



October 2021

Volume 25, Issue 8

<https://r1.ieee.org/maine/>



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Happy Halloween



Announcements

Call for Nominations: The Section seeks nominations for the positions of Chair and Vice-Chair to serve from January 2022 through December 2023. All Section members are eligible. Please submit nominations via <https://r1.ieee.org/maine/contact/> no later than November 15th. Nominations will be reviewed by the Section's Nominating Committee (composed of former Section Chairs Ali Abedi, Ron Brown, and Dick Wilkins), who will prepare a recommended slate of candidates for ratification by the Section's Executive Committee, with an election by the membership to follow. The Treasurer and Secretary each have one year of term remaining.

Maine Section has launched a **Facebook page**. Find us at <https://www.facebook.com/ieeeme>. Please follow, share, and let us hear from you.

Find us on 

If economic circumstances impact your ability to pay your 2022 IEEE dues, see page 9 for information on reduced dues options.

Upcoming Events

Learn to Hack Modern Websites with OWASP Juice Shop

Wednesday, October 27, 11:00 AM to 12:00 PM, via Webex; *contact MTUG to register*

Ben Allen, an experienced penetration testing manager and force behind the local hacker / security learning collaborative, **DC207**, will provide the audience an understanding of what security testing looks like for web applications, as well as some basics on how to perform web application security testing. This hands-on hacking workshop will dig into a flagship project of the **Open Web Application Security Project (OWASP)** called **Juice Shop**. Juice Shop emulates an e-commerce web application, and will be used to show how modern JavaScript-based applications can be compromised. Hosted by the **Maine Technology Users Group (MTUG)**. Visit <https://www.mtug.org/mtug-events/2021-10-27-mtug-exectech-webinar-hack-with-owasp-juice-shop> for more info.



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Section Officers

Executive Committee:

Chair: [Ashanthi Maxworth](#)

Vice Chair: [Julia Upton](#)

Treasurer: [Shengen Chen](#)

Secretary: [Ashanthi Maxworth](#)

Past Chair: [Betina Tagle](#)

Affinity Group (AG) & Technical Chapter Chairs:

Women in Engineering AG:

[Sonia Naderi](#)

Young Professionals AG:

[Matt Dube](#)

Communications + Computer
Societies Joint Chapter:

[Julia Upton](#)

Electron Device + Solid-State
Circuits Societies Joint Chapter:

[Jifa Hao](#)

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

[Rosemary Smith](#) (Co-Chair)

Power & Energy + Industry
Applications Societies Joint
Chapter:

[Jesse Shank](#)

Other Committee Chairs & Positions:

Audit: [Ron Brown](#) & [Ali Abedi](#)

Awards and Recognition:

[Rosemary Smith](#)

Educational Activities: [Matt Ring](#)

Member-at-Large:

[Daniel Spacek](#)

Member Development:

[Rich Hilliard](#)

Newsletter Editor: [David Klein](#)

Professional Activities:

[Dick Wilkins](#)

Public Relations: [Ron Brown](#)

Student Activities:

[Lauren Mayhew](#)

Webmaster and Social Media:

[Doug Sprague](#)

University Faculty Advisors:

IEEE Student Branches:

[Jude Pearse](#) (UMaine)

[Ashanthi Maxworth](#) (USM)

HKN Delta Kappa Chapter:

[Ali Abedi](#)

Upcoming Events [continued from page 1]

Pulsating DC Link Three-Phase Inverters

Friday, October 29, 5:00 PM to 7:00 PM, Online; **Free Registration required**

[Dr. Akshay Kumar Rathore](#) of [Concordia University](#) will discuss using Single-reference-Six-Pulse Modulation (SRSPM) to eliminate the DC link electrolytic capacitor in multistage power conversion systems — substantially reducing cost, size, and weight, and improving reliability, while saving 87% in switching losses. Co-sponsored by the [IEEE Power Energy Society](#), Montréal Section. Visit <https://events.vtools.ieee.org/m/286365> for more info.

Connecting Space Assets to The Internet: Challenges and Solutions

Friday, October 29, 8:00 PM to 9:00 PM, via Zoom; **Free Registration required**

[Dr. Mohammed Atiquzzaman](#), an IEEE Distinguished Lecturer, will talk about the challenging task of connecting spacecrafts to the Internet. Co-hosted by Maine Section's [IEEE ComSoc / Computer Society joint chapter](#). Visit <https://events.vtools.ieee.org/m/282376> for more info.



