BOSTON

THE REFLECTOR

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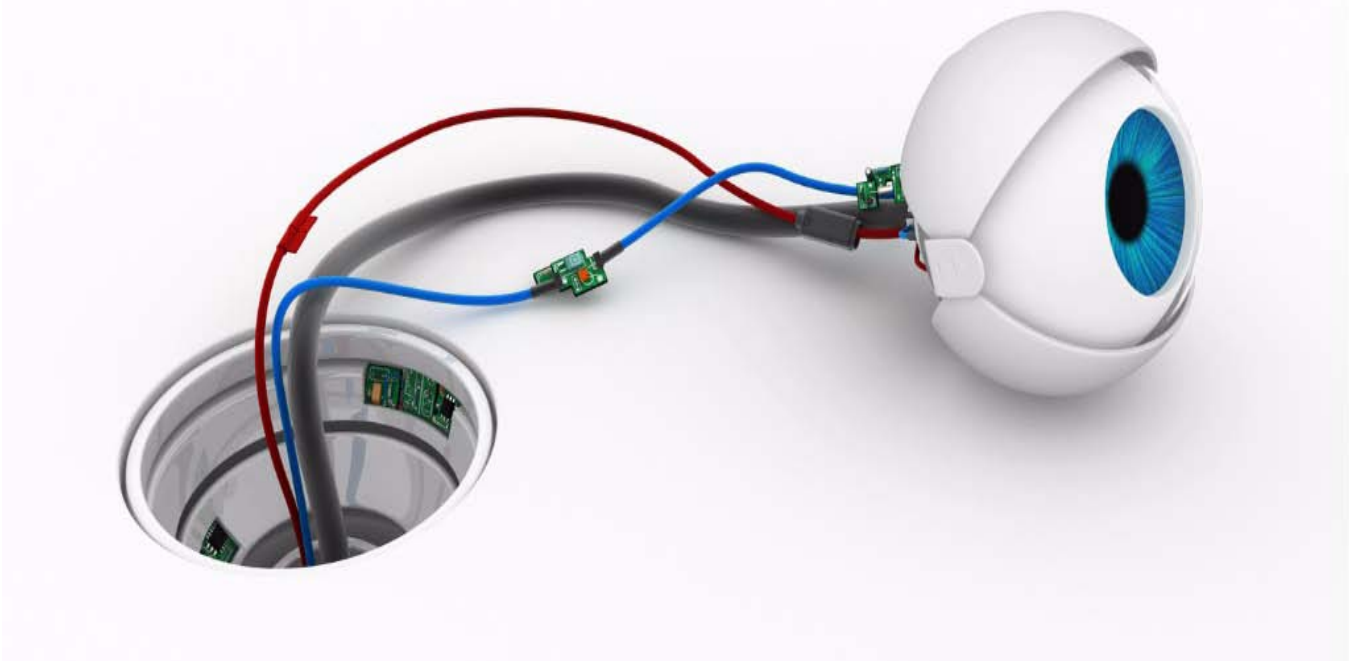

2018 Outstanding Section Membership Recruitment and Retention Performance

Boston Section

IEEE
Advancing Technology for Humanity

TABLE OF CONTENTS

Work Life Balance

By Marjorie Pickard, Member-at-large,
IEEE Boston Section Executive Committee

“Late night at the office?” my uber driver asks. I was splurging on a ride home from work at 1:30 am because I had missed the last train while working late. “You have to put the time in” my overly chatty driver continues. This isn’t the first time I have encountered this idea of “putting the time in”. There is an expectation for younger engineers to prove their worth by putting in long hours in the office, traveling frequently, or being on call constantly. This is an issue in many industries but seems especially prevalent in doctors, lawyers, and engineers. It’s certainly not a new concept but it is one which doesn’t want to go away.

My introduction to the professional engineering world was as an intern at a naval base. I don’t know if I had any expectations going into it, but I hoped for a little more “Hunt for Red October” and a little less “Office Space”. I eventually I asked my boss what she enjoyed about working for the government and she said that she was there for the flexible hours. I was stunned. It seemed like such a lame reason to stay at a job that was obviously not very fulfilling. With my eighteen year old wisdom, I believed all engineers should be uber passionate about their job and willing to work for free lunches and ping pong tables. I had totally bought into the google notion of the perfect work environment. Now, of course, I would do almost anything for extra vacation time. It’s amazing how scheduling your own doctors appointments will change your outlook on job satisfaction; you learn how important good healthcare coverage is, and how disheartening it is to take vacation time to go to the dentist.

The googlefication of engineering jobs certainly seems to factor into the expectation of excessive overtime. By googlification I mean the trend where offices become a second home to the employees. They have nap rooms, catered lunches, and recreation areas. None of those are objectively bad ideas. I think work should be someplace comfortable but the problem arises when these perks are used to keep you in the office longer or mask issues with the lack of financial compensation. It’s like the dog who just chewed up your favorite shoes and then gives you puppy dog eyes, but instead of shoes it’s your 401K and instead of puppy dog eyes it’s craft brew on tap. All of these perks are specifically geared to attract young engineers because they will work for lower salaries and work significantly longer hours. It also seems like this trend is catching on in industries that are traditionally very conservative. I work for an architectural and engineering firm that on paper is the polar opposite of a startup but even they have begun adopting the start up culture to attract and retain young engineers.

So what happens if you say “no” to working extra hours? What does your boss do if you turn down the task that requires 70% travel? If you work with reasonable, well adjusted people then they will respect your choices regarding a work-life balance. People worry that not doing overtime will jeopardize their chance at a promotion or that they will get labeled as “lazy” or “not a team player”. If you are paid hourly or get overtime pay, then you may love working overtime but most engineering jobs are salaried and exempt from paying overtime. When interviewing for a job it is important to ask the interviewer to estimate how many hours you will work during a week. You may love your salary when you expect to work 40 hours a week, but it’s not as appealing when you are working 60 hours a week.

I am sure I am preaching to the choir because every engineer, at some point in their career, has experienced difficulty maintaining a healthy work-life balance. But it's not all bleak and depressing. In recent years the awareness for mental burnout has increased and companies are starting to take notice. Teleworking is gaining popularity which intrinsically increases the employees flexibility. Companies also encourage employees to use their vacation time instead of saving it up for years. This is due in part to the fact that companies have discovered that overworked employees are not efficient workers. Coffee can only get you so far.

