BOSTON

THE REFLECTOR

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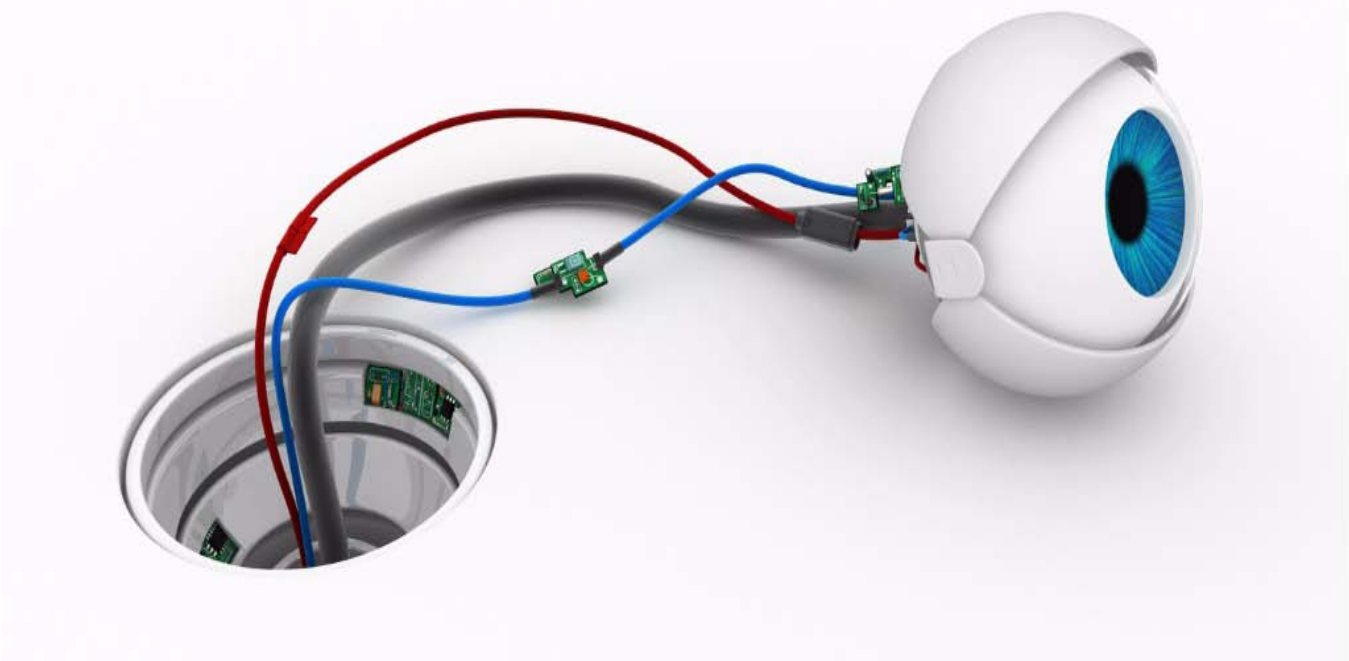
APRIL 2021



IEEE
Advancing Technology for Humanity

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Sound Explorations at The Array Café

by Bruce Hecht, Co-chair, Future Events Team, IEEE Boston Section

In this springtime in New England while we are waiting for the blossoms on the trees, warmer season, and soon to be longer days, we may already be enjoying the sounds that accompany spring weather. In addition, this year we are waiting for signs that the pandemic of COVID-19 will be moving out as well.

Throughout the past year of living in the pandemic, one recurring question has been how to stay connected, with family, friends, and colleagues. Where previously the physical requirements of gathering together for technical events seem now like the easy questions, “where to meet” and what snacks to have (pizza?, coffee and tea?, and cookies?), the move to attend from many distributed places has been replaced with digital experiences.

One aspect of this response has been the continuing growth in the area of sound and audio, and the production model combining aspects of radio shows with personal storytelling in the form of podcasting. I was fortunate to attend the 2019 conference (in-person in Boston pre-pandemic) named “Sound Education”, organized by Zachary Davis and podcast pioneers to connect people interested in stories and audio. Several sessions were held at The Podcast Garage in Allston, PRX, and innovations and themes ranged from the technical production to the creative development of the program.

These topics have reminded of the IEEE Milestone celebrated by the Boston Section in Marshfield, MA, for the first radio broadcast. Thanks to Gil Cooke, long time Boston Section History committee for researching and advocating for the recognition by the IEEE Milestone program. I learned from Gil’s briefing about the technology available at the time, requiring a spinning alternator to perform the amplitude modulation at the carrier rate. For more about this and other local milestones, you may like to read the September 2019 editorial written by Gil Cooke about his work in researching and publicizing these adventures “Encounters with Electricity”. The IEEE Broadcast Technology Society and IEEE Canada have described the origins of Reginald Aubrey Fessenden and what led to the first radio broadcast at Brant Rock, just south of Boston harbor, in Marshfield, MA.

When I attended the podcast conference, one memorable workshop was presented by Ben Lillie and his team. Ben’s bio describes his background as “a physicist turned storyteller turned mixer of academics and performance. He is co-founder of The Story Collider, a former TED writer, and a Moth StorySLAM champion.” The first IEEE experiences to grow out of this workshop was the “IEEE Enlightening” storytelling event prompted by the IEEE Future Directions Committee, and working with IEEE Boston colleague Chris Miyachi and her group. This event was staged at the Laugh stage in South Boston with spotlights on three speakers and their journeys: Jeewika Ranaweera from Sri Lanka to a high-tech engineering career at Sun Microsystems in California, Thanuka Wickramarathne and the future voyages in autonomous vehicles, and Jason Parks on the route from the Berklee College of Music to founder and CEO of ROTU Entertainment.

While the next edition of IEEE Enlightening was paused last March due to the arrival of the pandemic, the urgency to continue to connect is still driving innovation and ideas. In the context of sound ideas, as I was writing to update this story, the preview that Jason Parks presented of his company’s VR-game based on music and sound, Rhythm of the Universe: IONIA is expected to become “reality” and available to play upcoming this year!

Following the connections made through conversations, a second initiative developed through an encounter with an IEEE colleague in Scotland. Soon after the podcasting Sound Education workshop, I met Hadi Heidari at an IEEE Sensors Council event. As is often the case in these stories, serendipity of chance connections played a role, as Hadi related that he was developing the concept for an IEEE podcast, and would I know anyone who could be a resource? In fact, one podcast founder, Mark Pentleton of "Radio Lingua" was a nearby neighbor of Hadi's in Glasgow, and Joseph Fridman, a co-organizer of the Sound Education workshop was based here in Boston. Together with their help, Hadi Heidari, Hamida Hallil, Aisha Yusuf, Nicole Weckman, and I have launched this past year the "Array Café" a podcast produced in a partnership between the IEEE Sensors Council and IEEE CAS – the Circuits and Systems Society. Our first episode welcomed Dr. Amara Amara – interviewing and hearing about his career in engineering and more recently his leadership of international non-profit organization focused on global needs for children. After voicing a theme we may all relate to for travel and meetings, Dr. Amara shared, "perhaps in the future we will continue with a blended conference format, enabling people who are not able to travel to participate and have access." When after this, Aisha asked about his early experiences – "when did you first encounter engineering as a field and what drew you to this subject?" Prof. Amara shared a resonant theme in the magic and curiosity of encountering radios at home and discovering how they work.

Our second episode featured Chris Schober – a designer of fiber optic ring oscillators for Honeywell, a past president of the IEEE Sensors Council, and currently serving as a member of the IEEE Board of Directors. In discussing her roles in engineering, design, and leadership, Chris spoke with Hadi, Hamida, Aisha, and highlighted the camaraderie of connecting with IEEE volunteers and participants, and working together with "people who cared about technology and new and interesting things." In developing and expanding these relationships, she has built outreach for inclusion and inviting people to connect. This work continues even while we gather only through our electronic media and await the opportunity to meet together in person.

I welcome you to listen to our conversations and let us know what you think, and what questions are you curious to learn more about this year. I look forward to hearing your stories, of what you have experienced over the past year, and your imagination for the future. We could all find resonance -- these will be of "sound importance" to the times ahead!

Bruce Hecht is a Past Chair of the IEEE Boston Section and is currently an MIT SDM Fellow based at the Cambridge Innovation Center in Cambridge, MA.

