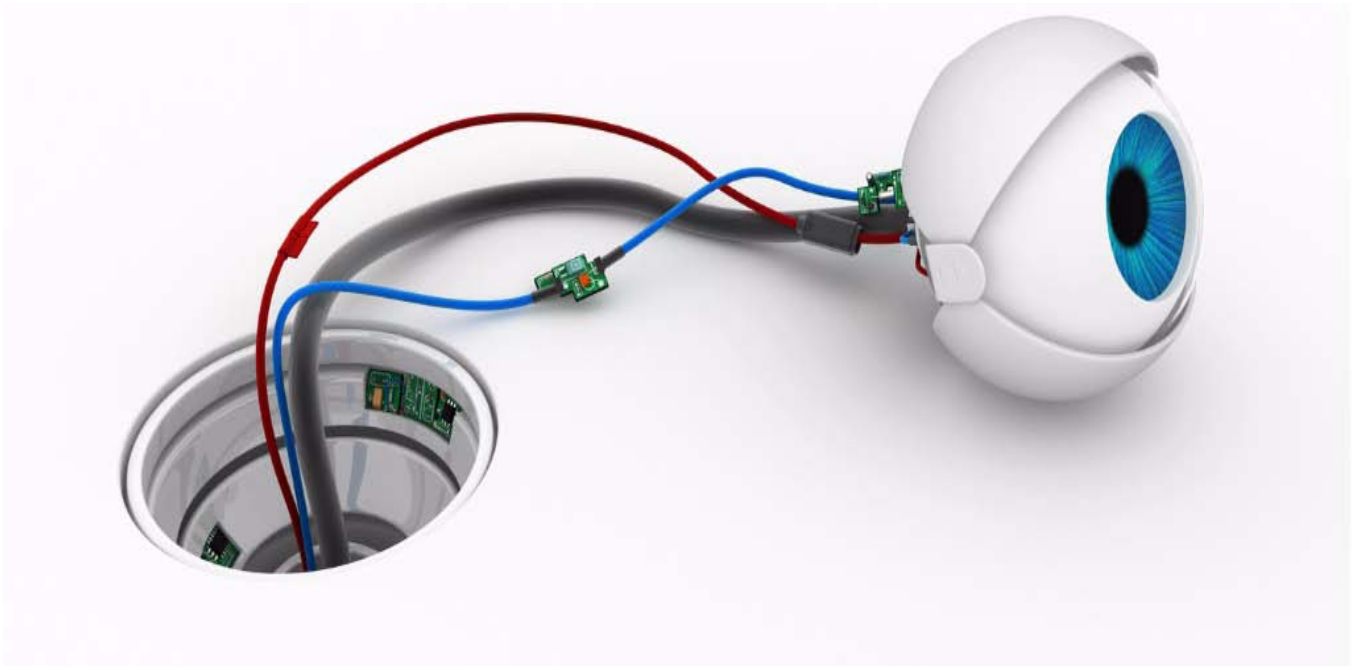
BOSTON

THE REFLECTOR

ISSUE #5
MAY 2021



IEEE
Advancing Technology for Humanity

TABLE OF CONTENTS

Expand Your Network with Us!

by Marie Tupaj, 2021 Chair, IEEE Boston Section

What's next? You have received your vaccine and are looking to do something outside the house. Thoughts that have crossed my mind include a vacation or visit with old friends. Surprisingly, news outlets are reporting that the percentage of workers that are looking to change jobs after the pandemic is quite large. Specifically, Forbes reports 30% of millennials will be looking to change jobs after the pandemic. The Prudential Pulse American Worker Survey writes 1 in 4 employees will be looking to switch positions. Reasons include the usual list of better opportunities, higher pay, and more flexibility. Company culture may have shifted towards the hybrid working model, which opens up opportunities farther from your residence. Some workers may be looking to change professions or test out a different skill set. Some have been considering a change in position before the pandemic though were unwilling to make a change during this time with the ongoing recession.

It is well known that reaching out to your network is key in finding and securing that position. However, this can be difficult especially if you have a busy life outside of work. IEEE Boston can help. We want you to get the most out of your membership. I encourage you to think about volunteering or attending one of our online events. Getting back involved after a one year hiatus is a short time and we can help strengthen your network.

Contact the leadership in your local technical or affinity group and ask how you can get involved. Small connections can go a long way in strengthening your network. It may lead to finding that perfect position!

IEEE Boston Section Social Media Links:

Twitter: https://twitter.com/ieeeboston

Facebook: https://www.facebook.com/IEEEBoston

YouTube: https://www.youtube.com/user/IEEEBostonSection

LinkedIn: https://www.linkedin.com/groups/IEEE-Boston-Section-3763694/about

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/

Entrepreneurs' Network – 7:00PM, Tuesday, May 4

Learn the Steps to Scale Your Sales Team

Location: ONLINE WEBINAR

Registration:
ENET Member: Free; General Public – $10.00

Registration for this event will close on Tuesday, May 4, 2021 at 3:00 PM (ET)

Registration:
https://boston-enet.org/event-3892693/Registration

Do you need to begin your company's sales effort and need to learn where to start or what to do to scales a successful sales team? It is not as simple as hire salespeople and they start the next day making sales. You need to plan and implement the sales processes, a hiring strategy and sales technology to scale your sales team. Additionally, you need to continually update the processes, and sales training/coaching.

