy 2020-2029](#), page 30.

To that end, the state updated its [Broadband Action Plan](#) in 2020, acknowledging some basic realities: “The private sector broadband investment model doesn’t work in rural Maine. The low population density and limited scale make it unprofitable for the private sector to expand their networks with private investment only. This persistent market failure is the driving force behind state, local and federal investments in high speed internet connectivity for rural areas.” See page 3. The 2020 Plan lays out funding and investment objectives through 2025, and adopts a community-based planning model, allowing communities to develop their own solutions.

An upside of the community-based model is that hopefully it will avoid some of the pitfalls of massive, centrally-planned rollouts, which generally have not gone well. Examples include Kentucky’s debacle (see [this 2019 article from the Louisville Courier-Journal](#) and [this article from ProPublica](#)) and Australia’s troubled national broadband network (see [this 2019 article from IEEE Spectrum](#)).

Even so, for Maine’s community-based planning model to work, it is *essential* that Maine communities take the initiative and plan their own high-speed broadband solutions.

Maine communities are acting, such as Franklin County communities joining together to obtain a \$1M grant to provide high-speed fiber optic internet for the towns of Carthage, Perkins, Temple, Washington, Weld, and Wilton (see [this August 2020 announcement from the Greater Franklin Development Council](#)), and Orono and Old Town working with the University of Maine System to build high-speed internet infrastructure there (see [this February 2021 article by News Center Maine](#)).

And while there is always quibbling, Maine politicians from both major parties have indicated their support for funding rural broadband (see, for example, [this February 2021 announcement regarding a \\$30M broadband infrastructure-expansion budget proposal from Governor Mills](#) and [this March 2021 News Center Maine article about Senator Collins co-sponsoring a \\$15B bill to fund building-out rural broadband](#)).

If this topic interest you, consider joining some of the discussions held by the [Maine Broadband Coalition](#), and attending [IEEE New Hampshire Section’s Broadband Forum this Wednesday, April 21, from 7:00 PM to 9:00 PM](#).

Supporting Event:

IEEE New Hampshire Section Broadband Forum

Wednesday, April 21, 2021, 7:00 PM to 9:00 PM

The IEEE Broadband Forum is a free, virtual event addressing the challenges of providing broadband internet access to sparsely populated states. The forum will discuss the network technologies used and proposed for broadband access and address the technical and economic viability of each for urban, suburban, and rural areas. Open to the public and civic leaders, the speakers will answer questions from the online audience.

Event description and registration for Zoom access is at: <https://events.vtools.ieee.org/m/269186>

The event will be recorded and posted on the IEEE New Hampshire Video [YouTube page](#).

IEEE Sections Congress Training Takeaways



By Dr. Betina Tagle
Maine Section Chair

The IEEE Sections Congress Virtual Training was held online for three days (April 9th to 11th) this year.

This event provides IEEE section leaders from around the world with an opportunity to learn and share tools, techniques, and information that will help them build their sections and their membership. The sections are there for the IEEE members and it is our responsibility to work to bring them information that will develop their careers and goals.

The training sessions were full of good information for section leadership, covering topics such as improving section activities, better engaging student members, volunteer recruitment, section best practices, and adding value for the members.

There was also a virtual exhibit hall where attendees could meet with staff from various IEEE programs and services, and virtual networking sessions where attendees could meet each other.

Maine is a small section. The value of gaining ideas for membership growth and retention brought



some good ideas. One suggestion was to bring in an element of social activities to engage members during this ongoing pandemic. We all probably are getting a little virtual burnout and miss live social interaction.

A big idea that I walked away with is to incorporate a hybrid approach to social events. This approach is to mix virtual with live, where an event is available via a virtual platform, but the attendees may come together in different physical locations to watch it and serve food (based on COVID rules).

One section had an example where they did a comedy night—laughter is known to be a good dose of medicine for the pandemic blues.

The biggest takeaway is that section leadership needs to get to know their members. This is the new mission of the Maine Section. IEEE is here for the members!

See who was there, virtual banner >
<https://www.kudoboard.com/boards/P6iznG61>

IEEE R1 Maine Section website >
<https://r1.ieee.org/maine/>

Half-Off IEEE Student Membership Discount

New and renewing IEEE students and graduate students can now save 50% on their membership dues. Students wishing to take advantage of the 50% discount can do so by using the promotion code FUTURE50 during the online check-out process for [joining or renewing](#) their IEEE membership. Students who recently renewed or joined at full price can reach out to the IEEE Contact Center at: contactcenter@ieee.org and request a credit on future membership dues.