Listen to the Array Café podcast at https://array-cafe.simplecast.com/

Photo: Podcast Garage in Boston (Photo: Bruce Hecht)

Array Café Podcast

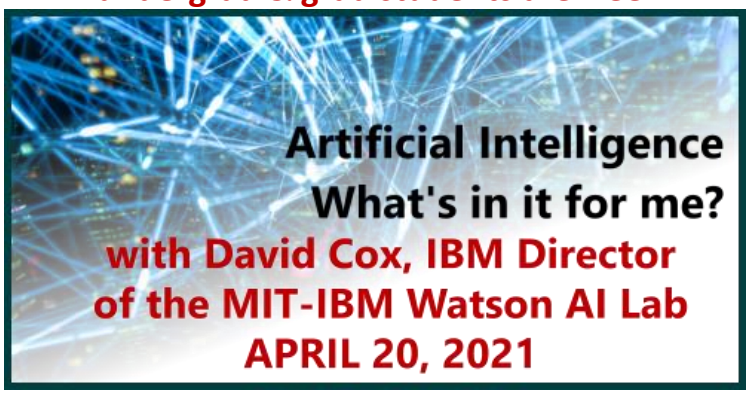
https://www.ieee.ca/millennium/radio/radio_unsung.html
https://issuu.com/ieeeboston/docs/sept2019dr

Supporting students, working engineers and retirees through professional development, education and resources.

Encouraging member, volunteer and leadership opportunities.

IEEEBoston.org

IEEE Boston Section members AND full-time undergrad & grad students are free.



Unlocking the Full Potential of AI Through Neurosymbolic Hybrid AI Systems or How Neurosymbolic Hybrid AI Systems Can Unlock AI's Full Potential

APRIL 20, 2021
12:00PM – 1:30PM (EDT)
ONLINE WEBINAR

IEEEBoston.org

Speaker:

David Cox, IBM Director of the MIT-IBM Watson AI Lab

David Cox is the IBM Director of the MIT-IBM Watson AI Lab, a first of its kind industry-academic collaboration between IBM and MIT, focused on fundamental research in artificial intelligence. The Lab was founded with a $240m, 10 year commitment from IBM and brings together researchers at IBM with faculty at MIT to tackle hard problems at the vanguard of AI.

Cost:

- IEEE Boston Section Members: Free
- Full-time undergrad and graduate students: Free
- Non-Boston/Non-Student IEEE Members: $25.00
- General Public: $35.00

REGISTER HERE!

IEEE Boston Section Online Courses:

(Students have 180 day access to all online, self-paced courses)

Electronic Reliability Tutorial Series (NEW!!!)
Full course description and registration at ,
http://ieeeboston.org/electronic-reliability/

Verilog101:Verilog Foundations
Full course description and registration at ,
http://ieeeboston.org/verilog-101-verilog-foundations-online-course/

System Verilog 101: Design Constructs
Full course description and registration at ,
http://ieeeboston.org/systemverilog-101-sv101-design-constructs-online-course/

System Verilog 102: Verification Constructs
Full course description and registration at ,
http://ieeeboston.org/systemverilog-102-sv102-verification-constructs-online-course/

High Performance Project Management
Full course description and registration at ,
http://ieeeboston.org/high-performance-project-management-online-course/

Introduction to Embedded Linux Part I
Full course description and registration at ,
http://ieeeboston.org/introduction-to-embedded-linux-part-i-el201-online-course/

Embedded Linux Optimization - Tools and Techniques
Full course description and registration at ,
http://ieeeboston.org/embedded-linux-optimization-tools-techniques-line-course/

Embedded Linux Board Support Packages and Device Drivers
Full course description and registration at ,
http://ieeeboston.org/embedded-linux-bsps-device-drivers-line-course/

Software Development for Medical Device Manufacturers
Full course description and registration at ,
http://ieeeboston.org/software-development-medical-device-manufacturers-line-course/

Fundamental Mathematics Concepts Relating to Electromagnetics
Full course description and registration at ,
http://ieeeboston.org/fundamental-mathematics-concepts-relating-electromagnetics-line-course/

Reliability Engineering for the Business World
Full course description and registration at ,
http://ieeeboston.org/reliability-engineering-business-world-line-course/

Design Thinking for Today's Technical Work
http://ieeeboston.org/design-thinking-technical-work-line-course/

Fundamentals of Real-Time Operating Systems
http://ieeeboston.org/fundamentals-of-real-time-operating-systems-rt201-on-line-course/

Electric Vehicles – Having Fun Saving the Planet

The Boston Section of the IEEE has added to its Presentation Video Archives an hour-long program entitled "Electric Vehicles – Having Fun Saving the Planet." It is moderated by Boston/New England Emmy Award-winner John Horrigan.

The program includes hands-on experience with the Tesla Model 3 by Len Long, along with presentations on the Tesla Model S by Dr. Ken Laker, the Chevrolet Bolt by Dr. Paul Carr and commentary by Dr. Ted Kochanski.

Here is the URL where this program currently resides: Presentation Archives - IEEE Boston. This program reveals unknown electric vehicle facts about electric vehicles to owners of internal combustion automobiles and gives compelling reasons for owning one.

Entrepreneur's Network – 7:00PM ET, Tuesday, April 6

The Pathways to A Successful "Scale-up"

Location: ONLINE WEBINAR

Registration:
ENET Member - Free
General Public – $10.00
https://boston-enet.org/event-3892682

This event is co-organized by IEEE Entrepreneurship
There are important strengths that startup company founders and entrepreneurs have launch companies, to prove a value proposition and establish some traction in the market, and that success might land you seed investment. But to land an A round, you need to establish a business model that can scale to a level that can justify the kind of return A round investors would seek. The ENET webinar on April 6, 2021 is on that important topic of scaling your company.

How do you establish a business model that can scale? How do you implement the scale-up of your business? …including what resources you are going to need to bring to bear to successfully commence the scale up of your business.

What are the inflection points? ... At what level of scale-up, will you achieve an inflection point sufficient that your company might attract potential acquirers and a potential liquidity event for you and your investors.

How do you scale to a successful exit / liquidity event? This is all part of our topic for the evening "Pathways to a Successful Scale-up." The discussion will also include how there are different pathways to scale-up in different fields, and how scale-ups vary between tech, life science and e-commerce companies.

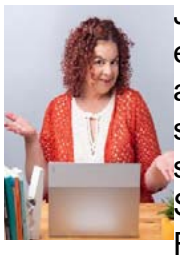
Our three, well experienced speakers, are each drawn from different sectors of the economy, including technology companies, life science/medical device, staffing, commerce and beyond from the diverse experiences of our panel, moderated by ENET Chair Emeritus Rob Adelson.

After each of the speakers offers a presentation of different aspects of the topic, we will end the evening with a fireside chat, with audience and moderator questions for each of the speakers on the panel. There will be more than an hour of online networking available to registrants.

There will be more than an hour of online networking via Grapevine, available to registrants before the meeting, and a half hour networking post-meeting, that would give attendees the chance to "meet" virtually the speakers and moderator.

Agenda:
5:30 – 6:45 PM – Networking on Grapevine Network
7:00 - 7:10 PM - ENET Chairperson's announcements
7:10 - 7:25 PM – eMinute Pitch - Up to 3 Startup companies' presentations
7:25 - 8:10 PM - expert speakers on the night's topic
8:10 - 8:30 PM – Moderator and Audience Q & A with the speakers
8:30 – 9:00 PM - Networking on Grapevine Network
(all times are USA Eastern Daylight time)
A question and answer session will follow the panel discussion, and panelists will be available afterward for responses to individual questions.

Speakers:



Jennifer Crawford, Co-Founder @ Sparent, LLC, Fairfax, Virginia, virtual assistant agency staffed by stay-at-home moms with skills to spare. Sparent provides virtual assistant services as well as virtual staffing. Since 2015, Jennifer has been and remains Founder @ PodFest Productions, LLC, the first podcasting conference in the DC area. This intimate conference informs, educates and empowers a diverse group of podcasters to share their unique voice with the world.