Call for Articles

Now that the Reflector is all electronic, we are expanding the content the publication. One of the new features we will be adding are technical and professional development articles of interest 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 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 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

IEEE Boston Section Online Courses:

(Students have 90 day access to all online, self-paced courses)

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/

November Chapter Meeting Summary

Entrepreneurs' Network – 6:30PM, Tuesday, November 5
Seed and Angel Financing in Tech Companies
PRE-MEETING DINNER at 5:15 PM (sharp) at Bertucci's, Waltham
Discover how Angel and Seed investors approach making a good investment. Go behind the scenes to discover the process our panelist-investors use to choose and to invest in emerging and seed-stage companies. Whether you are planning to launch a company, or you are planning the next level, a Seed or Angel investor could be your funding source. Maybe you're not even sure what angel investment is. This panel will focus on angel and seed investments in New England technology-based companies, and on how to obtain initial angel or seed-stage investment in your company. Meeting Location: Constant Contact, Inc., Reservoir Place, 3rd Floor Great Room, 1601 Trapelo Rd., Waltham, MA. **See Page 9.**

Life Members - Joint Meeting of the Boston and NH IEEE Life Members,
and Aerospace and Electronic Systems Society – 4:00PM, Wednesday, November 6
Electric Cars: Fun Saving our Planet
Paul H Carr, IEEE Life Fellow, and Len Long, IEEE Senior Member
Electric cars are fun to drive: silent acceleration 0 to 60 mph in 3 seconds. They are doubly green, saving our planet with no carbon dioxide emissions and saving the green in your pocketbook. They get the equivalent of 100 miles per gallon, saving $4000 in fuel costs over the average new vehicle during five years and requiring no oil changes. The number of moving parts in an electric motor is an order of magnitude lower than for a gasoline engine. More than 2 million electric vehicles (EV) were sold in 2018. EVs are expected to make up 57% of all sales by 2040. Meeting Location: The meeting will be held at the MIT Lincoln Laboratory, 244 Wood Street., Lexington, MA at 4:00 PM, in the Main Cafeteria. **See Page 12**.

Reliability Society, SMTA Boston Chapter, and IMAPs NE - 4:00PM, Wednesday, November 6
Pre-registration is required to attend this event and is open only to US citizens due to the secure facility.
Presentation: Failure Analysis Capabilities - Recent Case Studies - Speaker: Prisco Tammaro, Section Manager at Raytheon. Presentation: Using IPC Standards to Mitigate Counterfeit Risks Speaker: Cameron Shearon, Principal Materials Engineer at Raytheon. Technical Presentation: QFN (Quad Flat No-leads) Voiding. Speaker: Norman Armendariz, Ph.D. Engineering Fellow at Raytheon
Meeting Location: Raytheon Company, 350 Lowell Street, Andover, MA 01810. **See Page 14.**

Nuclear & Plasma Society - 1:00PM, Thursday, November 14
Arctic Permafrost Stability over the Past 1.5 Million Years Inferred from Cave Deposits
Professor Jeremy Shakun - Earth and Environmental Sciences Department, Boston College
"Arctic permafrost sequesters a substantial stock of perennially frozen organic carbon that could be released to the atmosphere as methane and carbon dioxide upon thawing. This thaw vulnerability of permafrost carbon represents a potentially powerful amplifier of climate change, but little is known about permafrost sensitivity and associated carbon cycling during past intervals of persistent climate warming. Meeting Location: Boston College,

202 Kenny Cottle, 140 Commonwealth Avenue, Chestnut Hill, MA 02467. **See Page 15.**

Consultants Network – 6:30PM, Tuesday, November 19

Election of Officers

The election of officers for calendar 2020 for the IEEE Consultants Network, Boston Section, will be held Tuesday, November 19, 2019. Nominations will be accepted from the floor. There will be the usual networking and refreshments starting at 6:30 PM followed by announcements at 7:00 PM and the election. A survey will be taken to give feedback to the new officers from the membership. Meeting Location: Constant Contact, Great Room South, 3rd Floor, 1601 Trapelo Road, Waltham, MA 02451. **See Page 18.**

Entrepreneurs' Network – 6:00PM, Tuesday, November 19

Funding Your Startup Without a VC or Angel

This panel will focus on getting initial money from non-traditional sources when VCs and angels will not help, and friends and family are tapped out. The panelists will speak from experience to show you how they have used SBIRs and governmental grants, strategic partnering and customer-funded development.

Investors want to see something before they invest. Yet it takes money to make your company into something to interest investors. It is a catch-22. This panel offers techniques to show you how to break out of that conundrum - to take your company from nothing to something, and to do so without VC or angel funding. Meeting Location: Location: Draper, Hill Building, One Hampshire Street, Cambridge, MA. **See Page 16.**

Power & Energy Society – 6:00PM, Tuesday, November 19

Power System Protection Schemes in Smart Grid with Distributed Generate

Very complex power systems have been built to satisfy increasing demand of electrical power supply. With adding large distributed generations (DG) of high capacity to the power grid endangers the normal operation of power system and might lead to outages and system collapse. Meeting Location: National Grid, 40 Sylvan Road, Waltham, 02451. **See Page 19.**

Blockchain – 6:00PM, Tuesday, November 19

Standards in Blockchain – A Panel Discussion

Join a panel of experts involved in created Blockchain standards. In this panel we will present the outline of the various standards being represented and discuss applications that will use these standards. Some questions discussed by the panel are: What are we trying to standardize? Will standards inhibit innovation in blockchain? Will standards allow for data exchange between different blockchains? How to reach a consensus on blockchain standards? Meeting Location: 105 Massachusetts Avenue, Cambridge, MA Von Hippel Room, MIT Building 13. **See Page 20.**

Bockchain Event – 5:15PM, Wednesday, November 20

IEEE Enlightening

Come and be enlightened and inspired by IEEE Enlightening! Inspirational talks with a touch of lightening. These short diverse talks will leave you impassioned and energized about the future of technology.