Do not be confused by all the jargon out there! There are many different strategies and opinions but, every company is different therefore, your plan to scale your sales team is going to be unique to your company. Our panelists combine many years of sales successes and failures in many verticals and will be joining us to discuss how to effectively scale a sales team and consistently grow your sales.

Charlene DeCeare Founder, Charlene Ignites, LLC, Author, Trainer, Fractional VP Sales
Charlene "Ignites" DeCesare is a trusted sales advisor with more than 28 years of experience igniting massive sales growth for companies such as Gartner and Bright Horizons. As Founder of Firewalk Sales, she specializes in accelerating the sales of high-value services.

Charlene has a B.S. in Communications from Emerson College and an M.B.A. in Sales & Marketing from Rivier University. She's a Professional Member of the National Speakers Association, a Nationally Certified Brain-Based Success Coach, a Certified Sales Leader (CSL) with Sales Xceleration, and a Lead Consultant with RAIN Group.
She is also the author of The Email Cemetery: Where Bad Sales Emails Go to Die & How to Resuscitate Yours.

Kathy Yenke, Principal / Sales Catalyst Solutions
Kathy is the founder of Sales Catalyst Solutions, a sales consultancy specializing in revenue growth and sales excellence. She is a Certified Sales Leader. Utilizing theproven Sales Xceleration platform, Kathy helps clients exceed their growth and sales targets across a range of industries by creating a tailored sales strategy, developing effective sales processes, and assuring that sales execution ignites growth. Kathy possesses over 25 years of sales leadership experience in various high technology markets where she has led regional, national and global sales,marketing and business development teams to superior results. As a sales mentor, her passion and contagious enthusiasm results in teams consistently overachieving business goals and breaking through growth barriers.

A small example of her experience includes: IBM: Managing global sales management for 18 years Startup: Business Development role in a VC backed company. Various VP Sales jobs in the technology industry Sales Consultant / Sales Xceleration: consulting and training inside of SMBs, primarily with optimizing the entire sales and service process and establishing best practices Kathy earned a BA in Economics and German from Bowdoin College and the Wharton Executive Management Program.

She resides in Sudbury, MA with her husband and three children. In her spare time, Kathy enjoys downhill skiing, golf, and spending time with her family.

Jamie Crosbie | Founder and CEO Pro-Activate
Author of "The Power of 2, Exponential Sales Leadership" and "How to Source, Qualify and Hire Elite Sales Talent" and most recent book, "Journey To The Top: How to Reach Your Peak Performance Life." Certified Speaker in the High-Performance Mindset System, Expert in Sales and Sales Leadership Talent Acquisition, Sales and Leadership Training.

Jamie has over 25 years of experience in sales leadership and the talent acquisition industry. She founded ProActivate over 16 years ago. She started her career in traditional recruiting firms primarily in sales leadership positions. The following five years were spent within online recruitment where she served as Vice President of Sales at Career Builder.

Moderator: Susan MacConnell, President, Diversified Sales Solutions, Inc.
Susan is a LinkedIn lead generation strategist & president of Diversified Sales Solutions, Smarketing CONNECT & creator of The Client Connector^{tm} method. After helping clients in 7 unique industries with lead generation and collectively sending out, over 45,000 direct messages on LinkedIn, she has developed the expertise to connect with people in a real and authentic way. Susan's sales career spans over 20 years and she was an early adopter of LinkedIn when it was easy to find prospects. She has continued to grow her network and client base successfully over the years. Her background includes sales management, sales team creation, sales training. Susan has helped recruit and build sales organizations, creating direct selling teams.

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.

Computer Society and GBC/ACM – 1:00PM, Thursday, May 6

Real-world COVID-19 Vaccine Effectiveness and the Mass Vaccination Experience in Israel

Ben Reis, Director of the Predictive Medicine Group in the Computational Health Informatics Program (CHIP) at Boston Children's Hospital and a member of the faculty at Harvard Medical School

Register in advance for this webinar at https://acm-org.zoom.us/webinar/register/5216180807353/WN_SI305xcTRjiw363odC6Nnw

After registering, you will receive a confirmation email containing information about joining the webinar.

Please note that this webinar is at 1pm EDT (5 pm GMT, 8pm Israeli time) to accommodate a potential international audience.

Dr. Ben Reis will give an overview of and update on the recent New England Journal of Medicine paper he co-authored, providing the first real-world study of effectiveness of the Pfizer-BioNTech COVID-19 vaccine. It was the largest study yet to quantify the impact of the vaccine outside the confines of a clinical trial. The study used innovative epidemiological methods to analyze vaccine effectiveness for preventing symptomatic diseases, severe illness and death. Dr. Reis will discuss his study and the lessons learned from the nation-wide mass vaccination experience in Israel. The study has been featured in The New York Times, The Wall Street Journal and Time Magazine. Dr Reis is currently in Israel continuing these epidemiological studies and will give us an update on how the pandemic is evolving post-vaccinations.

Dr. Ben Reis is Director of the Predictive Medicine Group in the Computational Health Informatics Program (CHIP) at Boston Children's Hospital and a member of the faculty at Harvard Medical School. His research focuses on understanding the essential patterns of human disease, and on developing novel approaches for predicting disease. He has created systems that allow doctors to predict dangerous clinical conditions years in advance, as well as predictive pharmacology systems that allow public health officials to identify life-threatening adverse drug effects years in advance. Dr. Reis has designed predictive health monitoring systems for regional and national settings, and has advised governments worldwide on establishing biodefense and bio surveillance infrastructures. He has been recognized by the White House for his work on harnessing social networks to promote health, and by the US State Department, USAID and NASA for his work in global health innovation.