Maine Center for Research in STEM Education Colloquium

Monday, November 1, 3:00 PM to 4:00 PM, via Zoom; **Free Registration required**

[Dr. John Volin](#), Executive Vice President for Academic Affairs and Provost at the University of Maine, will speak on a topic to be announced. To join the presentation, sign up for the RISE e-mail list by contacting risecenter@maine.edu. Visit <https://umaine.edu/risecenter/colloquia/> for more info.



IEEE Maine Section Executive Committee (ExCom) Meeting

Monday, November 1, 5:00 PM to 6:30 PM, via Zoom

All IEEE members are welcome to attend. E-mail Ashanthi.Maxworth@ieee.org for agenda info, meeting ID, and passcode.

EVO 2.0 Conference

Wednesday, November 3, 1:00 PM to 4:00 PM, Online; **Free Registration required**

EVO 2.0 will bring thought leaders to career-minded professionals, recent grads, and college students, providing insights into the tech trends and pathways that lead to challenging and fulfilling careers. Hosted by [IEEE-USA](#). Visit <https://evoconference.org/session/evo2-3-nov-2021/> for more info.



Artificial Intelligence in Healthcare

Thursday, November 4, 12:00 PM to 1:00 PM, via Zoom; **Free Registration required**

This will be a one-hour webinar with leading speakers in AI in Healthcare. The speakers will include [Larry Hunter](#), Director of the University of Colorado's [Center for Computational Pharmacology & Computational Bioscience Program](#), and [Behrouz Shabestari](#), Director of the National Technology Centers Program and Acting Director of the [Division of Health Informatics Technologies](#) at NIH's [National Institute of Biomedical Imaging and Bioengineering](#). The presentation will be moderated by [Ali Abedi](#), UMaine Associate Vice President for Research. Part of the [University of Maine Artificial Intelligence Fall 2021 Webinar Series](#). Visit <https://ai.umaine.edu/webinars/> for more info.



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Upcoming Events [*continued from page 2*]

IEEE International Symposium on Technologies for Homeland Security

Monday, November 8 at 9:00 AM to Tuesday, November 9 at 5:00 PM, Online; see [registration page](#) for fee info — Early-bird registration ends October 25; Complimentary \$0 Registration (proceedings not included) is offered

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 and Law Enforcement. Produced by IEEE with support from [IEEE Boston Section](#) and [IEEE-USA](#), and organizational support from [MIT Lincoln Laboratory](#) and [Raytheon](#). Visit <http://ieee-hst.org/> for more info.

Clean Energy and Decarbonization—Science, Targets, Policies, and Technologies

Tuesday, November 9, 11:00 AM to 12:00 PM, via ON24; **Free Registration required**

Join IEEE as we discuss the science behind climate change, net zero emission targets, policies and technologies that will help transform our world onto a clear path to clean energy and decarbonization. Hear from our panel of speakers about their thoughts, ideas, and solutions to this challenge, as well as new innovations we can build on to achieve a carbon-free future. Presented by [IEEE Educational Activities](#) and the [IEEE Power & Energy Society](#). Click [here](#) for more info.

Smart Power Flow Controllers—A Necessity for Future Power Grid

Thursday, November 11, 6:30 PM to 8:00 PM, Online; **Free Registration required**

The power industry's pressing need for the most economical ways to transfer bulk power along a desired path may be met by building new transmission lines, which is a long and costly process. Alternately, it may be quicker and cheaper to utilize the existing transmission lines more efficiently. The key is to identify the underutilized transmission lines and harness their dormant capacity to increase the power flows to the lines' thermal limits. The presentation is designed to provide the basic principles of power flow control theory, an overview of the most commonly used power flow controllers, and future trends. Co-hosted by the [IEEE Power Electronics Society](#), Boston Section. Visit <https://events.vtools.ieee.org/m/282280> for more info.