Meeting Location: Laugh Boston, 425 Summer Street, Boston, MA 02210. **See Page 20.**

IEEE Computer Society and GBC/ACM – 7:00PM, Thursday, November 21
What Needs to be Added to Machine Learning? - Leslie Valiant, Harvard University
Supervised learning is a cognitive phenomenon which has proved amenable both to theoretical analysis and exploitation as a technology. However, not all of cognition can be accounted for directly by supervised learning. The question we ask here is whether one can build on the success of machine learning to address the broader goals of artificial intelligence.
Meeting Location: MIT Room 32-G449 (Kiva). **See Page 22.**

Robotics and Automation Society – 6:00PM, Thursday, November 21
Spatial Perception for Robots and Autonomous Vehicles - Speaker: Prof. Luca Carlone
Spatial perception has witnessed an unprecedented progress in the last decade. Robots are now able to detect objects, localize them, and create large-scale maps of an unknown environment, which are crucial capabilities for navigation and manipulation. Despite these advances, both researchers and practitioners are well aware of the brittleness of current perception systems, and a large gap still separates robot and human perception. Meeting Location: MIT Building 31, Room 270, 70 Vassar Street (Rear), Cambridge, MA. **See Page 21**

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.

Entrepreneurs' Network – 6:30PM, Tuesday, November 5

Seed and Angel Financing in Tech Companies

PRE-MEETING DINNER at 5:15 PM (sharp) at Bertucci's, Waltham

Discover how Angel and Seed investors approach making a good investment. Go behind the scenes to discover the process our panelist-investors use to choose and to invest in emerging and seed-stage companies. Whether you are planning to launch a company, or you are planning the next level, a Seed or Angel investor could be your funding source. Maybe you're not even sure what angel investment is.

This panel will focus on angel and seed investments in New England technology-based companies, and on how to obtain initial angel or seed-stage investment in your company. The panelists will offer candid views and discussion on how to prepare a company for raising angel capital or seed-stage investment, the raise itself, and how to work with angel groups or seed investors after getting the investment.

Agenda:
6:30-7:30 PM - Registration & networking
7:30-7:40 PM - ENET Chairperson's announcements
7:40-7:55 PM - eMinute - Up to 3 Startup companies' presentations
7:55-8:45 PM - 3 expert speakers on the night's topic
8:45-9:00 PM - Audience / Speakers Q & A
9:00-9:30 PM - Final networking includes meeting presenting speakers

A question and answer session follow the presentation, and panelists will be available afterward for responses to individual questions. As with every ENET meeting, you will also get the chance to network with the panelists and other meeting attendees, both before the start of the meeting and afterward.

Speakers:
Amanda Drobnis is the Co-Founder and CEO of Hilltop BioSciences, a veterinary biotech company helping animals heal through innovative regenerative therapies. Amanda has spent many years looking for ways to combine her passion for animals (especially horses) with business. First working for a non-profit planning large conferences and events and then in marketing for a large pet retail company. She then moved on to sales and marketing for several medical and veterinary companies. Before founding Hilltop Bio, Amanda co-founded and managed a New England based medical regenerative therapy distribution company that continues to thrive and grow today. When not at Hilltop Bio's lab Amanda can be found riding her favorite horse, Addie, or lost in a great book!

Ben Littauer, Angel Investor; Member, Walnut Ventures; Advisory Board, The Capital Network
Ben is an angel investor with expertise in Internet and communications technologies, healthcare IT, as well as the Boston funding ecosystem. Currently an active member of Walnut Venture Associates and Boston Harbor Angels with over 40 investments in a wide variety of startups, he sits on the boards of several portfolio companies. He is a mentor for Mass Challenge and The Capital Network, and is on the advisory board at TCN. Mr. Littauer is a judge for Mass Challenge, CRDF Global, and various academic competitions.

Mr. Littauer was Technology Strategist for Beth Israel Deaconess Medical Center in Boston, where he defined the architecture for PatientSite, allowing patients to communicate securely with their healthcare team and view their own medical records. He was a consultant to the Massachusetts Health Data Consortium on healthcare data security projects.

Mr. Littauer was co-founder, President, and CTO of Baranof Software, the leading vendor of service-level management software for messaging and Internet applications. Baranof was sold to Tally Systems in 1997.

He has worked for Cisco Systems, Sun Microsystems, Symantec, Lotus, and BBN. Mr. Littauer was also an analyst with Ferris Research and Baroudi Bloor International.

Jason Kraus, Venture Capital Advisor; Startup Consultant; Entrepreneur

Jason has an extensive background on both the venture capital side and as an entrepreneur. He was an associate for the venture arm of a private family office, reviewing hundreds of pitch deck presentations to filter companies for the investment team. Additionally, he served as a screening committee member for the Boston Harbor Angels and now partners with the CEO of the Boston Harbor Angels group, Ziad Moukheiber, on the EQx Fund. As an entrepreneur, Jason started his own startup consulting firm, Prepare 4 VC, to bring the investor's perspective to startups and help them get funded. Prepare 4 VC helps entrepreneurs create business plans, financial projections, slide deck presentations and investor pitches to get the funding they need to bring their company to the next level. He has also co-founded several companies in the FinTech space focused on helping connect startups with crowdfunding and crypto investors.

Jason holds a MSc in Management in Entrepreneurial Leadership from Babson College and a BA in Economics and Math from Colgate University. He is active in the startup community hosting events as Chapter Director for StartupGrind sponsored by Google for Entrepreneurs, with 7000 members in Boston and 1,000,000 members across 400 chapters worldwide.

Moderator:

Dan Skiba, President & CEO GOT Interface; 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.

Co-Organizers:

Michael S. Chester, President, International Manufacturing Consultants, and Past Chairman, Boston Entrepreneurs' Network (ENET)

Mike has co-founded high tech, clean tech, and medical device startups in both the US and China, and he has obtained non-dilutive funding from the Chinese government. He now advises startups in clean tech, biotech, and manufacturing. Before becoming an entrepreneur, Mike spent 16 years with IBM designing robots and automation, marketing and selling IBM products to manufacturing companies, setting up global operations and supply chains, and founding an IBM consulting organization for manufacturing clients that he grew into a $20M business. He lived in China from 1986-1987 while consulting to companies owned by the Machine Building Ministry and teaching graduate courses at Hunan University.