Besides those companies in business, Jennifer also works and performs in the entertainment field. She is Co-Founder & Managing Imp (Imp Wrangler) @ The Improv Imps, where she performs with a group of people who love being funny together in front of an audi-

ence, with performances all over the DC metro area in both long and short form improv. Since her college days at George Mason University, in the period between 1991 and 2015, Jennifer has been owner and founder of several other companies, including a 4-year stink as CIC (chick in charge) @ Soundry Productions, where the company opened its doors after converting an auto body shop into a public coffee shop, performance space, art gallery and early co-working space for the creative class.
https://www.linkedin.com/in/jenrunsbusiness/
https://speaker.innovationwomen.com/users/8520

Ken Stauffer, Chair of The Board Of Trustees @ Vaughn College of Aeronautics and Technology. East Elmhurst, NY. Ken has spent 30+ years in the telecommunications industry. He began his career at AT&T Bell Laboratories in Holmdel, NJ after receiving his AAS from Vaughn College, a BSEE from Pratt, and an MSEE from Polytechnic University in New York City. Ken left AT&T in 2000 to become an entrepreneur as part of a management team founding EPIK Communications–a $460M start-up in Florida. He designed EPIK's advanced services strategy, created both the Product Innovation Group and EPIK Labs, implemented a suite of "enlightened" IP and Ethernet products, and served as EPIK's Senior Vice President of Operations and Chief Technology Officer. He also led a team to create the vision for "The NAP in 2011of the Americas" in Miami which was later sold by Terremark to Verizon in 2011 for $1.4B. In Jan 2003,

Ken formed Technology Assurance Labs to provide consulting, design, and testing services to venture capital groups, network equipment manufacturers, and service providers. He also founded Cypress Equipment, a product sales company. Starting in 2010, Technology Assurance Labs develops RFID products for the rail industry and IoT products for the propane and natural gas industry. Ken served as CEO for both companies for 15 years, before stepping down to become Chair of the Board of Directors @Vaughn College. Ken is also a Life Senior Member of IEEE, and he co-founded the IEEE Entrepreneurship Initiative in 2015 and currently serves as the 2020-2021 Chair of the IEEE Entrepreneurship Steering Committee.
https://www.linkedin.com/in/ken-stauffer-24312b/
https://entrepreneurship.ieee.org/speaker/ken-stauffer/

Mark Bonifacio, President @ Bonifacio Consulting Services LLC, a manufacturing consultancy firm that works with medical device OEM's and contract manufacturers to help them grow organically and through mergers and acquisitions. So, scale-up of life science companies to a success event, is Mark's work and business. Mark leverages his education, decades of global manufacturing experience and extensive international network to provide unique value. In his early career, Mark worked for several major medical device OEM's then co-founded APEC, a medical device contract manufacturer. Mark built APEC from the ground up, and sold it to Freudenberg Medical in 2007. He established Bonifacio Consulting Services soon after.

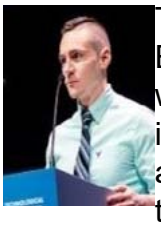
Today, Mark assists organizations in business growth, strategy and tactical execution, M&A, joint ventures and licensing. He also advises on cost-reduction initiatives, operational and organizational improvements. Notable clients include TE Connectivity, MedPlast, Wendel, Onex, Medtronic and Millipore, among others. With a B.S. in plastics engineering from the University of Lowell (now UMASS-Lowell), Mark brings deep engineering and operational expertise along with an entrepreneurial drive. Mark is well-known in medical device manufacturing and is a regular speaker and contributor for industry events and publications.
https://www.linkedin.com/company/bonifacio-consulting-services/
https://bonifacioconsulting.com/our-consultants/

Moderator and Organizer:

Robert A. Adelson, Principal, Business and Tax attorney @ Adelson & Associates, LLC. Chair Emeritus @ Boston Entrepreneurs' Network (ENET).
Rob has been an attorney for over 30 years specialized in business, tax, stock and options, employment, contracts, financing, trademarks and intellectual property. Rob began as an associate at major New York City law firms before returning home to Boston in 1985 where he has since been a partner in small and medium sized firms before joining Engel & Schultz LLP where he was a partner from 2004 to 2019. When the senior partners retired, he moved his law practice to his own firm, effective 1/1/2020. Rob represents entrepreneurs, start-ups and small companies, independent contractors and employees and executives.

Rob is a frequent speaker on business law topics and author of numerous articles published in Boston Business Journal, Mass High Tech and other publications, plus more than thirty articles since 2016 on executive employment topics published by CEOWorld magazine. He has been named among the "Top 20 Boston Startup Lawyers" by ChubbyBrain.com, a website that provides tools for entrepreneurs. Rob has been on the ENET Board since 2002, was Vice Chair 2005-2009, and ENET Chairman 2009-2019. He was also a Co-Founder and Board member of the 128 Innovation Capital Group (2004 -2015). In 2016, he received the IEEE USA Professional Achievement award for "extreme dedication to the entrepreneurship community." He holds degrees from Boston University, B.A., summa cum laude, Northwestern University (Chicago), J.D., Law Review, and New York University, LL.M. in Taxation.
https://www.linkedin.com/in/robert-adelson-b8a1557/
https://www.linkedin.com/in/robert-adelson-b8a1557/
www.executiveemploymentattorney.com

Co-Organizer:



Thomas Monaco, Program Manager - IEEE Entrepreneurship @ IEEE, which is the world's largest professional association dedicated to advancing technological innovation and excellence for the benefit of humanity, the organization providing publications, conferences, technology standards, and professional and educational activities. The Boston Entrepreneurs Network (ENET) has since its founding and remains affiliated with IEEE, the Institute of Electrical and Electronic Engineers (www.iee.org) Over more than 11 years from 2009 to the present, Tom has worked in a series of positions @ IEEE – currently, IEEE Entrepreneurship Community Program Manager, previously, Technical Activities Project
https://www.linkedin.com/in/thomas-monaco-33954b14/

Call for Course Speakers/Organizers

IEEE's core purpose is to foster technological innovation and excellence for the benefit of humanity. The IEEE Boston Section, its dedicated volunteers, and over 8,500 members are committed to fulfilling this core purpose to the local technology community through chapter meetings, conferences, continuing education short courses, and professional and educational activities.

Twice each year a committee of local IEEE volunteers meet to consider course topics for its continuing education program. This committee is comprised of practicing engineers in various technical disciplines. In an effort to expand these course topics for our members and the local technical community at large, the committee is publicizing this CALL FOR COURSE SPEAKERS AND ORGANIZERS.

The Boston Section is one of the largest and most technically divers sections of the IEEE. We have over 20 active chapters and affinity groups.
If you have an expertise that you feel might be of interest to our members, please submit that to our online course proposal form on the section's website (www.ieeeboston.org) and click on the course proposal link (direct course proposal form link is **http://ieeeboston.org/course-proposals/** . Alternatively, you may contact the IEEE Boston Section office at ieeebostonsection@gmail.com or 781 245 5405.

- **Honoraria can be considered for course lecturers**
- Applications oriented, practical focused courses are best (all courses should help attendees expand their knowledge based and help them do their job better after completing a course
- Courses should be no more than 2 full days, or 18 hours for a multi-evening course
- Your course will be publicized to over 10,000 local engineers
- You will be providing a valuable service to your profession
- Previous lecturers include: Dr. Eli Brookner, Dr. Steven Best, Colin Brench, to name a few.

Women in Engineering – 1:00PM ET, Saturday, April 10

The Academic Life: A Faculty-Development Workshop

A half-day interactive workshop for individuals pursuing academic careers in science and engineering

Location: (via Zoom)

This event will be virtual. A zoom link will be sent to registered participants at least one week in advance.

Junior faculty often face career issues beyond subject matter expertise and technical challenges for which they are poorly prepared, disproportionately affecting underrepresented groups. Mentoring can help but is frequently lacking. This, coupled with the lack of senior underrepresented minority faculty, can be disastrous. This workshop uses storytelling to bring light to potential challenges and offer guidance on how they may be anticipated and overcome.

Topics to be covered include tenure, scientific publications, plagiarism, imposter syndrome, and microaggressions. Each topic will be presented using a short presentation or dramatization, followed by interactive discussion sessions.

Presenters:

- Pamela Abshire, Professor of Electrical & Computer Engineering, University of Maryland, College Park
- Jennifer Blain Christen, Associate Professor of Electrical, Computer, and Energy Engineering, Arizona State University
- Nicole McFarlane, Associate Professor of Electrical Engineering and Computer Science, University of Tennessee, Knoxville
- Maira Samary, Visiting Assistant Professor of Computer Science, Boston College
- Stephen Senturia, Professor Emeritus of Electrical Engineering, Massachusetts Institute of Technology

Program:

- Anatomy of a Tenure Case: Dramatization and Discussion related to Tenure
- Why (and How To) Get Published: Wisdom from a Former Journal Editor
- Power and Plagiarism: Vignette and Discussion
- Microaggressions: Vignette and Discussion
- The Imposter Syndrome: Vignette and Discussion

To register to the event, please click on the link below:

https://tinyurl.com/y7woa9yy

NOTE: This event will be virtual. A zoom link will be sent to registered participants at least one week in advance.
Sponsored in part by NSF Grant 1844528

Microwave Theory & Techniques Society – 6:30PM ET, Tuesday, April 13

MM-Wave GaN Power Amplifiers: Technology to Power the Future

Speaker: Mr. James M. Schellenberg

The emergence of 5G cellular has created new interest in the millimeter-wave spectrum. This frequency band (30 to 300 GHz) remains a great untapped resource that must be utilized in order to realize the goals (5G and beyond) of the Internet and cell phone industries. There simply is not enough bandwidth at lower frequencies to satisfy future system requirements for speed and capacity. The millimeter-wave spectrum is also of great interest to military and industrial planers, where the enhanced resolution provided by greater bandwidths is necessary to meet future systems goals. Fortunately, a new device/materials technology has emerged which can meet these requirements. This is GaN on SiC substrates. MMICs fabricated with this high bandgap materials offer a factor of 10 improvement in the power density compared with older technologies such as GaAs and InP.