The 8th Annual Research Boost—Promoting Industry Driven Research

Wednesday, November 17, 6:00 PM to 8:30 PM, Online; **Free Registration required** (Registration closes November 15)

The event aims to foster collaborative research projects and networking among industry, government, and academia, as well as to present some of the top candidates in the fields of Artificial Intelligence, 5G, Cybersecurity, Smart Grids, Smart Cities, Cloud Computing, Signal, Image and Video Processing, Computer Vision, Machine Learning, Circuits and Systems, and Biomedical Engineering. Invited experts and leaders present some of the state-of-the-art innovations in their field of expertise. Co-sponsored by [IEEE Montréal Section](#), [IEEE Montréal Industry Relations Committee](#), and Montréal Chapters of IEEE ComSoc, CAS and TEMS. Visit <https://events.vtools.ieee.org/m/280337> for more info.

Algorithm and Hardware Co-Design for Energy-Efficient Deep Learning

Tuesday, November 30, 7:00 PM to 8:00 PM, Online; **Free Registration required**

In the emerging artificial intelligence era, deep neural networks (DNNs), a.k.a. deep learning, have gained unprecedented success. However, DNNs are usually storage intensive, computation intensive, and energy consuming, thereby posing severe challenges on the future wide deployment in many application scenarios, especially for resource-constrained low-power IoT applications and embedded systems. Dr. Bo Yuan of [Rutgers University](#) will discuss algorithm/hardware co-design for energy-efficient DNN. Co-hosted by the NY and NJ Coast [ComSoc](#) chapters. Visit <https://events.vtools.ieee.org/m/282338> for more info.

IEEE Maine Section Executive Committee (ExCom) Meeting

Monday, December 6, 5:00 PM to 6:30 PM, via Zoom

All IEEE members are welcome to attend. E-mail Ashanthi.Maxworth@ieee.org for agenda info, meeting ID, and passcode.

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

Executive Committee Session

Editor's synopses based in-part on draft minutes

There have been two monthly meetings of the IEEE Maine Section Executive Committee (ExCom) held on Zoom since the last Beacon.

September 13 Meeting

Presenting the Chairperson's report, **Ashanthi Maxworth** gave a summary of the IEEE Region 1 (R1) Board of Governors (BOG) meeting held on August 21st and 29th. A point raised at the R1 BoG meeting was the possibility of requesting funding from R1 for activities. R1 is open for funding requests if we can propose ideas and a plan.

In addition, as the IEEE election season is coming up, the election committees of those sections holding elections need to start the nomination process.

Treasurer **Shengen Chen** (not in attendance) sent a summary of his report to Ashanthi via e-mail. According to that report, the Section received income of \$4,128.23, which includes a 2021 members' dues rebate of \$4,116.20 and interest of \$12.03. The Section owes \$220 to the Section's Computer and Communications Societies joint chapter.

Membership Development Chair **Rich Hilliard** thanked all the members for the comments they provided as he prepared the Section's membership development plan. He is awaiting feedback from IEEE on the submitted plan.

Social Media Chair **Doug Sprague** provided an update on the Section's social media efforts. Doug said that the Section's Facebook page is ready to be published. He also explained that the page *new experience* feature on Facebook is not an option that we can select, but rather, a feature Facebook is rolling-out to pages at their discretion. The discussion shifted to hiring a student to assist with the website development. Ashanthi and Vice-Chair **Julia Upton** agreed that—if the Section makes the

student position a paid position—more students would be attracted to the position than if unpaid, and the Section would likely get a better outcome.

Reporting in her role as Chair of the Computer and Communications Societies joint chapter, Julia said that the Cyber Security event held on September 9th was a huge success.

Member-at-Large **Daniel Spacek** talked about his recent visit to the [Telephone Museum](#) at Ellsworth, Maine. There was discussion that it might be worthwhile to organize an event at the Museum or take an undergraduate class there on a field visit.

October 4 Meeting

Ashanthi introduced the [IEEE-USA](#) representative **Aline McNaul** and the University of Southern Maine student-branch Chair, **Jackson Elwell**, and then moved on to the agenda items.

Reporting on the Section's financials, Shengen noted that the Section still owes the Computer and Communications Societies joint chapter \$220, which would be paid before the end of October.

Aline discussed IEEE-USA activities related to government policies and engineering standards. She talked about the collaborations of IEEE-USA with national-level research laboratories such as [NIST](#), as well as industry labs such as that of [Texas Instruments](#). She also talked about identifying unique opportunities and needs within the State of Maine for students and professional members.