Mike earned his BS in Electrical Engineering and MS in Computer Engineering from Syracuse University and his MBA from Union College. He is a past Chair of The IEEE Boston Entrepreneurs' Network, has served on the board of APICS Boston, and was a member of the planning committee of the MIT Enterprise Forum for over 10 years. Mike is a frequent speaker at conferences on Global Entrepreneurship, Supply Chains, Manufacturing, and China business. He is judge and mentor to companies competing in the Mass Challenge, Clean Tech Open, and other business plan competitions. Mike and his sons have competed on the TV show Robot Wars with their robotic rabbit, "Bunny Attack."

Kristin King, MBA. Vice President, Corporate Development & Strategy, Defibtech, LLC

Kristin is an accomplished MedTech executive, serial intrapreneur, investor and strategic advisor to startups developing biotech solutions. With a distinguished career addressing commercial strategy over 20 years spanning technical, marketing, and business development disciplines, she offers multidiscipline expertise and repeated track record for high im-

pact Medical Device development transforming technologies from early concept to successful global divisions at leading Medical Device companies and startups.
Kristin is recognized for her strategic development, business acumen, and her ability to build and lead talented teams to commercialize products that change patients' lives. Starting her career designing stents, a patent inventor for Johnson & Johnson's drug eluting stent and progressing through marketing and global commercial leadership roles, she has contributed to some of the world's most meaningful programs at top healthcare firms including Ansell Healthcare, Becton Dickinson, Johnson & Johnson Cordis, Abbott Vascular, and Pfizer. Her category expertise includes advanced wound care, infection prevention, diabetes care, interventional cardiology/ radiology, and other surgical specialties in hospital, alternate site and consumer retail segments.

In 2017, after founding Ansell Healthcare's advanced therapeutic segment, Kristin focused her career on the Boston startup community progressing MIT spin off Rogers Sciences to clinical trials, FDA submission as well as proud member of Boston Harbor Angels. Kristin holds a B.S. in bioengineering from Syracuse University, MBA in Finance & Marketing from NYU Stern. Outside of the office she is an avid scuba diver and volunteer for environmental organizations Beneath the Sea and Boston Sea Rovers.

6:30 PM - 9:30 PM
Location: Constant Contact, Inc., Reservoir Place, 3rd Floor Great Room, 1601 Trapelo Rd., Waltham, MA
Registration:
ENET Member Rate - Free
MDG Member – $15.00
Non-ENET Member Rate – $20.00
Student – $10.00

Register at
https://boston-enet.org/event-3461305/Registration

Directions: Constant Contact is adjacent to RT 128 / 95 at Exit 28B.

Reservations: Please register at https://boston-enet.org/event-3461305/Registration

This meeting is free to ENET members and $20 for non-members. No reservations are needed for the pre-meeting dinner. To expedite sign-in for the meeting, we ask that everyone -- members as well as non-members -- pre-register online. Pre-registration is available until midnight the day before the meeting. If you cannot pre-register, you are welcome to register at the door. Attendees must arrive before 7:30 pm. Entrance is locked after 7:30 pm.

REFRESHMENTS: Snacks and soft drinks will be served at the meeting.

IEEE Boston Section Social Media Links:

Twitter: https://twitter.com/ieeeboston

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

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

Google+: https://plus.google.com/107894868975229024384/

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

Life Members - Joint Meeting of the Boston and NH IEEE Life Members, and Aerospace and Electronic Systems Society – 4:00PM, Wednesday, November 6

Electric Cars: Fun Saving our Planet

Paul H Carr, IEEE Life Fellow, and Len Long, IEEE Senior Member

Electric cars are fun to drive: silent acceleration 0 to 60 mph in 3 seconds. They are doubly green, saving our planet with no carbon dioxide emissions and saving the green in your pocketbook. They get the equivalent of 100 miles per gallon, saving $4000 in fuel costs over the average new vehicle during five years and requiring no oil changes. The number of moving parts in an electric motor is an order of magnitude lower than for a gasoline engine. More than 2 million electric vehicles (EV) were sold in 2018. EVs are expected to make up 57% of all sales by 2040.

Paul H Carr, who has been driving his Chevrolet Bolt since 2017, and Len Long, who bought his Tesla Model 3 in 2018, will share the fun they have had. Len will demonstrate how his Tesla parks itself automatically. https://www.youtube.com/watch?v=hu-7WzUPn_o (6 min 13 seconds)

Len will also demonstrate how the Autopilot works: https://youtu.be/GHXxnT-Wmk0?t=73 (13 min 38 seconds) will just 1st 4 minutes
Len will also demonstrate the summon feature https://www.youtube.com/watch?v=ebii6acduRY (10 minutes 58 seconds)

Sales of the Model 3 are eight times those of other electric vehicles, including the Chevy Bolt and the Tesla Model X SUV. The latter costs twice as much as the Model 3.

Battery costs have decreased to $176/kwh from the 2010 cost of $1000/kwh. Co-inventor of the Lithium battery, John Goodenough 96, a MIT Lincoln Lab Staff Member with whom Paul Carr worked in 1959, has invented a new solid-state glass-electrolyte battery with a higher energy density than Lithium. Elon Musk has announced that Tesla will be selling its new EV pickup truck in 2019. Its functionality will better than a Ford F-150 and better than a (Porsche) 911 in terms of sports car attributes. The Tesla pickup will have six seats and 400-500 miles of range per charge.

Biographical Sketch of Paul H. Carr: BS MIT, PhD Brandeis U, IEEE Life Fellow. From 1967 to 1995, he led the Component Technology Branch of the Air Force Research Laboratory, Bedford, MA. His branch developed the surface acoustic wave (SAW) technology used in compact, signal-processing filters for radar, cell phones, and TV. Two former branch member were Dr. Ken Laker and Dr. Tom Szabo. Ken Laker in 1999 was elected president of the IEEE. Tom Szabo's Diagnostic Ultrasound Imaging: Inside Out (2003) has been cited over 1000 times. After Dr. Carr's retirement from AFRL, he taught philosophy courses at U Mass Lowell that inspired his book, Beauty in Science & Spirit (2006).In 2017 he presented, "Climate Change: Are We Losing the Carbon-Free Energy Market to China?" His web page: www.MirrorOfNature.org

Biographical Sketch of Lennart E. Long. Lennart E. Long has over 30 years of experience in high level technical troubleshooting. He served on a technical committee of President Clinton's Security Policy Board. He chaired a White House sponsored technical subcommittee with responsibility of negotiating with the British on Sensors and Instrumentation. His team consulted worldwide on railroad, subway, trolley and bus electromagnetic interference and compatibility.