This joint meeting of the Boston Chapter of the IEEE Computer Society and GBC/ACM will be online only due to the COVID-19 lockdown.

Up-to-date information about this and other talks is available online at https://ewh.ieee.org/r1/boston/computer/. You can sign up to receive updated status information about this talk and informational emails about future talks at https://mailman.mit.edu/mailman/listinfo/ieee-cs, our self-administered mailing list.

Entrepreneurs' Network – 7:00PM, Tuesday, May 18

Staffing for Explosive Growth and Beyond

Location: Webinar

Register:
https://boston-enet.org/event-3892695/Registration

(Please note capacity is limited, so pre-registration is necessary)

Your company is forecasting explosive growth. This session will discuss; How to create a strategic hiring plan that aligns business strategy with people strategy? How will your current staff be most effective in the future? How do you maintain company culture during a hiring spree? How to ensure you're building a diverse and inclusive workforce?

There are a lot of questions to answer. The daunting hiring task is easier using proven processes. Hiring the wrong person could set back your company's growth. Attend this session with an impressive panel to learn how to hire the best.

Agenda:
5:30 – 6:45 – Networking on Grapevine.today
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 - 3 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.today
(all times are USA Eastern Daylight time) (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 Members

Audrey McGuckin, CEO- McGuckin Group & Member-Steering Committee of the Strategic Human Resources Institute at The Conference Board
I facilitate and enable "Aha Moments" for leaders to help transform organizations and deliver outstanding business results. Great organizations begin with great leaders who are committed to building a culture that nurtures great talent. Over my three-decade career, including ten years as the Chief Talent Officer for Jabil (27 billion in revenue, 250k employees), I've led over ten CEO Succession transitions under the direction of the Board of Directors, led DEI strategy work that resulted in double digit growth for minority representation and spent 5 years collaborating with Harvard Business School designing cutting edge leadership programs for executives.

Over the last four years, I've partnered with Fortune 100 Organizations across 52 countries to design and deliver the long-term talent planning process to ensure the alignment of people, process and culture with their business strategies. As a trusted partner to hundreds of executives, I have helped them to navigate the complexity of their organization to see true transformation of organizational culture to unleash the power of their people.

One thing you'll hear from each of my clients is that my approach is straightforward and frank – they know they'll always get clear recommendations and solutions that are practical, executable, and innovative. No consulting-speak or equivocation or playing it safe. My clients count on my honest appraisal, deep expertise and guidance to help them make the right decisions and put the best talent frameworks in place to assure their team's success - this is especially true today during times of organizational and societal change and upheaval. Being a great leader in today's world is harder than ever.
linkedin.com/in/audrey-mcguckin-023a804/

Kaye Cullum, Global Group Lead Diversity & Inclusion at Thermo Fisher
Talent acquisition/management professional with experience in the full recruiting cycle in the areas of Operations, Technology, Finance, Marketing and Strategy and all enterprise roles at both the corporate and operations level. Industries include Pharma Life

Sciences (Clinical Trials, Biologics, API, Gene Therapy) Retail, Aerospace & Defense. Primary experience has been in standing up talent acquisition programs or transformation of current programs. Developing/creating an internal program designed to attract, acquire and retain STEM talent. Strength in being easy to do business from a client perspective and a keen focus on the candidate experience. Strong sense of business acumen, continuous improvement and staying ahead of business partners by not simply filling positions, but solving talent issues for the last time.

Network highlights include domestic and international diversity organizations, universities as well as strategic partners in building out STEM initiatives.
https://www.linkedin.com/in/kctalentexec/

Thomas Massie, CEO | Sandler Training | WAVE Equity Partners | US Army Veteran
I work with professionals who are committed to maximizing leadership and sales results. I helped them create a culture of high performers who embrace organizational excellence, increase lead generation, drive sales pipeline growth, improved pipeline predictability, shortened sales cycles, and accelerated revenues. I am passionate about business model innovation.

I'm dynamic business leader who has founded 3 companies; each experienced rapid growth, became market leaders, and all 3 companies achieved successful IPO's. Cumulatively my 3 ventures generated over $750 Million in revenue and in multiple years were recognized by Inc 500 and Deloitte Fast 500 as one of the fastest growing companies in America.
https://www.linkedin.com/in/tmassie/

Organizer and Moderator:
Dan Skiba, VP Printed Electronics Chasm Advanced Materials, Vice-Chair Boston ENET
As a Product Development Company Executive, I provide strategic leadership in product innovation and managing global teams, delivering award-winning products to the international market. My ability to problem solve, direct the entire product development lifecycle, and gain commitment to a common goal have driven faster release of products and market penetration. By building synergies across all Product Life Cycle disciplines, we have delivered products that result in 100% product utilization and seamless integration into customer environments. My skills in optimizing international resources have significantly reduced costs and streamlined production, delivering product excellence.

IEEE Boston Section Social Media Links:

Twitter: https://twitter.com/ieeeboston

Facebook: https://www.facebook.com/IEEEBoston

YouTube: https://www.youtube.com/user/IEEEBostonSection

LinkedIn: https://www.linkedin.com/groups/IEEE-Boston-Section-3763694/about

Electromagnetic Compatibility Society – 4:00, Wednesday, May 19

Radio Frequency Interference

Speaker: Mr. Ed Hare - Vice President of Standards for the Board of the EMC Society
ARRL Laboratory Manager (American Radio Relay League)

Come listen to Ed Hare talk about RFI in the home, from an Amateur Radio Operators perspective. Ed has a fun and informative style that you are sure to like.