After Aline's presentation and a question-and-answer session, the meeting returned to the topic of hiring a student to help with social media and outreach. Since the September meeting, there had been discussion about whether this should be a paid position or a volunteer position. In the opinions expressed by Ashanthi and several other members, making it a paid position would help attract and retain good students. However, a

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majority indicated that they preferred it to be a volunteer position.

To help find middle ground, IEEE R1 Northeastern Area Chair **Ali Abedi** suggested that instead of paying the student volunteer, the Section can offer them a certificate as well as other incentives such as paid conference registrations. In addition, **Ron Brown** mentioned that if the Section is paying the student, then [IRS I-9](#) forms need to be filled. Julia suggested that IEEE can act as a client organization and hand this project off to a university course (similar to [Capstone](#) or courses at [NESCom](#)). **Matt Dube** brought up that the conference registration incentive might attract traditional students who are willing to go for graduate studies, but it might not be interesting to non-traditional students. Doug suggested that, as an incentive, maybe we could offer enrollment to the student volunteer in digital marketing strategy skills-building courses.

Consensus was reached to continue moving forward on finding a student to work on social media strategy, but in a volunteer capacity. Further consideration will be given to the specifics.

Moving on, Ron brought up his role as a long-term collaborator and a donor with the [Telephone Museum](#) in Ellsworth, and said he reached out to the Museum about hosting an online event. Ron reported that the Museum would welcome the opportunity to conduct a webinar for IEEE members. Details remain to be to be worked out.

In addition, Ron mentioned that the [Maine 4-H Foundation](#) is now developing the [Magic Lantern Theater and Restaurant](#) into the [Magic Lantern Innovation Lab and Learning Center](#). Ron, who is the Section's Public Relations Chair, said he is serving on the advisory board of this endeavor, and that the programs in STEM education would be of direct interest to the IEEE. They intend to include programs focused on math, design, and engineering, with the Learning Center planning to partner with area businesses. Ron asked that interested members [contact him](#) for more information.

Rich mentioned that he is still waiting for feedback from IEEE regarding the Section's membership development plan.

IEEE Annual Election Results

IEEE President-Elect 2022

Saifur Rahman (Nominated by Petition)	13,296 ✓
S. K. Ramesh (Nominated by IEEE Board of Directors)	13,013
Thomas M. Coughlin (Nominated by Petition)	11,802
Francis B. Grosz (Nominated by IEEE Board of Directors)	6,308

IEEE Region 1 Delegate-Elect/Director-Elect, 2022-2023

Bala S. Prasanna (Nominated by IEEE Region 1)	1,761 ✓
Ali Abedi (Nominated by IEEE Region 1)	1,601

IEEE-USA President-Elect, 2022

Eduardo "Ed" F. Palacio (Nominated by IEEE-USA)	9,651 ✓
Keith A. Moore (Nominated by IEEE-USA)	9,625

How to Make the Best of Your Graduate Student Life



By *Ashanthi Maxworth*
Maine Section Chair

Reprinted with permission, from A. Maxworth, "How to Make the Best of Your Graduate Student Life," in *IEEE Potentials*, vol. 38, no. 6, pp. 25-27, Nov.-Dec. 2019,

Copyright © 2019 IEEE. DOI: [10.1109/MPOT.2018.2815709](https://doi.org/10.1109/MPOT.2018.2815709).

Two years after completing my undergraduate studies at the [University of Moratuwa](#), Sri Lanka, I arrived at the [University of Colorado Denver](#) (CU Denver) for graduate studies. I enrolled as a doctoral student in the Electrical Engineering (EE) Department, and my concentration area was electromagnetic wave propagation in near-Earth space. I was fortunate to be the first Ph.D. student of [Prof. Mark Golkowski](#), a young professor who graduated from Stanford University and is very active in the area of space research and plasma physics.

The four and a half years I spent as a graduate student at CU Denver were full of positive experiences. Not only was I able to earn my Ph.D. degree with many awards but I also was able to grow as a person as well. In this article, I would like to share some of the things I learned as a graduate student and a graduate instructor that I think might be helpful for other students.