Mr. Long has a Masters Degree in Electrical Engineering from Northeastern University and graduate studies at the University of New Hampshire. He has also done graduate work at Johns Hopkins University. He has

taught security technology at UMASS Lowell, Northeastern University, Boston University, Suffolk University, the University of New Hampshire, the Federal Law Enforcement, and Training Center, John Jay College in New York and for the City of New York.

He has lectured on and participated in security projects for the Internal Revenue Service, Houses of Worship, Gdansk University of Technology in Poland, He was a keynote speaker at a NATO attended conference in Gdansk. He chaired a White House attended subcommittee and was honored by the British Home Office for developing a working relationship with the British on reusable, mobile security installations. He is the recipient of the Research and Special Programs Bronze Medal and well as a U. S. Department of Transportation Bronze Medal. He has the most patents in the US Department of Transportation. Out of a field of 330,000 engineers,

Mr. Long was chosen for the 2013 Robert S. Walleigh Distinguished Contributions to the Engineering Profession Award and was invited to be a Congressional Delegate at the international Sections Congress in Australia. He and his consulting team worked successfully for the British Home Office, Federal Protective Services, Social Security Administration, Instrumentation Society of America, President Clinton's Security Policy Board evaluating risk assessment methodologies, and many other government agencies. His Rail Electromagnetic Compatibility activity includes work at AMTRAK, Niagara Frontier Transportation Authority in Buffalo, New York; PATCO, PATH, SEPTA, MBTA, Port Of New York and New Jersey, and many others. He has also consulted for the U. S. Army, U.S. Navy, Hanscom Air Force Base, Cambridge Research Labs, ROME Air Force Base, General Service Administration, Social Security Administration, Internal Revenue Service, Federal Law Enforcement Training Center, Morgantown Personal Transit System, National Transportation Safety Board, Washington Metropolitan Area Transit Administration, Metropolitan Atlanta Regional Transportation Administration, Bay Area Transportation Administration, the Security Technology Division of the NDIA, and the Institute for Electrical and Electronics Engineers.

The meeting will be held at the MIT Lincoln Laboratory, 244 Wood Street., Lexington, MA at 4:00 PM, in the Main Cafeteria. Refreshments will be available at 3:30 PM. Please use the Wood Street Gate and visitor parking as directed. Follow the outside signs to the Main Cafeteria, or enter reception to use the elevator. For directions go to http://www.ll.mit.edu/ For other information, contact Paul H. Carr, 603 413 6566 or Lennart E. Long, 781-894-3943.

IEEE Boston Section Social Media Links:

Twitter: https://twitter.com/ieeeboston

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

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

Google+: https://plus.google.com/107894868975229024384/

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

Reliability Society, SMTA Boston Chapter, and IMAPs NE - 4:00PM, Wednesday, November 6

Failure Analysis Capabilities - Recent Case Studies

Speaker: Prisco Tammaro, Section Manager at Raytheon

Using IPC Standards to Mitigate Counterfeit Risks

Speaker: Cameron Shearon, Principal Materials Engineer at Raytheon

QFN (Quad Flat No-leads) Voiding

Speaker: Norman Armendariz, Ph.D. Engineering Fellow at Raytheon

Pre-registration is required to attend this event and is open only to US citizens due to the secure facility.

Prisco Tammaro is Section Manager of the Failure Analysis Lab as part of the Materials Engineering Department at Raytheon's IDS Division. The lab performs destructive and non-destructive analysis of tactical hardware utilizing cutting edge technology in modern lab environment.

Cameron Shearon is a Principal Materials Engineer at Raytheon's IDS Division, co-chair of IPC 1782, and a SMTA Distinguished Speaker. Cameron has given invited speeches at many international events. He earned a BS and MS in Materials Science and Engineering from North Carolina State University. He obtained a Physics minor for his BS and a Solid State Science minor for his MS. Cameron initiated and chaired the development of IPC 1782, a global component traceability standard that contains four traceability levels for materials and four independent traceability levels for the process that was completed in record time with the help of many outstanding contributors, IPC Staff support, and his leadership. As a result of his contribution to this standard, Cameron received a Committee Leadership Award from IPC at IPC APEX EXPO 2017. Prior to his current role, he has worked as a Process Engineer in a Wafer Fab, Failure Analysis Engineer and Product Safety Engineer in an R&D Environment, a Lead Quality Engineer with AT&T's Global Supply Chain, and a Reliability Engineer with AT&T Labs.

Dr. Armendariz is an Engineering Fellow at Raytheon responsible for materials engineering design, materials analysis, process equipment development, and production support associated with the manufacturing of CCA-circuit card assemblies used in missiles, smart munitions, ground based radars, and mobile sensors across multiple US and international sites. Norm has over 20 years of industrial experience, having worked for Lockheed/NASA, Motorola, TI and Intel, and as Director of Labs / Asst. Engr. Prof. at American University. He holds an interdisciplinary PhD in Chemical Engr. from New Mexico State University, MS in Materials Science Engr. from the University of Illinois at Urbana-Champaign, and BS Metallurgical Engr. from Colorado State University, with 9 US patents and 27 peer-reviewed publications.

Meeting Agenda:
4:00 – 6:00 PM Registration and Sign in, Socializing, Networking
4:15 – 6:00 PM Factory Tours
6:00 – 7:00 PM Dinner and Announcements
7:00 – 7:15 PM Raytheon Overview and YouTube Video
7:15 – 7:35 PM Failure Analysis Capabilities - Recent Case Studies
7:35 – 8:00 PM Using IPC Standards to Mitigate Counterfeit Risks
8:00 – 8:45 PM Technical Presentation: QFN Voiding
8:45 PM Q&A
9:00 PM Raffle - Adjourn
Date: Wednesday, November 6, 2019
Time: 4:00 PM to 9:00 PM

Location: Raytheon Company
350 Lowell Street, Andover, MA 01810
Cost: Members $25; Non-Member $30

For more information visit: https://www.smta.org/chapters/chapters_detail.cfm?chapter_id=22

To register for this event visit: Click Here or copy this address to your browser:
https://smta.org/chapters/rsvp.cfm?BEE_ID=4790

Please use your full name when registering including your middle name in the first name block of the registration form. Registration dead line is Friday, Nov. 1st, 2019.