Regional Calls for Papers

2021 IEEE High Performance Extreme Computing Virtual Conference

HPEC is the largest computing conference in New England and is the premier conference in the world on the convergence of High Performance and Embedded Computing. Our community is interested in computing hardware, software, systems, and applications where performance matters. We welcome experts and those new to the field. Hosted by [IEEE Boston Section](#).

Submission Deadline: Friday, July 9, 2021

Notification of Acceptance: Friday, August 13, 2021

Camera Ready Deadline: Tuesday, August 31, 2021

Conference: Tuesday, September 21 to Thursday, September 23, 2021, Online

Visit <http://ieee-hpec.org/cfp.htm> for more info.



2021 IEEE 5G World Forum

The 5G World Forum aims to bring experts from industry, academia, and research to exchange their vision as well as their achieved advances towards future networks of 5G beyond and encourage innovative cross-domain studies, research, early deployment and large-scale pilot showcases that address the challenges of future networks. Hosted by [IEEE Montréal Section](#), [IEEE ComSoc](#), [IEEE Computer Society](#), and [IEEE Future Networks](#).

Technical paper submission: Thursday, July 15, 2021

Acceptance Notification: Sunday, August 15, 2021

Camera-ready submission: Sunday, September 5, 2021

Conference: Wednesday, October 13 to Friday, October 15, Virtual with optional in-person in Montréal, QC

Visit <https://ieee-wf-5g.org> for more info.

2021 Virtual IEEE International Symposium on Technologies for Homeland Security

The HST symposium brings together innovators from leading academic, industry, businesses, [Homeland Security Centers of Excellence](#), and government agencies to provide a forum to discuss ideas, concepts, and experimental results. This year's event will showcase emerging technologies in Cyber-Security, Frontier Technologies, Climate Resilience, and Borders Enforcement. Produced by IEEE with support from [IEEE Boston Section](#), [IEEE-USA](#), [MIT Lincoln Laboratory](#), and [Raytheon](#).

Submission Deadline: TBA

Conference: Monday, November 8 and Tuesday, November 9, 2021, Online

Visit <http://ieee-hst.org> for more info.

2023 IEEE International Ultrasonics Symposium (IUS)

Present the latest developments in the field of ultrasonics, ferroelectrics, and frequency control. Hosted by [IEEE Montréal Section](#).

Paper Submission Deadline: Saturday, April 1, 2023

Conference: Tuesday, September 5 to Friday, September 8, 2023

Visit https://conferences.ieee.org/conferences_events/conferences/conferencedetails/51837 for more info.

Search IEEE's Call for Papers Database of over 1,800 conferences for opportunities to submit abstracts and papers in your field of interest by visiting <https://publication-recommender.ieee.org/home>. The search results provide key data at a glance, including conference titles, locations, submission deadlines, and conference dates. This search tool can also be used to search over 190 periodicals for non-conference publishing opportunities.

Call for Articles and Events

The Beacon and Maine Section website are always looking for content. In particular, please share:

Events: Upcoming live engineering, science, and professional development events in Maine. Please let us know about the event at least four weeks beforehand, although we will try to accommodate shorter notice when practical. With your submission, please provide: (1) what organization is presenting the event, (2) the date and time of the event, (3) how/where the event will be presented (e.g., interactive online video, physical in-person location, etc.), (4) whether advanced registration is required (and the deadline to register, if applicable), (5) whether there is any cost to attend, and (6) a URL and/or contact e-mail address where interested parties can obtain more information.

Articles: We are interested in original technical, professional development, college-life, and Maine-interest articles, as well as opinion pieces about issues relevant to the engineering community. Original graphics and photographs are encouraged. Length is flexible.

Patents and Publications: Please let The Beacon know if you are presenting a paper at a conference, have recently been published in a peer-reviewed journal, or have recently received a U.S. Patent.

Newsworthy Stories: Do you know about something that might be of interest to IEEE Maine Section members that might have otherwise escaped their attention? If it is something that you've seen in media or in a press release, please provide a link to the source so that we may provide attribution.

All submissions are subject to editorial review. Please refrain from submitting content that is intended to promote a commercial product or service.

Send submissions by e-mail to: IEEEMaineBeacon@gmail.com.



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