Surround yourself with positive people

The connection you have with your adviser is essential not only for your studies but also for your personal growth. I am grateful that I had a very understanding adviser who not only supported me financially for my education but also was a great mentor. After I started teaching in the EE Department as a graduate instructor, I appreciated the dedication of all of my teachers even more. It is very rare to find a good mentor. Once you find one, make sure not to lose him or her.



The people you meet during your graduate studies might stay connected with you for a lifetime. It is important to build a rapport with people from all walks of life. Every single person can add value to your personal growth. As I was climbing step by step up the career ladder, the more I understood the importance of the people around me. I quickly learned the value of having a strong support system. My parents, sister, adviser, Department Chair Prof. Gedney, tutoring supervisor, Zumba instructor Cathy, cab driver Mohammed, cleaning supervisor Craig, and students were all part of my support system. I have learned a lot from them.

The time you spend with people is time that you can never get back. Therefore, it is crucial that each moment that passes by enriches you. The people we meet will not always be positive. But we have the choice of who should be in our circles, so it is important that we surround ourselves with people who enrich us.

Learn from your mistakes

Everybody makes mistakes; just remember not to make the same mistake twice. When I first started teaching an electromagnetic fields course in fall 2016 as a graduate instructor, I was not happy about some of my explanations. I remember thinking to myself, why can't I do this right? Then I told myself that expertise comes with experience. It is one thing to be knowledgeable, but one becomes an expert by applying the knowledge in different situations. Every situation is different, and that's what makes life interesting. As I was gaining experience in teaching, I felt myself becoming comfortable in explaining difficult concepts in manageable units.

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Most importantly, admit your mistakes. The secret of progress is not letting the mistakes advance. It takes a lot of courage to admit to a mistake. But doing so is the first step of professionalism and maturity. Do not be afraid to make additional decisions because of your previous errors. Mistakes teach a lot more than does success, and nobody is perfect.

Collaborate with your peers

Peers are easy to access, and it saves a lot of time when you contact a peer to clarify an issue. Whether the issue is clarified by the peer or not, talking with a colleague improves your understanding, and by the time you reach the teaching assistant or professor, there is more room for a higher-level discussion related to the subject. In graduate studies, it is very important to collaborate with your peers. In most universities, graduate classes carry a research component. In these classes, students are required to do some research and present a term paper or a semester-long project. Usually, students take these graduate classes simultaneously with conducting their research targeting a master's or doctoral thesis. Peer collaboration can lead to the delegation of work and bring everybody's expertise to the table. Successful peer collaboration often results in very successful project completions and research publications.

When collaborating with peers, it is very easy to encounter a free rider. Free riders are individuals who do not contribute to completing a task. These people are common in graduate classes because, at that point in life, students are trying to juggle multiple roles. It is not easy to handle free-rider situations, especially if there is a friendship involved. If you encounter a free rider, the first step is to talk with the person and let him or her know your thoughts in a very assertive way. Most of the issues can be solved by open communication. If the person is going through a family or work-related

issue, he or she likely will admit their lack of contribution, making it easier to find a solution. But if the person is a habitual free rider, it is good to bring that to the attention of the professor in charge before more problems arise within the group.

Within successful peer collaboration, there is no room for plagiarism. Collaboration is a way to bring everybody's expertise to fulfill a common task. In a real collaborative environment, all parties should contribute equally. Taking credit for someone else's work is an act of plagiarism. It may sabotage the group setting as well as friendships.

Put yourself out there

As a graduate student, you might feel that you have a very limited circle of friends and colleagues. This is especially the case if you are an international student. But as a graduate student, you need to talk about your research and reach a bigger audience. For that you need to go beyond your limited circle of friends and enhance your network. Next, I describe some of the things I did to expand my personal and professional network.

Attend conferences, workshops, and meetings

During your graduate studies is when you can make your mark and build your network. As a graduate student, I attended IEEE dine and learn meetings every second Tuesday of each month. Not only were those meetings really informative but they also gave me a chance to meet professional engineers in Colorado.

Whenever I had a chance, I attended conferences. Not only do conference publications add value to your resume, they provide an opportunity to communicate your research to a bigger audience. They also allow you to travel and explore the world. I was lucky to visit the great Arecibo Observatory in Puerto Rico three times as a graduate student. My adviser also highly encouraged me to attend

[Continues Next Page]

conferences, and he financially supported all of them unless they were supported by a travel grant.