Additional Info: For factory tours - visitors are required to wear closed toe and closed heel footwear. Safety eyewear are required to be worn in specific areas (safety glass will be provided for use while in these areas).

Contact Info:SMTA President : Michael G. Jansen (Raytheon Company), michael.g.jansen@raytheon.com

IEEE Reliability Society Chair: Ken Rispoli, ken-rispoli@ieee.org

Nuclear & Plasma Society - 1:00PM, Thursday, November 14

Arctic Permafrost Stability over the Past 1.5 Million Years Inferred from Cave Deposits

Professor Jeremy Shakun - Earth and Environmental Sciences Department, Boston College

Arctic permafrost sequesters a substantial stock of perennially frozen organic carbon that could be released to the atmosphere as methane and carbon dioxide upon thawing. This thaw vulnerability of permafrost carbon represents a potentially powerful amplifier of climate change, but little is known about permafrost sensitivity and associated carbon cycling during past intervals of persistent climate warming. I will present a reconstruction of Canadian permafrost history during Pleistocene interglacials from 131 uranium-thorium ages on 74 speleothems, cave deposits that only accumulate during intervals of deep ground thaw. We infer that interglacial permafrost thaw was widespread ~0.5-1.5 million years ago, but deep permafrost persisted in much of Arctic and sub-Arctic North America through warm interglacials of the last ~500,000 years, with deep thaw likely limited to sub-Arctic discontinuous permafrost during the Marine Isotope Stage 11 “super-interglacial”. On Pleistocene timescales, interglacial CO2 concentrations remained within a narrow ~280 ± 20 ppm range and were insensitive to differences in the magnitude of interglacial permafrost thaw inferred here. This implies the existence of processes that attenuated the permafrost-carbon feedback during Pleistocene interglacials, including those when the magnitude of inferred permafrost thaw exceeded numerical model projections for extensive ground thaw over the next several centuries.

Dr. Jeremy Shakun is an Assistant Professor in the Earth and Environmental Sciences Department at Boston College. He is a paleoclimatologist who uses the geologic record to decipher the patterns and mechanisms of past changes in climate and ice sheets on decade to million year time scales. He is particularly motivated by paleoclimate problems that have clear relevance to today.

Meeting Location: Boston College, 202 Kenny Cottle, 140 Commonwealth Avenue, Chestnut Hill, MA 02467

Entrepreneurs' Network – 6:00PM, Tuesday, November 19

Funding Your Startup Without a VC or Angel

Are you trying to launch or grow a startup business?
Do you need money but just can't find it?
Not ready for angels or VC investors? Or already turned down?
You need to build your company and need money to do it – but how to do that?
This panel tries to answer those questions:
How to build your company from nothing to something.
How to do it without VC or angel money.
How to get non-investor first funding and further cash equivalents
This panel will focus on getting initial money from non-traditional sources when VCs and angels will not help, and friends and family are tapped out. The panelists will speak from experience to show you how they have used SBIRs and governmental grants, strategic partnering and customer-funded development.
Investors want to see something before they invest. Yet it takes money to make your company into something to interest investors. It is a catch-22. This panel offers techniques to show you how to break out of that conundrum - to take your company from nothing to something, and to do so without VC or angel funding.

Agenda:
6:00-7:00 PM - Registration & networking
7:00-7:10 PM - ENET Chairperson's announcements
7:10-7:25 PM - eMinute - Up to 3 Startup companies' presentations
7:25-8:15 PM - Two expert speakers on the night's topic
8:15- 8:30 PM - Audience / Speakers Q & A
8:30 - 9:00 PM - Final networking includes meeting presenting speakers

A question and answer session follow the presentation, and panelists will be available afterward for responses to individual questions. As with every ENET meeting, you will also get the chance to network with the panelists and other meeting attendees, both before the start of the meeting and afterward.

Panel
Nancy Briefs, Co-Founder & CEO of AltrixBio

https://altrixbio.com Life Science Executive, Serial Entrepreneur – 7 Start-Ups, Independent Bod Member. She is a strategic business leader with extensive experience creating value, driving strategy and launching product commercialization in diverse life science companies. Deep general management and fundraising expertise having raised over $500 M in equity including IPO. Innovative, collaborative and entrepreneurial, strong communicator and tenacious. Trusted advisor and mentor to founders and boards. Energized by turning innovation into commercial reality, working with creative scientists, and communicating value to partners and investors. Extensive regulatory experience with FDA and notified bodies. Ms. Briefs is an inventor on 7 issued US Patents. In addition to serving on numerous corporate boards, she is affiliated with TMA Accelerator Brigham & Women's Hospital (BWH), MassBio Advisory Board, The Connors Center for Women's Health Advisory Board, BWH, Reviewer for the MLSC's Milestone Achievement Program, Coach, MLCS's MassNextGen Initiative, EY Entrepreneur of the Year

Stacy Swider, Director, SBIR Center of Excellence at UMass Lowell Research Institute
The UMass Small Business Innovation Research Center of Excellence offers coaching and other support for small companies as they prepare SBIR/STTR proposals and execute their programs. We can connect Teams to potential research partners in the UMass system, as well as corporate partners such as Primes and investors. Also presently offering a 50/50 matching grant to SBIR companies doing at least 10% DoD business. Stacy has over 25 years experience in startups and broader industry. She successfully commercialized a novel gamma sensor through the SBIR process - - from initial proposal to pilot production.

Moderator:

Robert Adelson, business and tax attorney, partner @ Engel & Schultz LLP (Boston) and 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 his present firm in 2004. 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. 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. His website - www.ExecutiveEmploymentAttorney.com

Co-Organizer:

Dan Skiba, President & CEO GOT Interface, 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.
Reservations: Please register at https://boston-enet.org/event-3461306/Registration

This ENET meeting is free to ENET members and $10 for non-members. To expedite sign-in and order refreshments for the meeting, we ask that everyone -- members as well as non-members -- pre-register for the meeting online. If you cannot pre-register, you are welcome to register at the door.

REFRESHMENTS: Pizza, salad, and soft drinks will be served at this meeting.

LOCATION: Draper, Hill Building, One Hampshire St. Cambridge, MA 02139. The address is One Hampshire St, but the entrance is actually on Broadway. Attendees must arrive at Draper before 7 pm. Entrance is locked after 7 pm.