This talk will focus on GaN MMIC technology and how it can address industry (commercial and military) power needs at millimeter-wave frequencies. I will first present where the technology currently is in terms of power, efficiency and frequency, and then present where it is headed. I will also present the factors limiting performance and cost and offer possible solutions.

James M. Schellenberg (S'68-M'71-SM'94-LSM'10) was born in Reedley, California in 1945. He received the B.S. degree in electrical engineering from Fresno State University, Fresno, CA in 1969, and the M.S. degree in electrical engineering from Johns Hopkins University, Baltimore, MD, in 1973.

From 1969 to 1978, he was employed by Westinghouse Electric Corporation, Advanced Technology Laboratories, in Baltimore, MD where he was responsible for bipolar and FET power amplifier/combiner design. From 1978 to 1988 he was employed by Hughes Aircraft Company, Microwave Products Division, in Torrance, CA. There he was responsible for many industry firsts in GaAs hybrid/monolithic IC technology, particularly at millimeter-wave frequencies. From 1988 to 2005 he was with Schellenberg Associates developing power MMICs for millimeter-wave applications. From 2005 to 2008 he worked for Trex Enterprises in Kahului, HI developing mm-wave imaging radars. In 2008 he joined QuinStar Technology as their Chief Engineer.

Mr. Schellenberg is the inventor of the radial-line power combiner (U.S. Patent No. 4,234,854) and the Dolph-Tchebycheff planar power combiner (U.S. patent 4,835,496) and has pioneered the development of hybrid/monolithic FET amplifiers/oscillators at millimeter-wave frequencies. He has been awarded the 1978 IR-100 Award for the FET radial line power combiner and the 1981 ISSCC Beatrice Winner Award. He is the author of 8 U.S. patents and more than 50 technical papers.

His current research interests include nonlinear analysis/modeling of power amplifiers, high-power broadband amplifiers/combiners and millimeter-wave GaN power MMICs.

Please click the link below to join the webinar:
Join Zoom Meeting
https://mit.zoom.us/j/5457368756

One tap mobile
+16465588656,,5457368756# US (New York)
+16699006833,,5457368756# US (San Jose)

Meeting ID: 545 736 8756

US : +1 646 558 8656 or +1 669 900 6833
Registration:
https://events.vtools.ieee.org/m/265632

Reliability Society (Boston/Providence/New Hampshire Chapters)– 11:00AM ET, Wednesday, April 14

Space Radiation Effects — Modeling the Environment for Systems Analysis

Speaker: Dr. J. Brent Parham of MIT Lincoln Laboratory

Location: Free Webinar

The space environment presents many natural hazards, one of which is a harsh radiation environment. Energetic ions from the sun and far-off galaxies affect sensitive microelectronics, causing a multitude of adverse effects. With modern manufacturing techniques that increase performance by decreasing feature sizes, commercially available digital parts such as FPGAs are only becoming softer to particle radiation, reducing reliability.

This talk discusses how analysis of this environmental risk can be done in the system engineering process and introduces in-house modeling efforts at Lincoln Laboratory that will better enable future space program assessments of reliability.

Date: Wednesday, 14 April 2021
Time: 11:00 AM to 12:00 PM
All times are US/Eastern

Location: This Webinar is to be delivered via Zoom. At registration, you must provide a valid e-mail address to receive the Webinar Session link approximately 15 hours before the event. If you haven't received the e-mail as scheduled, please check your spam folder and alternate e-mail accounts before contacting the host.

Contact
Email event contact
Michael W. Bannan, Chair
IEEE Boston/Providence/New Hampshire Reliability Chapter

Registration:
Starts 24 February 2021 9:00 PM
Ends 13 April 2021 6:00 PM

Speaker:
Dr. J. Brent Parham of MIT Lincoln Laboratory
Dr. J. Brent Parham is a member of the Technical Staff in the Space Systems Analysis and Test Group at MIT Lincoln Laboratory, where he has studied the space environment and its effects on national infrastructure for the past ten years. Before joining the group, Dr. Parham received a bachelor's degree in Aerospace Engineering from MIT. During his time employed at Lincoln Laboratory he earned a master's in Mechanical Engineering, and a doctorate in Electrical Engineering from Boston University as part of its Center for Space Physics. He has been involved with several cubesat build efforts over the years, while currently supporting several missions to develop next generation space weather instruments.

Agenda:
11:00 AM Technical Presentation
11:45 AM Questions and Answers
12:00 PM Adjournment

Please visit our website at www.ieee.org/bostonrel .
The meeting is open to all. You do not need to belong to the IEEE to attend this event; however, we welcome your consideration of IEEE membership as a career enhancing technical affiliation.

There is no cost to register or attend, but registration is required.
Register: https://events.vtools.ieee.org/m/263541

Entrepreneur's Network – 7:00PM ET, Tuesday, April 20

Marketing: Getting It Right

Location: ONLINE WEBINAR

Registration: ENET Member
Free: General Public – $10.00
Registration for this event will close on Tuesday, April 20
https://boston-enet.org/event-3892685

The adage "build it and they will come" will not apply to your business if you do not have a marketing communication program. With the web, many buyers do their initial searches before they even contact a provider. How do you get on the consideration list?

A panel of marketing communication professionals will help you be found through a range of go-to-market strategies: public relations, digital marketing, blogs, and social media with a focus on LinkedIn, the most business-oriented platform.

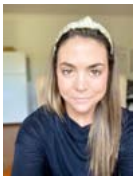
During this program you will learn:
• To apply elements of a go-to-market strategy.
• How to best position your products and services to attract customers.
• What content performs best on LinkedIn and how to build thought leadership.
• How to generate coverage with PR in a noisy digital world.
• Tips for an integrated marketing communication plan for a small company.
After each of the speakers offers a presentation of different aspects of the topic, you will be able to ask questions.

There will be more than an hour of online networking via Grapevine, available to registrants before the meeting, and a half hour networking post-meeting, giving attendees the chance to meet virtually the speakers and moderator.

Agenda:
5:30 – 6:45 – Networking on Grapevine Network
7:00 - 7:10 PM - ENET Chairperson's announcements
7:10 - 7:25 PM – eMinute Pitch - Up to 3 Startup companies' presentations
7:25 - 8:10 PM - expert speakers on the night's topic
8:10 - 8:30 PM – Moderator and Audience Q & A with the speakers
8:30 – 9:00 PM - Networking on Grapevine Network
(all times are USA Eastern Daylight time)
A question and answer session will follow the panel discussion, and panelists will be available afterward for responses to individual questions.

Panel:

Evan Birkhead, Principal, Strategic Marketing & Communications
Evan is a strategic marketing and communications professional with a focus on building marketing programs for early-stage tech start-ups. His commercial clients include open systems software consortia and leaders in IoT, IT operations, and cybersecurity. Evan began his marketing career in 1997 when he joined Micromuse, a start-up in the network management space that experienced skyrocketing growth, went public on Nasdaq, and was acquired by IBM. Evan received his B.A. from Tufts University and his M.S. in Public Communications from Syracuse University.



Alex Rynne, Senior Content Marketing Manager, LinkedIn
Alex is an award-winning content creator who builds global content campaigns designed to inspire and enable marketers and sales professionals to find success on the LinkedIn platform. Her work has been featured in Inc., Forbes, American Business Journals, Social Media Examiner, Social Media Today, AdWeek, and more.

Lisa Langsdorf, PR & Marketing Consultant
Lisa has 15 years of experience in b2b marketing and strategic communications, working both in house and at PR agencies. As a consultant, she works closely with professional services clients to provide a full range

of PR services, from strategy to media relations. Prior to consulting, Lisa was a senior director at SF-based PR agency, SutherlandGold and a senior manager, marketing communications at The New York Times Company. She has spoken at SXSW, CommsWeek and moderated panels during Advertising Week in New York. She has a BA in journalism and is working towards her MA in management.