Radio Frequency Interference and the Radio Amateur" (RFI Seminar) EMI is a problem that affects hams and their neighbors alike. Ed Hare, W1RFI, ARRL Laboratory Manager and one of the editors of the ARRL RFI Book, has put together this 30-minute slide presentation to give an overview of politics, personalities and technical issues involved in EMI control. His presentation outlines the standard causes and cures for interference. The question-and-answer session that follows the formal slide presentation turns this into a real RFI workshop.

Ed Hare, W1RFI, is employed by ARRL, the National Association for Amateur Radio. After an industry career in product testing, he came to work at ARRL HQ in 1986. He started as ARRL's "Product Review" test engineer, moved on to becoming ARRL's "RFI guru" (notice his call!) and he now holds the position of Laboratory Manager. Over the years he has written quite a number of RFI articles, ranging from articles for QST and the "ARRL Handbook" to articles about the practical aspects of RFI that have appeared in professional trade journals. He is also one of the authors of the ARRL "RFI Book" and the editor of the ARRL's book on RF exposure, "RF Exposure and You."

He is very active holding a seat for Amateur Radio on various industry committees, serving as a voting membership on the IEEE EMC Society Standards Development and Education Committee, the ANSI accredited C63® EMC Committee as Chair of Subcommittee 5 on Immunity, and is the IEEE EMC Society Vice President of Standards, representing ARRL and the interests of Amateur Radio as industry standards are developed. He is a member of the IEEE Standards Association, the IEEE EMC Society and the IEEE Power Engineering Society.

Ed serves the RF Safety Committee as a voting member and as the ARRL HQ staff liaison.
His personal operating interest is QRP CW, where Ed's motto is, "Five Watts is a Lot of Power!" He is presently doing work on HF using 10 milliwatts, reporting 30 states worked, all in the ARRL CW Sweepstakes.

Contact Information:
ARRL, the National Association for Amateur Radio
225 Main St.
Newington, CT 06111
Tel: 860-594-0318
Fax: 860-594-0259
Email: W1RFI@arrl.org
Web: http://www.arrl.org

Meeting Details:
Topic: IEEE EMC Chapter meeting - Radio Frequency Interference
Time: May 19, 2021 04:00 PM Eastern Time (US and Canada)

Join Zoom Meeting
https://us02web.zoom.us/j/86927565185?pwd=cXh6QkgyMXBnNFZhUUppSGtFTTBQdz09

Meeting ID: 869 2756 5185
Passcode: 478229
One tap mobile +13126266799,,86927565185#,,,,*478229# US (Chicago) +16465588656,,86927565185#,,,,*478229# US (New York)

Dial by your location
+1 312 626 6799 US (Chicago)
+1 646 558 8656 US (New York)
+1 301 715 8592 US (Washington DC)
+1 346 248 7799 US (Houston)
+1 669 900 9128 US (San Jose)
+1 253 215 8782 US (Tacoma)
Meeting ID: 869 2756 5185
Passcode: 478229
Find your local number: https://us02web.zoom.us/u/kwjXtmclU

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.

5G The Best Channel Codes:

Polar Codes with MATLAB Applications

Web-based Course with live Instructor!

Times & Dates: 10 – 11AM ET, September 14, 16, 21, 23, 28, 30, October 5, 7, 12, 14
Speaker: Orhan Gazi, Cankaya University, Ankara-Turkey
Course Format: Live Webinar, 10, one hour, sessions

Introduction: Forward error correction is a vital process in communication systems. The last channel codes discovered in the research world are the "polar codes" which are adapted to be used in 5G standard. The construction and decoding of polar codes are quite different from the construction and decoding of classical channel nodes. Polar codes are the only codes constructed in a non-trivial manner. The discovery of polar codes can be considered as a breakthrough in coding society. It is clear that future channel codes will follow the logic of polar codes. For this reason, it is critical to learn the encoding and decoding philosophy of the polar codes which is the state of art of the coding world.

Outline of the topics to be covered:

- Entropy and Mutual Information
- Philosophy of Polar Codes
- Generator Matrices of Polar Codes
- Polar Encoder Structures
- Recursive Structures for Polar Encoders
- Channel Splitting and Concept of Channel Polarization
- Split Channels
- Calculation of Split Channel Capacities
- Polar Decoding
- Polar Decoding for Noiseless Transmission
- Polar Decoding Formulas for Kernel Structure for noisy Transmission
- Successive Cancelation Decoding of Polar Codes
- Belief Propagation Decoding of Polar Codes
- Polar Encoders and Decoders in 5G New Radio (NR) and Future Channel Codes

Target Audience: Electronic and Communication Engineers, electronic engineers, computer engineers, engineers working in communication industry

Benefits of Attending Course:
1) The participant will have an idea about the state of art polar codes.
2) Polar codes are used in 5G standard; the participant can comprehend the polar code used in 5G standard.
3) The participant will learn successive cancelation decoding of polar codes.