Conferences are the key to building a network related to your research. You meet people with common interests and similar research goals. The people you encounter at conferences might provide you with research input, expand your view with original insights, or introduce you to new career opportunities. I met my current postdoctoral supervisor, [Prof. Glenn Hussey](#), at the National Radio Science Meeting General Assembly held in Montréal, Canada, in August 2017. I was introduced to him by [Dr. Eliana Nossa](#), whom I met at the Radio-Frequency Ionospheric Interaction Workshop held at CU Denver.

Find a part-time job

In summer 2013, I started working as a summer conference assistant at the Campus Village Apartments. At the time, I was living in campus housing, which made it easier for me to work there on a part-time basis. In August 2013, I got a graduate instructor position at CU Denver, where I was teaching a laboratory course once a week. It was a golden opportunity for me because I wanted to be a professor after graduation. A year later, I also got an affiliate faculty position with [Metropolitan State University](#) in Denver, and by the time I graduated, I had a good reputation as an instructor. After getting my Ph.D. degree, I continued to teach at CU Denver and taught one semester at the [University of Colorado Boulder](#).

Finding a part-time job has multiple advantages, the main benefits being the experience and financial rewards. It allows you to practice soft skills, such as communication and time management. Having a part-time job tests your time-management skills and work–study balance. It also helps to structure your time and hence increases your efficiency and productivity. Be cautious not to forget that, as a

graduate student, your main priorities are your studies and your research.

Volunteer

In April 2013, I registered to volunteer at the Higher Education Diversity Summit, a tri-institutional event hosted by CU Denver, the Metropolitan State University of Denver, and the Community College of Denver. I was never an early morning person and, as I was waking up on that April morning to assist at the registration table, my thoughts were that I would never volunteer again. I managed to get to the session on time, and the end result was that I loved it. Not only did I meet a lot of new people, I experienced the joy of doing something without expecting anything in return. On that day, I stayed two hours longer than I originally registered to be there. Since that day, whenever there is an opportunity to volunteer I do so.

I have volunteered many times at events hosted by the CU Denver International Student and Scholar Services. Being an international student, I thought of it as an opportunity to give back to the university. I introduced myself to university professionals at these volunteering events, people I would have never met otherwise, including the chancellors at CU Denver and Metropolitan State University of Denver.

Enjoy it

I hope my experiences provide insight on how to make your life as a graduate student both efficient and enjoyable. If you have any additional tips that you have found helpful, please don't hesitate to share your story with me.

Editor's Postface: When this article was written, Dr. Maxworth was a postdoctoral fellow in the [Department of Physics and Engineering Physics](#) at the [University of Saskatchewan](#). Today she is an [Assistant Professor of Electrical Engineering](#) at [USM](#).

Special Circumstances for Reduced IEEE Membership Dues

2022 IEEE annual renewal notices were recently sent out. If economic circumstances impact your ability to pay your IEEE dues, the following [special circumstance categories](#) have been established:

Minimal Income

If you certify that your prior year's income did not exceed US\$15,300, you may apply for a 50% reduction in dues, assessments, and optional publication fees. You will be asked to submit your written certification with your renewal.

Retired

A retired member, not gainfully employed and not qualifying for [Life Member status](#), upon attaining the age of 62 years, may apply for a 50% reduction in dues, assessments, and optional publication fees.

Unemployed

If you (1) have become involuntarily unemployed and are seeking reemployment, or (2) have become voluntarily unemployed for reasons of raising children, you may apply for a 50% reduction in dues, assessments, and optional publication fees. A statement of continued unemployment must be provided with each annual dues payment. In the case of voluntary unemployment, the dues reduction shall not exceed four years.

Permanently Disabled

Membership dues and assessments are waived for members who become permanently disabled. "Permanent disability" means a medically determinable physical or mental impairment that (1) renders you incapable of performing any substantial gainful employment, (2) can be expected to be of long-continued and indefinite duration or result in death, and (3) is evidenced by a certification to this effect by a doctor of medicine approved by IEEE's Executive Director.

Only one Special Circumstances category may be claimed in any year. Automatic renewal is *not* available for the special-circumstance memberships.