6:00 PM - 9:00 PM
Location: Draper, Hill Building, One Hampshire Street, Cambridge, MA
Registration: ENET Member – Free, Non-ENET Member – $10.00

Register at
https://boston-enet.org/event-3461306/Registration

PUBLIC TRANSPORTATION: Kendall Square stop on the Red Line.

PARKING: Parking available at Blue, Yellow, and Green Parking Garages http://greaterbostonparking.com/kendall.html. Metered parking is often available after 6 pm.

Consultants Network – 6:30PM, Tuesday, November 19

Election of Officers

The election of officers for calendar 2020 for the IEEE Consultants Network, Boston Section, will be held Tuesday, November 19, 2019. Nominations will be accepted from the floor. There will be the usual networking and refreshments starting at 6:30 PM followed by announcements at 7:00 PM and the election. A survey will be taken to give feedback to the new officers from the membership.

PLEASE NOTE: The meeting is open to the public. No charge for Consultants Network members or employees of Constant Contact; $5 entrance fee for all others. Casual dress.

Registration: no registration required, non-member admission fee – $5.00

The Consultants Network meeting starts at 6:30 PM. The meeting will take place at Constant Contact, Reservoir Place - 1601 Trapelo Road, Waltham, MA 02451, in the Great Room on the third floor.
A no host, PRE-MEETING DINNER will take place at 5:15 PM (sharp) at Bertucci's, 475 Winter Street, Waltham, MA (exit 27B, Rte. 128)

Driving Directions to Constant Contact:
Follow I-95/route 128 to Trapelo Rd in North Waltham, Waltham. Take exit 28 from I-95/route 128.(https://goo.gl/maps/tvn3I)

Consultants Network meetings generally take place on the fourth Tuesday of each month, but are not held during the summer months.

For more information, e-mail or contact the chairman Frederick Beihold, at 508-405-0499. email@blackoakshop.com

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.

Power & Energy Society – 6:00PM, Tuesday, November 19

Power System Protection Schemes in Smart Grid with Distributed Generation

Speaker: Meliha B. Selak, P. Eng, Power System Protection Engineer (Rtd), BC Hydro, Canada

Refreshments start at 6pm, talk begins at 6:30pm
Location: National Grid, 40 Sylvan Road, Waltham, MA 02451 (Rooms: Valley A&B)

Very complex power systems have been built to satisfy increasing demand of electrical power supply. With adding large distributed generations (DG) of high capacity to the power grid endangers the normal operation of power system and might lead to outages and system collapse. With DG increases, distribution system is also becoming more like transmission system: double or multiple feed circuits having significant changes in operation; protection system becomes more complex due to changes in system behavior and power flow under short-circuit conditions.

The convention power system protection schemes, designed to detect the fault and signal circuit breaker to isolate the fault reliably and as fast as possible, but cannot prevent from the system collapse. Nowadays, the modernized networks and telecommunications infrastructure allow optimizing the existing electrical power system operation in addition to support the future innovation. The implementation of wide area special protection schemes (SPS) or remedial action scheme (RAS) which are designed to detect the system conditions that can cause instability, overload or voltage collapse can isolate faults in the direct area and/or in areas adjacent to the fault.

Biography: Meliha B. Selak is a Power System Protection & Control Planning Specialist Engineer, who is recently retired from BC Hydro – one of the largest Utilities in North America. She has an Electrical Engineering degree from the University of Sarajevo and has over 35 years of experience in various aspects of power systems engineering including power system protection, research & development (R&D), project management and consulting on international projects; creation of computer programs for power system modeling validation and design of special protection schemes and power system emergency controls; assessment of interconnection requirements of numerous distributed and transmission connected Independent Power Producers (IPP). Prior to joining BC Hydro in 2000, she worked as a research engineer in the Power System Group at the University of British Columbia on Real-Time Power System Simulator (EMTP) and Energoinvest Corporation from Sarajevo. She has written numerous technical reports and papers on the power system subjects and she is also a paper reviewer. She has been invited keynote speaker and panelist at numerous technical conferences and symposiums. Meliha is a distinguished lecturer of IEEE PES Distinguished Lecturer Program (DLP) and a registered professional engineer in the Province of British Columbia, Canada. Also, she was a member of the Power System Relay Committee (PSRC), working on IEEE guide for “Protective Relaying of Utility-Consumer Interconnections”.

Meliha is a member of the IEEE Power & Energy Society (PES) and she was serving on the PES Governing Board as the Vice President for Chapters for 5 years, and also PES Long Range Planning (LRP) Committee. Meliha received numerous awards for her service to British Columbia’s Power and Energy community through her leadership role in IEEE Vancouver Section. She is a recipient of the 2017 IEEE PES Award for leadership in power system operation and for inspiring new engineers and women in engineering. She is also recipient of the 2010 IEEE Canada Award in recognition of dedicated and distinguished service to the profession”; and 2012 IEEE PES Vancouver Outstanding Engineer Award for contribution to the engineering profession at local and global level.

Free and Open to the Public; RSVP is appreciated

Visit the IEEE PES Boston Chapter website for further details - http://www.ieeepesboston.org/

If you have any questions, please contact Amsa (781-446-3676) or Risa (781-227-7999)

Blockchain Event – 6:00PM, Tuesday, November 19

Standards in Blockchain - A Panel Discussion

Join a panel of experts involved in created Blockchain standards. In this panel we will present the outline of the various standards being represented and discuss applications that will use these standards. Some questions discussed by the panel are: What are we trying to standardize? Will standards inhibit innovation in blockchain? Will standards allow for data exchange between different blockchains? How to reach a consensus on blockchain standards?

Our panel represents IEEE standards, and other industry standards groups working to move the technology forward.Check out https://blockchain.ieee.org/standards for more information on standards.
Catered Food will be provided! (Salads, pasta, etc.)