Speaker Bio: Prof. Orhan Gazi is the author of the book "Polar Codes. A Non-Trivial Approach to Channel Coding" which can be reached from https://www.springer.com/gp/book/9789811307362

The book is selected by IEEE COMSOC as one of the best readings in polar codes, https://www.comsoc.org/publications/best-readings/polar-coding

Prof. Orhan Gazi is the sole author of 10 books written in electrical engineering subjects. Apart from the polar code book, he is the single author of the books "Information Theory for Electrical Engineers" https://www.springer.com/gp/book/9789811084317 and "Forward Error Correction via Channel Coding" https://www.springer.com/gp/book/9783030333799. The research area of Prof. Orhan Gazi involves "channel coding", and "digital communication subjects". Recently, he focuses on over capacity data transmission using polar codes. He is also interested in practical applications of communication systems involving FPGA devices. He is delivering courses with titles "VHDL circuit design", "interface design using VHDL for FPGA devices" and "system on chip design".

Materials to be included: Lecture slides will be provided.

Decision (Run/Cancel) Date for this Course is Wednesday, September 8, 2021

IEEE Members	**$250**
Non-members	**$300**

https://ieeeboston.org/event/5g-the-best-channel-codes/?instance_id=3068

Information Theory for Electronic Communication with MATLAB Applications

(12 hours of instruction!)

Web-based Course with live Instructor!

Times & Dates: 10 AM - 11:30 AM ET - July 20, 22, 27, 29, August 3, 5, 10, 12

Speaker: Orhan Gazi, Cankaya University, Ankara-Turkey

Course Format: Live Webinar, 8, 90 minute sessions

Introduction: Information theory was born with the publication of Shannon's paper, a mathematical theory of communication, in 1948. In his paper, Shannon defined the terms entropy, mutual information, and channel capacity which is the maximum reliable transmission speed for a given signal-to-noise ratio. Shannon also stated 'channel coding theorem' in his paper, which opened another research area, design of channel codes, in communication field. The concept of data compression aroused after Shannon's paper. Any engineer working in the communication industry must have some knowledge about information theory. Especially knowledge of capacity is very critical to compare the performance of communication systems with each other. In this course, we will provide information about basic concept of information theory. We will also provide some practical applications using MATLAB platform.

Prerequisite: The one who is interested in taking this course should have basic knowledge of probability and random variables. He or She should be familiar with the terms probability mass function, probability density function, random variable, expected value, variance, etc.

- Discrete Entropy, Mutual Information for Discrete Channels, Information Channels
- MATLAB Applications for Entropy and Mutual Information
- Entropy for Continuous Random Variables, Discrete and Continuous Channel Capacities
- Bounds and Limiting Cases for AWGN Channel Capacity
- MATLAB Applications for Channel Capacities
- Typical Sequences and Data Compression
- MATLAB Applications for Data Compressions
- Channel Coding Theorem

Target Audience: Electronic and Communication Engineers, electronic engineers, computer engineers, engineers working in communication industry

Benefits of Attending Course:

1) The participant will have an idea about Shannon's information theory.
2) The participant will have an idea about transmission channel capacity.
3) The participant will learn the logic behind the data compression concept.
4) The participant will be able to compare the performances of two different communication systems.
5) The participant will have an idea about the factors affecting maximum transmission speed.

Speaker Bio: Prof. Orhan Gazi is the author of the book "Information Theory for Electrical Engineers" https://www.springer.com/gp/book/9789811084317 Prof. Orhan Gazi is the sole author of 10 books written in electrical engineering subjects.

He is also the author of the book "Polar Codes. A Non-Trivial Approach to Channel Coding" which can be reached from https://www.springer.com/gp/book/9789811307362

The book is selected by IEEE COMSOC as one of the best readings in polar codes, https://www.comsoc.org/publications/best-readings/polar-coding

He is also the single author of the book "Forward Error Correction via Channel Coding" https://www.springer.com/gp/book/9783030333799

The research area of Prof. Orhan Gazi involves "channel coding", and "digital communication subjects". Recently, he focuses on over capacity data transmission using polar codes. He is also interested in practical applications of communication systems involving FPGA devices. He is delivering courses with titles "VHDL circuit design", "interface design using VHDL for FPGA devices" and "system on chip design".

Materials to be included: Lecture slides will be provided.

Decision (Run/Cancel) Date for this Course is Wednesday, July 14, 2021

IEEE Members	**$250**
Non-members	**$300**

https://ieeeboston.org/event/information-theory-for-electronic-communication/?instance_id=3060

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

Forward Error-Correcting Codes with MATLAB Applications and Their Use for Comunication Systems (12 hours of instruction!)

Web-based Course with live Instructor!

Times & Dates: 10 AM - 11:30 AM ET, June 15, 17, 22, 24, 29, July 1, 13, 15

Speaker: Orhan Gazi, Cankaya University, Ankara-Turkey

Course Format: Live Webinar, 8, 90 minute sessions

Introduction: Communication systems employ channel codes for the correction of errors occurring during transmission. Channel codes are used in almost every data communication and storage devices. For instance, channel codes are used in mobile phones, network elements, satellites, flash memories, RAMs etc. Any engineer working in the communication industry should have an idea about the error correcting codes. In this course, an introductory information will be provided about forward error correcting codes.

Those who takes this course will get an idea about the construction of channel codes, how error correction is achieved, and some of simple preliminary channel codes used for error correction. We will also provide some applications of channel codes using MATLAB environment. We will teach how to perform computer simulations to measure the performance of communication systems and see the effect of channel codes on the performance of communication systems.

Prerequisite: The one who is interested in taking this course should have basic knowledge of linear algebra

Outline

.