Moderator:

Howard Sholkin, Sholkin Consulting

Howard Sholkin has several decades of marketing communication experience across industry sectors. Since 2018, he has served as President of Newton Community Pride, a non-profit supporting a few dozen events in the city where he is a lifelong resident. In 2014, he formed Sholkin Consulting to deliver digital marketing services to technology and financial services companies. He also served on the adjunct faculty of Boston University and Lasell College for five years.

In 2003, he was hired as director of corporate communications at International Data Group (IDG) where he served Founder Pat McGovern. Sholkin later became director of communication and marketing programs for the CEO of IDG Communications, a global technology media and events subsidiary. IDG brands include Computerworld, PCWorld, Macworld, and CIO. Sholkin has held senior marketing and communication positions at technology product and services companies such as Computervision; Technology Concepts, a subsidiary of Bell Atlantic; Corporate Software; and, Digital Equipment Corp./Compaq. He was a columnist for PR News and for Personal Branding magazine, one of the first publications on social media.

Since 1990, Sholkin has been active in the Public Relations Society of America (PRSA) where he once served as president of the Boston chapter. Currently, he is co-chair of the national PRSA Investment Committee. He serves on the boards of three non-profits: Newton Community Pride, Boston Entrepreneurs Network (ENET) and Temple Shalom of Newton.

Electromagnetic Compatibility Society – 4:00PM (EST), Wednesday, April 21

Lightning Interaction with Transmission and Distribution Power Systems

Prof. Dr. Alexandre Piantini, University of São Paulo, Brazil

In recent years, the growing use of sensitive electronic devices and the increasing demand of utility customers for power supply stability have emphasized the importance of improving electric systems' reliability and power quality levels. Although various phenomena and situations can cause disturbances on power transmission and distribution networks, lightning is usually responsible for a significant amount of unscheduled supply interruptions and permanent damages to equipment such as distribution transformers, as well as damages to or malfunction of sensitive electronic equipment. It is therefore essential to evaluate the lightning electromagnetic environment to mitigate its effects and improve the power system quality.

In this talk, after an introduction that includes an overview of the main lightning processes, the major mechanisms by which lightning overvoltages can be produced in power transmission and distribution (medium and low-voltage) systems are explained. Then, the overvoltages' general characteristics are evaluated and their dependence upon the network configuration and some of the most important ground and stroke parameters are discussed, with examples of measured and calculated voltage waveshapes.

The presentation will be conducted on Zoom, details for the connection will be posted in a separate message closer to the date of presentation and on the EMC IEEE Chapter web site - https://www.emcsbostonchapter.com/

For questions, please contact the chair of the Chapter, Michael Royer at Michael_Royer@bose.com

Speaker information: Prof. Dr. Alexandre Piantini, University of São Paulo, Brazil

Prof. Piantini (SM'04) received the M.Sc. and Ph.D. degrees from the Polytechnic School of the University of São Paulo, São Paulo, Brazil, in 1991 and 1997, respectively. He joined the University of São Paulo in 1986 and served, from 1998–2011, as Director of Technological Development of the Institute of Energy and Environment, where he is Associate Professor and the Head of the Lightning and High Voltage Research Centre. He was the Convener of the CIGRE WG C4.408 "Lightning Protection of Low-Voltage Networks" and member of various IEEE and CIGRE working groups. He is Associate Editor of the IEEE Transactions on Electromagnetic Compatibility, Electrical Engineering, High Voltage, and member of the Editorial Advisory Panel of the Electric Power Systems Research.

He has participated in 26 research projects related mainly to lightning and EMC. He coordinated 21 of these projects, of which 15 funded mainly by power companies and national agencies for research support. Prof. Piantini is the Chairman of the Int. Symposium on Lightning Protection (SIPDA) and member of scientific committees of various conferences such as the Int. Conf. Lightning Protection (ICLP). He is a Guest Professor of the Chongqing University, China, and a member of the IEEE Award Committee of the Sun & Grzybowski Award. In 2018 he was the recipient of the ICLP R. H. Golde Award. He is the Editor of two books (IET), author or co-author of eight book chapters, and over 150 scientific papers published in prestigious reviewed journals or presented at international conferences with review board.

E-mail: piantini@iee.usp.br

Geoscience & Remote Sensing Society – 6:00PM ET, Wednesday, April 28

Connecting The Oceans To Space: Developing a Floating Renewably-Powered Autonomous Underwater Vehicle Servicing Platform with Leo Constellation Data Uplink

Location: Zoom

Speaker: Maha Haji, MIT

Autonomous Underwater Vehicles (AUVs) offer the ability to provide persistent and expanded ocean observations and measurements. The range and duration of AUVs, however, are limited in range and duration by the vehicle's battery capacity, and the sensor payloads they carry are limited by the processing power onboard which is also restricted by the vehicle's battery capacity. Furthermore, the power consumption of a vehicle's acoustic system limits the possibility of substantial data transmission, requiring the AUV be retrieved to download most data. The Platform for Expanding AUV exploRation to Longer ranges (PEARL), described in this talk, aims to extend the range and endurance of AUVs while reducing data latency and operating costs. PEARL is an integrated autonomous floating servicing station that utilizes renewable energy to simultaneously provide AUV battery recharging and data uplink via new generation high-bandwidth low-Earth orbit satellite constellations.

This talk details the design and deployment of a 1:2.5 Froude-scaled PEARL system, along with the results from data transmission via satellite link.

Bio: Dr. Maha Haji is a joint researcher in the Sibley School of Mechanical and Aerospace Engineering at Cornell and the Engineering Systems Laboratory at MIT. Her research focuses on utilizing multidisciplinary design optimization to develop a floating platform to provide recharging and data offloading capacity for autonomous underwater vehicles.

Dr. Haji received her Ph.D. in Mechanical and Oceanographic Engineering in 2017 from the Joint Program between MIT and Woods Hole Oceanographic Institution where she focused on the design and prototyping of a symbiotic system to harvest uranium from seawater. Dr. Haji has worked in industry as an engineering consultant at ATA Engineering, where she used analysis-driven design to solve problems ranging from aircraft and rockets to robotics and rollercoasters.

Dr. Haji will be joining the faculty at Cornell as an Assistant Professor of Mechanical and Systems Engineering starting in July 2021, where her research group, the Symbiotic Engineering and Analysis Lab, will focus on designing offshore systems to sustainably extract resources from the ocean such as power, water, and food, as well as mineral resources key to the progress of clean energy. For more information about her work and her group at Cornell, visit https://sea.mae.cornell.edu.

Registration:
https://events.vtools.ieee.org/m/264832

DSP for Wireless Communications

Times and Dates (for live Q&A sessions) : 7 - 8PM ET, Thursdays, May 20, 27, June 3, 10, 17

Videos Released weekly beginning on May 14, 2021 (2 @ 1.5 hours)

Speaker: Dan Boschen

Location: Webinar

New Format Combining Live Workshops with Pre-recorded Video - This is a hands-on course providing pre-recorded lectures that students can watch **on their own schedule** and an **unlimited number of times** prior to live Q&A/Workshop sessions with the instructor. Ten 1.5 hour videos released 2 per week while the course is in session will be available for up to two months after the conclusion of the course.

Course Summary

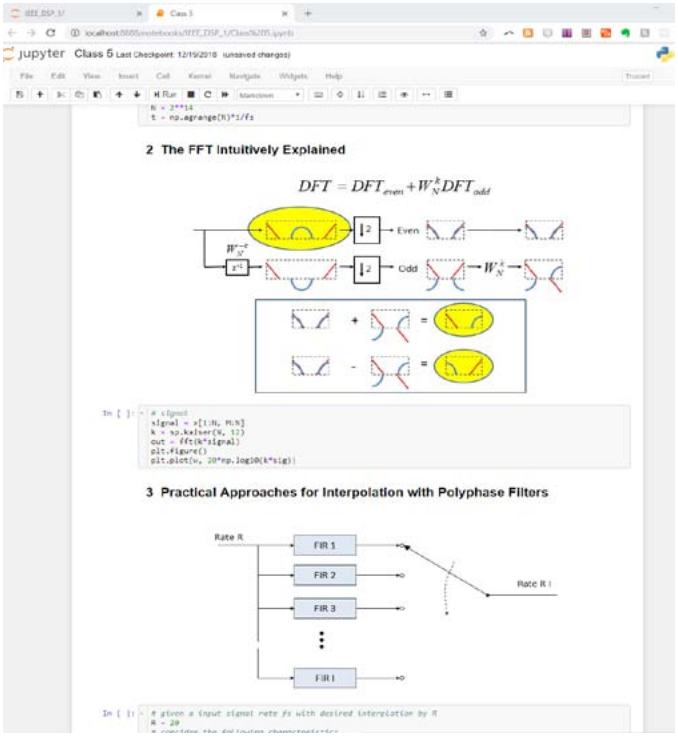
This course is a fresh view of the fundamental and practical concepts of digital signal processing applicable to the design of mixed signal design with A/D conversion, digital filters, operations with the FFT, and multi-rate signal processing. This course will build an intuitive understanding of the underlying mathematics through the use of graphics, visual demonstrations, and applications in GPS and mixed signal (analog/digital) modern transceivers. This course is applicable to DSP algorithm development with a focus on meeting practical hardware development challenges in both the analog and digital domains, and not a tutorial on working with specific DSP processor hardware.