Special circumstance discounts are *not* available to Student members, but other discounts are available (see below).

Requests for a Special Circumstances reduction can be made at the time of renewal, except for permanent disability, which has its own process.

To request Special Circumstances dues or if you have any questions, please contact IEEE Member Services by phone at +1 800 678 4333 or online at <https://www.ieee.org/about/contact.html>.

Dues Reductions for Students

New and renewing IEEE students and graduate students can save 50% on their membership dues by using the promotion code **FUTURE50** during the online check-out process for [joining or renewing](#) your 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.



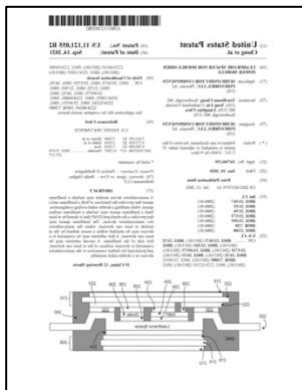
Dues Reductions for Recent Grads

Recent graduates receive a 50% discount off IEEE dues the first year after graduation. If eligible, you will [automatically](#) receive the appropriate discount when you renew.

Member Accolades

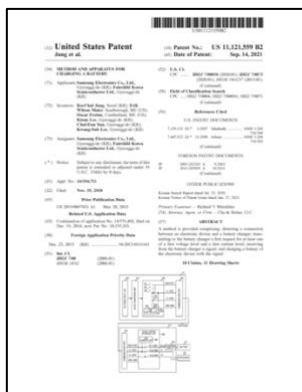
Congratulations to the IEEE Maine Section members who recently received patents or were published:

On September 14, 2021, the U.S. Patent and Trademark Office issued [U.S. Patent 11,121,055 B2](#), entitled “Leadframe Spacer for Double-Sided Power Module.” Maine Section Fellow [Yong Liu](#) of Cumberland Foreside and Maine Section Member [Liangbiao Chen](#) of Scarborough are listed as co-inventors.



ABSTRACT: A semiconductor device module may include a leadframe spacer that provides the functions of both a leadframe and a spacer, while enabling a double-sided cooling configuration. Such a leadframe spacer may include a leadframe surface that provides a die attach pad (DAP) that is shared by at least two semiconductor devices. The leadframe spacer may include at least one downset, where the semiconductor devices may be attached within a recess defined by the at least one downset. A first substrate may be connected to a first side of the leadframe. A second substrate may be connected to downset surfaces of the at least one downset, and positioned for further connection to the semiconductor devices in a double-sided assembly.

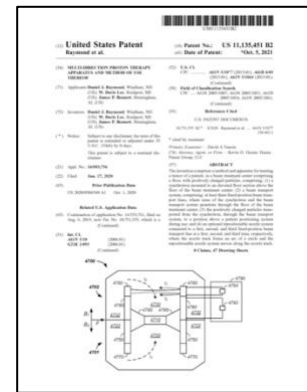
On September 14, 2021, the U.S. Patent and Trademark Office issued [U.S. Patent 11,121,559 B2](#), entitled “Method and Apparatus for Charging A Battery.” Maine Section Member [Erik Wilson Maier](#) of Scarborough is listed as a co-inventor.



ABSTRACT: A method is provided comprising: detecting a connection between an electronic device and a battery charger; transmitting to the battery charger a first request for at least one of a first voltage level and a first current level;

receiving from the battery charger a signal; and charging a battery of the electronic device with the signal.

On October 5, 2021, the U.S. Patent and Trademark Office issued [U.S. Patent 11,135,451 B2](#), entitled “Multi-Direction Proton Therapy Apparatus and Method of Use Thereof.” Maine Section Senior Member [W. Davis Lee](#) of Rockport is listed as a co-inventor.



ABSTRACT: The invention comprises a method and apparatus for treating a tumor of a patient, in a beam treatment center comprising a floor, with positively charged particles, comprising: (1) a synchrotron mounted to an elevated floor section above the floor of the beam treatment center; (2) a beam transport system, comprising: at least three fixed-position beam transport lines, where none of the synchrotron and the beam transport system penetrate through the floor of the beam treatment center; (3) the positively charged particles transported from the synchrotron, through the beam transport system, to a position above a patient positioning system during use; and (4) an optional repositionable nozzle system connected to a first, second, and third fixed-position beam transport line at a first, second, and third time, respectively, where the nozzle track forms an arc of a circle and the repositionable nozzle system moves along the nozzle track.