- Introduction to Forward Error Correction and Channel Codes
- Review of Linear Algebra, Groups, Fields, and Vector Spaces
- Linear Block Codes, Generator and Parity Check Matrices, Encoding Operation
- Syndrome Decoding and Some Important Linear Codes
- Forward Error Correction Using MATLAB
- Cyclic Codes, Encoding and Decoding of Cyclic Codes
- Galois Fields, Algebraic Code Construction
- Galois Fields Using MATLAB
- BCH Codes, Encoding and Decoding of BCH Codes
- BCH Encoding and Decoding Using MATLAB
- Reed Solomon Codes, Encoding and Decoding of Reed Solomon Codes
- Convolutional Codes, Viterbi Decoding Algorithm
- Convolutional Encoding and Decoding Using MATLAB

Target Audience: Electronic and Communication Engineers, electronic engineers, computer engineers, engineers working in communication industry.

Benefits of Attending Course:

1) The participant will have an idea about forward error correction.
2) The participant will have an idea about the construction of channel codes.
3) The participant will learn how to make computer simulation using channel codes.

4) The participant will learn how to encode information bits using channel codes and how to decode them using decoding methods.

Speaker Bio: Prof. Orhan Gazi is the author of the book "Forward Error Correction via Channel Coding" https://www.springer.com/gp/book/9783030333799. Prof. Orhan Gazi is the sole author of 10 books written in electrical engineering subjects.

He is also the author of the book "Polar Codes. A Non-Trivial Approach to Channel Coding" which can be reached from https://www.springer.com/gp/book/9789811307362

The book is selected by IEEE COMSOC as one of the best readings in polar codes, https://www.comsoc.org/publications/best-readings/polar-coding.

He is also the single author of the book "Information Theory for Electrical Engineers" https://www.springer.com/gp/book/9789811084317.

The research area of Prof. Orhan Gazi involves "channel coding", and "digital communication subjects". Recently, he focuses on over capacity data transmission using polar codes. He is also interested in practical applications of communication systems involving FPGA devices. He is delivering courses with titles "VHDL circuit design", "interface design using VHDL for FPGA devices" and "system on chip design".

Materials to be included: Lecture slides will be provided.

Decision (Run/Cancel) Date for this Course is Thursday, June 10, 2021

IEEE Members	**$250**
Non-members	**$300**

- https://ieeeboston.org/event/forward-error-correcting-codes-with-matlab-applications/?instance_id=3052

IEEE Boston Section Social Media Links:

Twitter: https://twitter.com/ieeeboston

Facebook: https://www.facebook.com/IEEEBoston

YouTube: https://www.youtube.com/user/IEEEBostonSection

LinkedIn: https://www.linkedin.com/groups/IEEE-Boston-Section-3763694/about

Introduction to Practical Neural Networks and Deep Learning - (Part I)

Times and Date: 9AM - 12:30PM ET, Saturday, June 19

Speaker: CL Kim

Location: Live, Interactive Webinar

Reference book: "Neural Networks and Deep Learning" by Michael Nielsen, http://neuralnetworksanddeeplearning.com

Series Overview: Updated from the previous course offering! From the book introduction: "Neural networks and deep learning currently provides the best solutions to many problems in image recognition, speech recognition, and natural language processing."

This Part 1 and the planned Part 2 (winter or spring 2022, to be confirmed) series of courses will teach many of the core concepts behind neural networks and deep learning.

More from the book introduction: "We'll learn the core principles behind neural networks and deep learning by attacking a concrete problem: the problem of teaching a computer to recognize handwritten digits. ...it can be solved pretty well using a simple neural network, with just a few tens of lines of code, and no special libraries."

"But you don't need to be a professional programmer." The code provided is in Python, which even if you don't program in Python, should be easy to understand with just a little effort.

Benefits of attending the series:

* Learn the core principles behind neural network and deep learning.
* See a simple Python program that solves a concrete problem: teaching a computer to recognize a handwritten digit.
* Improve the result through incorporating more and more of core ideas about neural networks and deep learning.
* Understand the theory, with worked-out proofs of fundamental equations of backpropagation for those interested.
* Run straightforward Python demo code example.

The demo Python program (updated from version provided in the book) can be downloaded from the speaker's GitHub account. The demo program is run in a Docker container that runs on your Mac, Windows, or Linux personal computer; we plan to provide instructions on doing that in advance of the class.

(That would be one good reason to register early if you plan to attend, in order that you can receive the straightforward instructions and leave yourself with plenty of time to prepare the Git and Docker software that are widely used among software professionals.)

Course Background and Content: This is a live instructor-led introductory course on Neural Networks and Deep Learning. It is planned to be a two-part series of courses. The first course is complete by itself and covers a feedforward neural network (but not convolutional neural network in Part 1). It will be a pre-requisite for the planned Part 2 second course. The class material is mostly from the highly-regarded and free online book "Neural Networks and Deep Learning" by Michael Nielsen, plus additional material such as some proofs of fundamental equations not provided in the book.

Outline

Introduction to Practical Neural Networks and Deep Learning (Part 1)
Feedforward Neural Networks.
* Simple (Python) Network to classify a handwritten digit
* Learning with Gradient Descent
* How the backpropagation algorithm works
* Improving the way neural networks learn:
** Cross-entropy cost function
** Softmax activation function and log-likelihood cost function
** Rectified Linear Unit
** Overfitting and Regularization:
*** L2 regularization
*** Dropout
*** Artificially expanding data set
*** Hyper-parameters

Pre-requisites: There is some heavier mathematics in learning the four fundamental equations behind backpropagation, so a basic familiarity with multivariable calculus and matrix algebra is expected, but nothing advanced is required. (The backpropagation equations can be also just accepted without bothering with the proofs since the provided Python code for the simple network just make use of the equations.) Basic familiarity with Python or similar computer language.