Now with Jupyter Notebooks!

This long-running IEEE Course has been updated to include Jupyter Notebooks which incorporates graphics together with Python simulation code to provide a "take-it-with-you" interactive user experience. No knowledge of Python is required but the notebooks will provide a basic framework for proceeding with further signal processing development using that tools for those that have interest in doing so.

This course will not be teaching Python, but using it for demonstration. A more detailed course on Python itself is covered in a separate IEEE Course "Python Applications for Digital Design and Signal Processing".

Students will be encouraged but not required to load all the Python tools needed, and all set-up information for installation will be provided prior to the start of class.

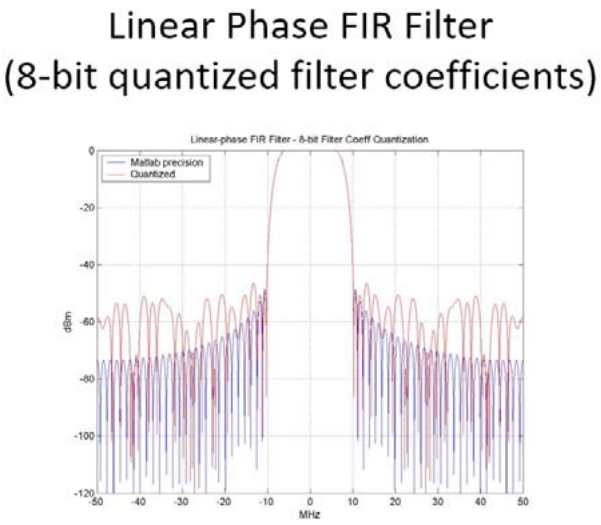


Target Audience:

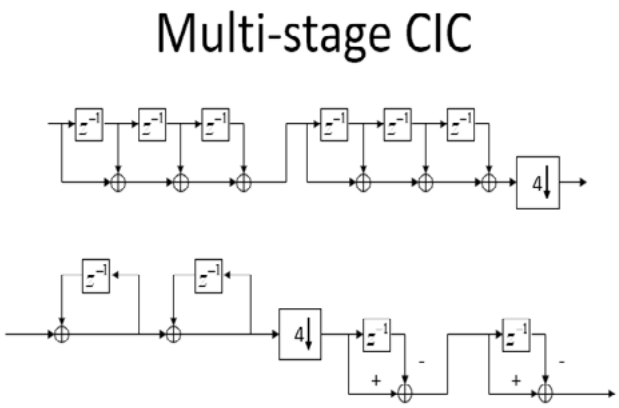
All engineers involved in or interested in signal processing applications. Engineers with significant experience with DSP will also appreciate this opportunity for an in-depth review of the fundamental DSP concepts from a different perspective than that given in a traditional introductory DSP course.

Benefits of Attending/ Goals of Course:

Attendees will build a stronger intuitive understanding of the fundamental signal processing concepts involved



with digital filtering and mixed signal analog and digital design. With this, attendees will be able to implement more creative and efficient signal processing architectures in both the analog and digital domains. The knowledge gained from this course will have immediate practical value for any work in the signal processing field.



Topics / Schedule:

Class 1: Correlation, Fourier Transform, Laplace Transform

Class 2: Sampling and A/D Conversion, Z –transform, D/A Conversion

Class 3: IIR and FIR Digital filters, Direct Fourier Transform

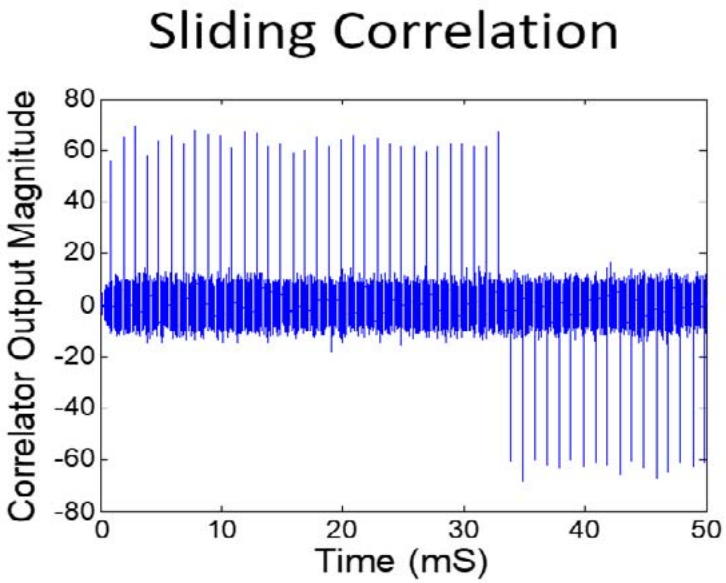
Class 4: Windowing, Digital Filter Design, Fixed Point vs Floating Point

Class 5: Fast Fourier Transform, Multi-rate Signal Processing, Multi-rate Filters

Speaker's Bio:

Dan Boschen has a MS in Communications and Signal Processing from Northeastern University, with over 25 years of experience in system and hardware design for radio transceivers and modems. He has held various positions at Signal Technologies, MITRE, Airvana and Hittite Microwave designing and developing transceiver hardware from baseband to antenna for wireless communications systems. Dan is currently at Microchip (formerly Microsemi and Symmetricom) leading design efforts for advanced frequency and time solutions.

For more background information, please view Dan's Linked-In page at: http://www.linkedin.com/in/dan-boschen



Decision (Run/Cancel) Date for this Course is Tuesday, May 11, 2021

IEEE Members	**$190**
Non-members	**$210**

http://ieeeboston.org/event/digital-signal-processing-webinar/?instance_id=3018

Modern Applications of RISC-V CPU Design

Access Period: **September 1 - 30, 2021 (originally scheduled for March '21)**

Speaker: **Steve Hoover, Redwood, EDA**

Type of Course: Self-paced, on-demand Course. Lab format

Course Overview: CPUs are a fundamental building block of complex SoCs, and RISC-V is taking hold as the ISA of choice. In this workshop, you will create a Verilog RISC-V CPU from scratch, and you will modify this CPU to be suitable for different applications.

You will learn and use modern techniques, using Transaction-Level Verilog to generate and modify your Verilog code more reliably, in far less time. You will discover how concepts like pipelining and hazards can be incorporated easily using timing-abstract design principles. All labs will be completed online in the Makerchip.com IDE for open-source circuit design. The skills you learn will be applicable far beyond CPU design.

Outline of Topics to be Covered:
Digital logic using TL-Verilog and Makerchip
– combinational logic
– sequential logic
– pipelined logic
– validity
– a calculator circuit
Basic RISC-V CPU microarchitecture
– single-cycle CPU microarchitecture
– testbench, test program, and lab setup for your CPU
– fetch, decode, and execute logic for RISC-V subset
– control flow logic
Pipelined RISC-V subset CPU microarchitecture
– simple pipelining of the CPU
– hazards and PC redirects
Completing the RISC-V CPU
– data memory and load/store
– remaining RISC-V (RV32I) instructions

Course Format:
– self paced, on demand course, providing attendees a flexible schedule
– access to content for 30 days
– pre-scheduled live Zoom and chat sessions with the instructors during the 30 day access period
– offline chat available with instructors during the entire 30 day access period (reply within 24 hours).

Target Audience: Engineers interested in a career in digital logic design or adjacent disciplines, including experienced engineers looking to modernize their skill set.

Prerequisites: An engineering education and basic understanding of digital logic. (Verilog knowledge is not a prerequisite.)

Benefits of Attending:
– Develop a solidified understanding of pipelined CPU design through hands-on labs.
– Acquire knowledge of advanced digital circuit design methodology.
– Gain exposure to an open-source design ecosystem.