On October 5, 2021, in the [Proceedings of the 2021 USNC-URSI Radio Science Meeting \(USCN-URSI RSM\)](#), IEEE published “[Comparison of PCB, Square loop and Rod type Magnetorquers for Cubesatellites.](#)” Maine Section Member [Ashanthi Maxworth](#) and Maine Section Student Member [Jackson Elwell](#) are co-authors.

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ABSTRACT: Magnetorquers are an essential part of the Attitude Determination and Control Systems (ADCS) of space vehicles, especially cube satellites. In this paper, we compare the magnetic dipole moment, response time, weight and other important parameters of three different magnetorquers: the printed circuit board type, square loop and rod type. Hence, cube satellite designers can select their preferred design based on the available constraints.

On October 14, 2021, in the [Proceedings of the 2021 XXXIVth General Assembly and Scientific Symposium of the International Union of Radio Science \(URSI GASS\)](#), IEEE published “[A Statistical Study on Satellite VLF Observations during Cascading Earthquakes.](#)” Maine Section Member [Ashanthi Maxworth](#) and Maine Section Student Member [Jackson Elwell](#) are co-authors.

ABSTRACT: This work presents a statistical study between satellite observed very low frequency (VLF) events and earthquakes. We have observed strong VLF turbulences under

geomagnetic quiet conditions, but during cascading earthquakes, implying the possibility of a seismic – ionospheric connection, although the exact connection mechanism is yet to be identified.

On October 14, 2021, in the [Proceedings of the 2021 XXXIVth General Assembly and Scientific Symposium of the International Union of Radio Science \(URSI GASS\)](#), IEEE published “[First Results from the ELF/VLF Receiver in Sri Lanka.](#)” Maine Section Member [Ashanthi Maxworth](#) is a co-author.

ABSTRACT: In this work we present the first results from the low frequency receiver in Sri Lanka. The set-up was completed in November 2019 and it has been collecting data 24x7 since then. The geographic location of this receiver makes it highly efficient in observing lightning and other lightning related ELF/VLF phenomenon. In the long run this station is about to be added into WWLLN network and provide ground-based data complementary to the TARANIS mission.

Regional Calls for Papers and Proposals

2022 IEEE Canadian Conference on Electrical and Computer Engineering (CCECE)

Hosted annually across Canada, CCECE is an opportunity for electrical and computer engineers from industry, academia, and other interested organization to discuss the latest developments in the field, the potential impact of these developments, and related regulatory and policy aspects. To be held in Halifax, NS and co-sponsored by [IEEE Canadian Atlantic Section](#).

Abstract Submission Deadline: Tuesday, November 2, 2021

Conference: Sunday, September 18 to Wednesday, September 21, 2022

The 2022 website (<https://ccece2022.ieee.ca>) does not appear to be ready yet, but the 2021 website is accessible at <https://ccece2022.ieee.ca> and 2022 dates can be found [here](#). E-mail Christopher Whitt at cwhitt@ieee.org for more info.

The 8th Annual Research Boost

The event fosters collaborative research projects and networking among industry, government, and academia, and presents some of the top candidates in the fields of Artificial Intelligence, 5G, Cybersecurity, Smart Grids, Smart Cities, Cloud Computing, Signal, Image and Video Processing, Computer Vision, Machine Learning, Circuits and Systems, and Biomedical Engineering. A 3-minute presentation competition offers an opportunity for Graduate Students and Postdoctoral Fellows to present the significance of their research work to industry and to a distinguished judging panel. Three prizes of values \$300, \$200 and \$100 will be offered to the best three presentations in this competition. Co-sponsored by [IEEE Montréal Section](#), [IEEE Montréal Industry Relations Committee](#), and the Montréal Chapters of IEEE [ComSoc](#), [CAS](#), and [TEMS](#).

Abstract Submission Deadline: Friday, November 5, 2021

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Visit <https://events.vtools.ieee.org/m/280337> for more info.

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Paper Submission Deadline: Saturday, April 1, 2023

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