Speaker Background: CL Kim works in Software Engineering at CarGurus, Inc. He has graduate degrees in Business Administration and in Computer and Information Science from the University of Pennsylvania. He had previously taught for a few years the well-rated IEEE Boston Section class on introduction to the Android platform and API.

Decision (Run/Cancel) Date for this Course is Tuesday, June 15, 2021

IEEE Members	**$110**
Non-members	**$130**

https://ieeeboston.org/event/neuralnetworks/?instance_id=3049

Last Notice Before Course Begins, Please Register Now!!!!

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

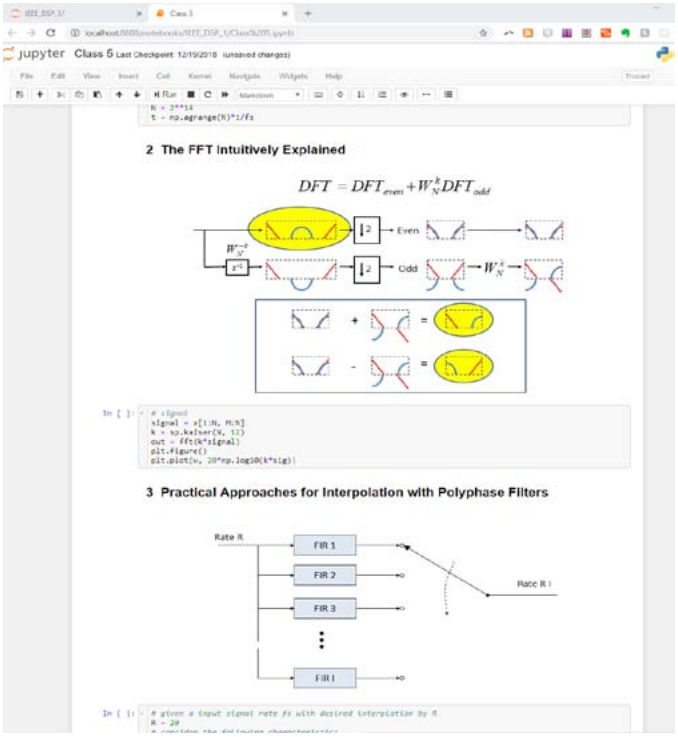
This course is a fresh view of the fundamental and practical concepts of digital signal processing applicable to the design of mixed signal design with A/D conversion, digital filters, operations with the FFT, and multi-rate signal processing. This course will build an intuitive understanding of the 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.

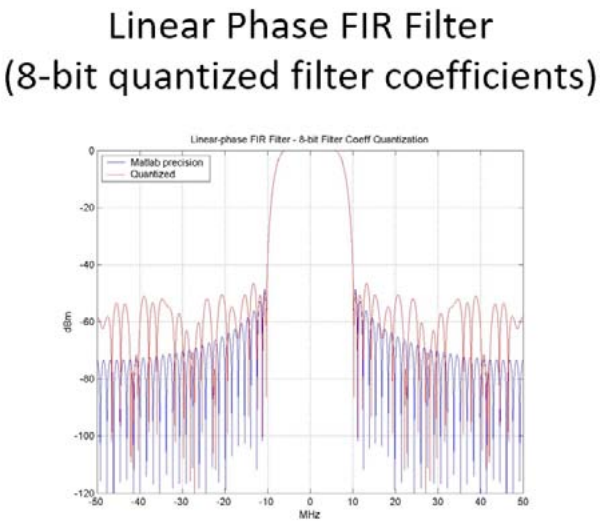


Target Audience:

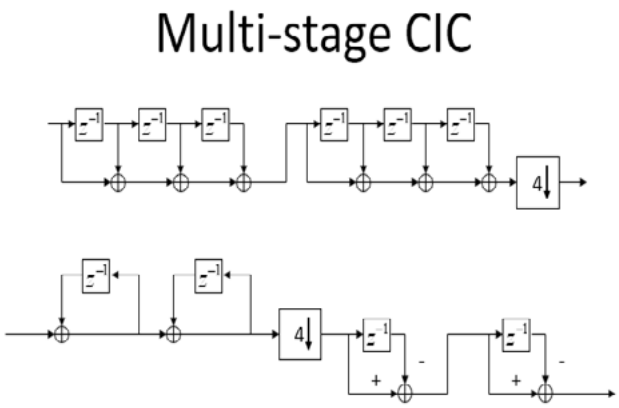
All engineers involved in or interested in signal processing applications. Engineers with significant experience with DSP will also appreciate this opportunity for an in-depth review of the fundamental DSP concepts from a different perspective than that given in a traditional introductory DSP course.