Speaker Bio: Steve Hoover is the founder of Redwood EDA, an early-stage startup focused on advanced silicon design methodology and tools. Steve is a former logic design lead for DEC, Compaq, and Intel and has extensive experience designing high-performance server CPUs and network switches.

System Requirements: All resources are free and online; no download or installation required. We will use Slack, Zoom, GitHub Classroom, and Makerchip.com.

Decision (Run/Cancel) Date for this Course is Wednesday, August, 25, 2021

IEEE Members	**$350**
Non-members	**$395**

http://ieeeboston.org/event/modern-applications-of-risc-v-cpu-design-course/?instance_id=2955

Software Development for Medical Device Manufacturers

Web-based Course with live Instructor!

(11 hours of instructions!)

Times & Dates: 1:00 - 4:00PM ET, May 3, 4, 5, 6, 2021

Speaker: Steve Rakitin, Software Qualtiy Consulting

Course Format: Live Webinar, four, 3 hour sessions

COURSE SUMMARY: Developing software in compliance with the FDA Design Control regulation, changing FDA guidance documents and latest international standards is challenging. This intensive course provides practical solutions and suggestions for developing software in a manner that meets applicable FDA regulations, guidance documents and international standards, such as IEC-62304:2015. The focus is on interpreting Design Controls for software. Each section of the Design Controls regulation (820.30) is discussed from the perspective of software development. Discussions on key topics such as Software Requirements, Traceability, Design Reviews, Software Verification & Validation and Risk Management (including recently updated standards ISO-14971:2019 and EN-14971:2019) are included. Also discussed are FDA requirements for validation of software development tools and software used in Manufacturing and Quality Systems. Also discussed are recent FDA Guidance Documents on Cybersecurity, Mobile Apps, and Usability.

THIS COURSE IS INTENDED FOR: Software engineers, project managers, quality managers, software quality professionals, RA/QA staff, and anyone who needs to develop cost-effective processes and procedures that will enable their organizations to deliver high quality software-based medical devices that comply with FDA regulations and international standards. This course is also appropriate for people who are new to the medical device industry. Course notes, access to an extensive collection of reference documents and a training certificate are provided.

COURSE OUTLINE: This course will be presented with a live instructor using web-meeting software. The course content will be covered in 4 sessions as described below.

SESSION 1 – Regulatory Context

Duration ~3 hours with one 15 min break

This session will cover key regulatory requirements for medical device software in the US and EU.

Regulations and Guidance:

- FDA Medical Device Regulation (21 CFR Part 820 – specifically, design controls)
- EU Medical Device Regulation
- FDA Guidance Documents:
- Guidance for Content of Pre-market Submissions for Medical Devices Containing Software
- Off-the-Shelf Software Use in Medical Devices
- General Principles of Software Validation
- Content of Premarket Submissions for Management of Cybersecurity in Medical Devices
- Policy for Software Device Functions and Mobile Medical Applications
- Applying Human Factors and Usability Engineering to Medical Devices

International Standards:

- ISO 13485:2016 Medical Devices – Quality Management Systems
- IEC 62304: 2015 Medical Device Software – Software Lifecycle Processes
- ISO 14971: 2019 Application of Risk Management to Medical Devices

• EN 14971: 2019 Application of Risk Management to Medical Devices
• Off-the-Shelf (OTS) Software and Open Source software (SOUP)
• Discussion: All Software Is Defective…

SESSION 2 – FDA Design Controls and IEC 62304 – Part 1
Duration ~2.5 hours with one 15 min break
This session will cover FDA Design Controls and IEC 62304 requirements for medical device software.

• Design and Development Planning
    • How does Agile Development fit?
    • Medical Device Software Lifecycle Processes
• Risk Management
    • FDA Levels of Concern
    • IEC 62304 Software Safety Classification
• Software Requirements
    • Techniques for Removing Ambiguity from Requirements
• Software Architecture and Design
• Software Design Changes

SESSION 3 – FDA Design Controls and IEC 62304 – Part 2
Duration ~2.5 hours with one 15 min break
This session will cover Software Verification and Validation requirements.

• Software Implementation
• Software Verification
    • Technical Reviews
    • Static Analysis
    • Unit and Integration Testing
• System Testing
• Software Validation Testing

SESSION 4 – Software Tool Validation and Risk Management
Duration ~2.5 hours with one 15 min break
This session will cover Software Tool Validation and Risk Management requirements.
• Software Tool Validation
    • Deciding which tools need to be validated
    • Validation approach for software tools
• Validation of Manufacturing Software and Quality System Software
• Risk Management Using Fault Tree Analysis (FTA)
    • Review of ISO/EN 14971:2019 Requirements
    • Example of Fault Tree Analysis and Failure Modes Effect Criticality Analysis (FMECA)

About the instructor: Steven R. Rakitin has over 45 years experience as a software engineer. He has over 30 years of experience in the medical device industry and has been a medical device consultant for over 20 years. He has worked with over 100 medical device manufacturers and biotech companies worldwide, from startups to Fortune 100 corporations. He has published papers on medical device software risk management as well as a book titled: Software Verification & Validation for Practitioners and Managers.

He received a BSEE from Northeastern University and an MSCS from Rensselaer Polytechnic Institute. He earned certifications from the American Society for Quality (ASQ) as a Software Quality Engineer (CSQE) and Quality Auditor (CQA). He is a Senior Life member of IEEE.

Steve works collaboratively with medical device companies to help them comply with FDA regulations, guidance documents, and international standards in an efficient and cost-effective manner.

Decision (Run/Cancel) Date for this Course is Monday, April 26, 2021

IEEE Members	**$285**
Non-members	**$345**

http://ieeeboston.org/event/live-course-software-development-for-medical-device-manufacturers/

Electronic Reliability Tutorial Series -

Electronic Failures and Mitigation Methods from a Component, Design and Process Perspective

Five new, LIVE WEBINAR courses!

Times & Dates: Each session starts at 11:00 ET, April 29, May 6, 13, 20, 25

Speakers: Greg Caswell, Dock Brown, Ashok Alagappan, David Spitz, Ansys

Electronics perform critical functions in every major industry vertical, whether in automotive, aerospace, consumer, medical or industrial segments. With the advent of newer technologies (both at the component and material levels), shrinkage of feature sizes, more stringent environments and sophisticated power requirements, electronics face increasing reliability risks. Supply chain trends have changed over the years from a vertically integrated model to a more geographically diverse supply chain. All these trends have increased reliability risks for companies. However, the cost of reliability assurance activities is often a fraction of the cost of failure, with compounding benefits from conducting these activities early in the design process.

This set of five tutorials brings together the experience of industry reliability experts and highlights electronic failures due to technology changes, changing supply chain, and mitigation methods from a design, component, and process perspective. Tutorials that specifically address connectors, Commercial Off the Shelf (COTS) parts, identify issues and implement Design for Manufacturing (DfM) methodologies, root causes and mitigation strategies for Electrical overstress (EOS) failures, will comprise the series.

Series Tutorial Session Ttiles

You can view detail session descriptions once you click on the individual sessions once you access the main series webite. See the link at the end of the course notice.

1) Reliability Challenges with the Use of Multilayer Ceramic Chip Capacitors

2) How to Avoid Common Failures with Connectors in Electronic Assemblies

3) How to Ensure Reliability with Commercial Off the Shelf (COTS) Electronic Parts

4) Design for Manufacturability (DfM) – Optimizing the Board Assembly Process for Reliability

5) Why Electrical Overstress Ranks High in the IC Field Failure Pareto

Target Audience: Engineers/managers involved in the design, manufacturing and/or reliability of electronic products/systems, and complex printed circuit board assemblies.

Benefits of Attending

- How to avoid common mistakes in the use of MLCCs
- Mitigation methods for the relevant MLCC failure modes
- How to avoid common mistakes in connector design and applications
- Mitigation methods for the relevant failure modes for connectors
- How to avoid common mistakes in use of COTS components
- Mitigation methods for the relevant failure modes in the use of COTS components
- Gain an understanding of different failure modes,

associated with manufacturing
- Learn the process for assessing the design and enhance manufacturability with each level of electronic packaging/assembly
- Mitigation methods for the relevant failure modes
- Learn about the impact of Electrical Overstress (EOS) on semiconductor devices
- Learn about the Impact of Absolute Maximum Rating (AMR) on EOS failures
- Root Causes of EOS failure mechanisms
- Mitigation methods for the relevant failure modes

Greg Caswell, a Lead Consulting Engineer for Ansys Corporation, is an industry recognized expert in the fields of SMT, advanced packaging, printed board fabrication, circuit card assembly, and bonding solutions using nanotechnology. He has been well-regarded as a leader in the electronics contract manufacturing and component packaging industries for the past 50 years. He has presented over 270 papers at conferences all over the world and has taught courses at IMAPS, SMTA and IPC events. He helped design the 1st pick and place system used exclusively for SMT in 1978, edited and co-authored the 1st book on SMT in 1984 for ISHM and built the 1st SMT electronics launched into space. Be on the lookout for his new book entitled Design for Excellence in Electronics Manufacturing due out in September 2020. Greg has won several awards including the IMAPS Lifetime Achievement Award in 2018, the ISHM Daniel C. Hughes Award (highest award given to an individual), ISHM Fellow of the Society Award and the Tracor Technical Innovation Award.

Dock Brown brings his more than 30 years of electronics reliability experience to clients of Ansys. Prior to joining Ansys, he spent 20 years at Medtronic where he most recently concentrated on cross business unit implementation of reliability initiatives for Class III medical devices. He was also responsible for supplier assessment and approval, on-going supplier audits, failure analysis, corrective actions, MRB, sampling, and ultimately full accountability for quality and reliability of COTS and custom parts and assemblies from a worldwide supplier base. Earlier in his career, Mr. Brown also spent time at Sundstrand Data Control where he led the implementation of the Boeing AQS program and with Olin Aerospace.

David Spitz, a Lead Consulting Engineer with Ansys Corporation, has over 30 years of experience in PCBA manufacturing with tier 1 contract manufacturers Texas Instruments, Solectron, and Flex. During that time, he has held various technical leadership roles including SMT and DFM Engineering, and his background has encompassed both NPI and Production environments. David has expertise in BGA/CSP attachment, solder paste printing, and SMT reflow soldering.

Ashok Alagappan has 15 years of experience in the Semiconductor industry, specializing in design and manufacturing of semiconductor products. He has managed products through their life cycle, from introduction in the Fab to qualification. At Ansys, he is working with customers across the spectrum, from aerospace, automotive to commercial, providing expert analysis and recommendations for defining and improving reliability of electronic products and IC components. He has developed an IC wear out tool to predict the lifetime characteristics of Integrated Circuit components in high reliability applications like aerospace, defense, automotive, among others. He has built models to characterize the intrinsic wear out failure mechanisms of ICs and has implemented the tool in the Ansys Sherlock ADA™ software product

Individual tutorial/session abstract, goals, benefits of attending, target audience can be found by clicking on the title of each tutorial/session once the main series site is accessed (see below) Upon entering the registration page, you will have the option of registering for one or more tutorials/sessions. We offer a 15% discount for 2-3 tutorials and 25% discount for 4-5 tutorials. You will be able to choose your tutorials/sessions from the registration page.

Decision (Run/Cancel) Date for this Course is Friday, April 23, 2021

Each session is a separate registration

IEEE Members - $80

Non-members - $100

http://ieeeboston.org/electronic-reliability-series-2/

Call for Articles

Now that the Reflector is all electronic, we are expanding the content of the publication. One of the new features we will be adding are technical, professional development, and general interest articles to our members and the local technology community. These will supplement the existing material already in our publication.

Technical submissions should be of reasonable technical depth and include graphics and, if needed, any supporting files. The length is flexible; however, a four to five page limit should be used as a guide. An appropriate guide may be a technical paper in a conference proceeding rather than one in an IEEE journal or transaction.

Professional development or general interest articles should have broad applicability to the engineering community and should not explicitly promote services for which a fee or payment is required. A maximum length of two to three pages would be best.

To ensure quality, technical submissions will be reviewed by the appropriate technical area(s). Professional/interest articles will be reviewed by the Publications Committee for suitability.The author will be notified of the reviewers' decision.

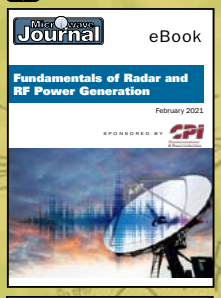
The Reflector is published the first of each month. The target submission deadline for the articles should be five weeks before the issue date (e.g., June 1st issue date; article submission is April 27). This will allow sufficient time for a thorough review and notification to the author.

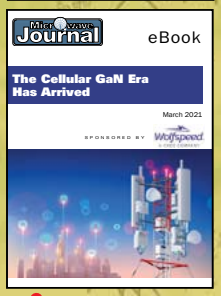
We are excited about this new feature and hope you are eager to participate!
Submissions should be sent to;
ieeebostonsection@gmail.com

This Month

Catch up on the latest industry news with the bi-weekly video update **Frequency Matters**

eBooks





Explore Microwave Journal Online

Microwave Journal

Molex Discusses 5G Technology Drivers and Adoption

Kymeta Discusses SATCOM Beamsteering Technology/Service

Frequency Matters March T&M Issue and Cable/Connector Supplement

VISIT MWJOURNAL.COM

Virtual Panel Session

What is the Best 5G mmWave Beam Steering Architecture?

April 27 **11am ET**

E-Learning Center

Access webinars on-demand from the archived webinars and events page

MARK YOUR CALENDAR!

HST Symposium Coming 8 – 9 November 2021

The 20th annual IEEE Symposium on Technologies for Homeland Security (HST '21),
will be held
8 - 9 November, 2021
As a virtual event!

This symposium brings together innovators from leading academic, industry and business, Homeland Security Centers of Excellence, and government programs to provide a forum to discuss ideas, concepts, and experimental results.

Produced by IEEE with technical support from IEEE, IEEE Boston Section, and IEEE-USA and organizational support from MIT Lincoln Laboratory and Raytheon, this year's event will once again showcase selected technical papers and posters highlighting emerging technologies in:


Cyber Security


Frontier and Emerging Technologies


Climate and Homeland Resilience


Borders and Law Enforcement

See IEEE-HST.ORG for more details or click here to join the 2021 HST mailing list for up-to-date news!

www.ieee-hpec.org

A Note from the HPEC Committee:
IEEE HPEC 2021 will be presented as a virtual conference that will allow safe participation and full publication in IEEE Xplore.

The IEEE High Performance Extreme Computing Conference (HPEC '21) will be held in the Greater Boston Area, Massachusetts, USA on 21 – 23 September 2021. The HPEC charter is to be the premier conference in the world on the confluence of HPC and Embedded Computing.

The technical committee seeks new presentations that clearly describe advances in high performance extreme computing technologies, emphasizing one or more of the following topics:

- AI / Machine Learning
- Graph Analytics & Network Science
- Advanced Multicore Software Technologies
- Advanced Processor Architectures
- Automated Design Tools
- Big Data & Distributed Computing
- Big Data Meets Big Compute
- Case Studies & Benchmarking of Applications
- Cloud HPEC
- Computing Technologies for Challenging Form Factors
- ASIC & FPGA Advances
- Quantum and Non-Deterministic Computing
- Data Intensive Computing
- Digital Front Ends
- Fault-Tolerant Computing
- Embedded Cloud Computing
- General Purpose GPU Computing
- High Performance Data Analysis
- Interactive and Real-Time Supercomputing
- Mapping & Scheduling of Parallel & Real-Time Applications
- New Application Frontiers
- Open System Architectures
- Cyber Analysis and Secure Computing

HPEC accepts two types of submissions:	**IMPORTANT DATES**:
1. Full papers (up to 6 pages, references not included; additional pages can be purchased for $200/page). 2. Extended abstracts (up to 2 pages, references included).	Submission Deadline: **JUL 9, 2021** Notification of Acceptance: **AUG 13, 2021** Camera Ready Deadline: **AUG 31, 2021**

Preference will be given to papers with strong, quantitative results, demonstrating novel approaches or describing high quality prototypes. Authors of full papers can mark their preference for a poster display or an oral presentation. Presenters who wish to have hardware demonstrations are encouraged to mark their preference for a poster display. Accepted extended abstracts will be displayed as posters. Papers can be declared "student paper" if the first author was a student when doing the presented work, and will be eligible for the "IEEE HPEC Best Student Paper Award." Papers should not be anonymized. All paper and extended abstract submissions need to use the approved IEEE templates. Full paper submissions with the highest peer review ratings will be published by IEEE in the official HPEC proceedings available on IEEE eXplore. All other accepted submissions and extended abstracts are published on ieee-hpec.org.

Vendors are encouraged to sign up for vendor booths. This will allow vendors to present their HPEC technologies in an interactive atmosphere suitable for product demonstration and promotion. We welcome input (hpec@ieee-hpec.org) on tutorials, invited talks, special sessions, peer reviewed presentations, and vendor demos. Instructions for submitting will be posted on the conference web site shortly.

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