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

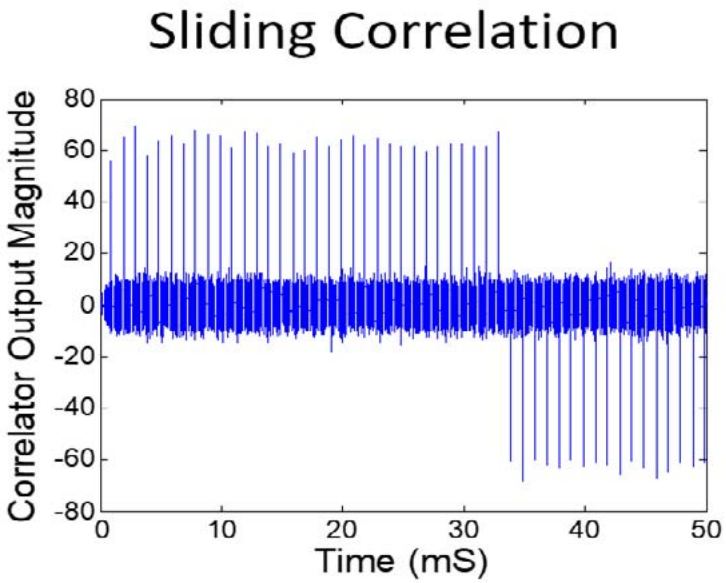
Class 4: Windowing, Digital Filter Design, Fixed Point vs Floating Point

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

Postponed Until Fall 2021

Software Development for Medical Device Manufacturers

Web-based Course with live Instructor!

(11 hours of instructions!)

Times & Dates: **Postponed until the fall 2021; Exact dates and times TBD**
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 TBD

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

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

Last Notice Before Course Begins, Please Register Now!!!!

Electronic Reliability Tutorial Series -

Spring 2021 Edition -

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.

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

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

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

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

Session 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.

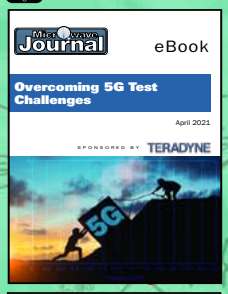
We are excited about this new feature and hope you are eager to participate!
Submissions should be sent to;
ieeebostonsection@gmail.com

This Month

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

Explore Microwave Journal Online

eBooks



Molex Experts Discuss 5G Technology Challenges and Solutions

New Series: Industry Icons Discuss Their Careers

Frequency Matters May IMS/5G Issue

Virtual Panel Sessions

What is the Best 5G mmWave Beam Steering Architecture?

April 27 **11am ET**

RF/Microwave Test and Component Solutions for New Space

May 18 **11am ET**

VISIT MWJOURNAL.COM

E LEARNING CENTER

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

IEEE Advancing Technology for Humanity

Co-Sponsor: IEEE-USA

2021 IEEE Virtual International Symposium on Technologies for Homeland Security

November 8–9, 2021 • ieee-hst.org

Call for Papers

We are pleased to announce that the 20th Annual IEEE Symposium on Technologies for Homeland Security (HST '21), will be held November 8–9, 2021 as a virtual event. This symposium will bring together innovators from leading academia, industry, businesses, Homeland Security Centers of Excellence, and government agencies to provide a forum to discuss ideas, concepts, and experimental results.

HST is produced by IEEE with technical and organizational support from IEEE, IEEE Boston Section, IEEE-USA, MIT Lincoln Laboratory, and Raytheon Technologies. This year's event will once again showcase selected technical papers highlighting emerging technologies in the following areas:

- **Border Security, Critical Infrastructure Protection, and Law Enforcement**
- **Climate Change and Homeland Resilience**
- **Cyber Security**
- **Frontier and Emerging Technologies**

We are currently seeking technical paper submissions in the above areas. This year, the Homeland Security Technology community has come together to respond and develop technology to address the challenges of COVID-19 and we anticipate HST'21 to reflect that focus. Accordingly, all areas are inclusive of technologies related to the global COVID-19 pandemic. Papers examining the feasibility of transition to practice will also be considered. All areas will cover the following common topics:

- Strategy, threat characterization, operational concepts, and risk analysis;
- Modeling, simulation, experimentation, exercises & training; and
- Testbeds, standards, performance, and evaluations.

Contact Information

For more detailed information on the Call for Papers, as well as Sponsorship and Exhibit Opportunities, visit the website: http://ieee-hst.org/ or email: information@ieee-hst.org. Submissions should be sent to the following website: https://cmt3.research.microsoft.com/HST2021/

Important Dates *(All deadlines are by midnight Eastern Standard Time)*

Paper Extended Abstract Deadline:	June 1, 2021
Paper Acceptance Notification:	July 16, 2021
Final Paper Submission Deadline:	September 24, 2021

Organizing Committee

General Chair:	James Flavin, MIT Lincoln Laboratory
Technical Chairs:	Gerald Larocque, MIT Lincoln Laboratory Anthony Serino, Raytheon
Local Arrangement Chair:	Bob Alongi, IEEE Boston
Sponsorship/Exhibits Chair:	Bob Alongi, IEEE Boston
Special Advisor to the Chair:	Lennart Long, EMC Consultant
Registration Chair:	Karen Safina, IEEE Boston

Technical Program Committee

Climate Change and Homeland Resilience	John Aldridge, MIT Lincoln Laboratory Deborah Campbell, MIT Lincoln Laboratory Lance Fiondella, UMass Dartmouth
Border Security, Critical Infrastructure Protection, and Law Enforcement	Bengt Borgstrom, MIT Lincoln Laboratory Rich Moro, Raytheon Arash Samani, Systems & Technology Research
Cyber Security	Hong Liu, UMass Dartmouth Firas Glaiel, Raytheon Thomas Edgar, Pacific Northwest National Laboratory

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.

SUBMIT TO HPEC 2021