6:00 Food and brief introductions / networking
6:15-6:30 - Panel discussion begins
7:30 - Q&A
8:00 - Networking

Panel:
• Robby Simpson, IEEE SA Corporate Advisory Group (CAG) Chair - Moderator/Intro to Standards Development
• Yu Yuan, IEEE SA Board of Governors (BOG) Member
• Claudio Lima, IEEE P2418.5 Standard in Blockchain Working Group Chair
• Waiting for Proxy from P2418.6 Working Group
• Maria Palombini, IEEE SA Director, Emerging Communities & Opportunities Development, Life Sciences

Meeting Location: 105 Massachusetts Ave · Cambridge, MA. Von Hippel Room, MIT Building 13 It is easier to enter the building on Vassar Street through the courtyard and entre Building 13 that way. Go to the 2nd floor and turn right at the elevators.

Robotics and Automation Society – 6:00PM, Thursday, November 21

Spatial Perception for Robots and Autonomous Vehicles

Speaker: Prof. Luca Carlone

Spatial perception has witnessed an unprecedented progress in the last decade. Robots are now able to detect objects, localize them, and create large-scale maps of an unknown environment, which are crucial capabilities for navigation and manipulation. Despite these advances, both researchers and practitioners are well aware of the brittleness of current perception systems, and a large gap still separates robot and human perception. While many applications can afford occasional failures (e.g., AR/VR, domestic robotics) or can structure the environment to simplify perception (e.g., industrial robotics), safety-critical applications of robotics in the wild, ranging from self-driving vehicles to search & rescue, demand a new generation of algorithms. This talk discusses two efforts targeted at bridging this gap. The first focuses on robustness: I present recent advances in the design of certifiably robust spatial perception algorithms that are robust to extreme amounts of outliers and afford performance guarantees. These algorithms are “hard to break” and are able to work in regimes where all related techniques fail.

The second effort targets metric-semantic understanding. While humans are able to quickly grasp both geometric and semantic aspects of a scene, high-level scene understanding remains a challenge for robotics. I present recent work on real-time metric-semantic understanding, which combines robust estimation with deep learning. I discuss these efforts and their applications to a variety of perception problems, including mesh registration, image-based object localization, and robot Simultaneous Localization and Mapping.

Luca Carlone is the Charles Stark Draper Assistant Professor in the Department of Aeronautics and Astronautics at the Massachusetts Institute of Technology, and a Principal Investigator in the Laboratory for Information & Decision Systems (LIDS). He received his PhD from the Polytechnic University of Turin in 2012. He joined LIDS as a postdoctoral associate (2015) and later as a Research Scientist (2016), after spending two years as a postdoctoral fellow at the Georgia Institute of Technology (2013-2015). His research interests include nonlinear estimation, numerical and distributed optimization, and probabilistic inference, applied to sensing, perception, and decision-making in single and multi-robot systems. His work includes seminal results on certifiably correct algorithms for localization and mapping, as well as approaches for visual-inertial navigation and distributed mapping. He is a recipient of the 2017 Transactions on Robotics King-Sun Fu Memorial Best Paper Award, the best paper award at WAFR’16, the best Student paper award at the 2018 Symposium on VLSI Circuits, and was best paper finalist at RSS’15.

Meeting Location: MIT Building 31, Room 270, 70 Vassar Street (Rear), Cambridge, MA

IEEE Computer Society and GBC/ACM – 7:00PM, Thursday, November 21

What Needs to be Added to Machine Learning?

Leslie Valiant, Harvard University

This talk will be webcast on the MIT CSAIL Youtube channel http://www.youtube.com/channel/UCYs2iUgksAhgoidZwEAimmg/live beginning at 7pm.

Supervised learning is a cognitive phenomenon which has proved amenable both to theoretical analysis and exploitation as a technology. However, not all of cognition can be accounted for directly by supervised learning. The question we ask here is whether one can build on the success of machine learning to address the broader goals of artificial intelligence. We regard reasoning as the major component of cognition that needs to be added. We suggest that the central challenge therefore is to unify the formulation of these two phenomena, learning and reasoning, into a single framework with a common semantics. In such a framework one would aim to learn rules with the same success that predicates can be learned by means of machine learning, and, at the same time, to reason with them with guarantees analogous to those of standard logic. We discuss how Robust Logic fulfils the role of such a theoretical framework. We also discuss the challenges of testing this experimentally on a significant scale, for tasks where one hopes to exceed the performance offered by learning alone.

Leslie Valiant was educated at King's College, Cambridge; Imperial College, London; and at Warwick University where he received his Ph.D. in computer science in 1974. He is currently T. Jefferson Coolidge Professor of Computer Science and Applied Mathematics in the School of Engineering and Applied Sciences at Harvard University, where he has taught since 1982. Before coming to Harvard he had taught at Carnegie Mellon University, Leeds University, and the University of Edinburgh. His work has ranged over several areas of theoretical computer science, particularly complexity theory, learning, and parallel computation. He also has interests in computational neuroscience, evolution and artificial intelligence and is the author of two books, Circuits of the Mind, and Probably Approximately Correct. He received the Nevanlinna Prize at the International Congress of Mathematicians in 1986, the Knuth Award in 1997, the European Association for Theoretical Computer Science EATCS Award in 2008, and the 2010 A. M. Turing Award. He is a Fellow of the Royal Society (London) and a member of the National Academy of Sciences (USA).

See https://amturing.acm.org/award_winners/valiant_2612174.cfm for a more detailed description of his work or read "Probably Approximately Correct: Nature's Algorithms for Learning and Prospering in a Complex World".

This joint meeting of the Boston Chapter of the IEEE Computer Society and GBC/ACM will be held in MIT Room 32-G449 (the Kiva conference room on the 4th floor of the Stata Center, building 32 on MIT maps). You can see it on this map of the MIT campus.

Up-to-date information about this and other talks is available online at
http://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 http://mailman.mit.edu/mailman/listinfo/ieee-cs, our self-administered mailing list.

Welcome Plenary Speakers

Mr. Malcholm Reese
National Guard Bureau, Joint Program Manager/ Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense

Mr Derek "Dirk" Maurer
Deputy Assistant Secretary of Defense for Defense Contiunity and Mission Assurance, Office of the Undersecretary of Defense for Policy

André Hentz,
Deputy Under Secretary (Acting) for Science and Technology, U.S. Department of Homeland Security

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:


Humanitarian Assistance & Disaster Relief

Land/Maritime Borders & Critical infrastructure Protection


Biometrics & Forensics


Cyber Security


Frontier and Emerging Technologies

See IEEE-HST.ORG for more details or click here to join the 2019 HST mailing list for up-to-date news!

Introduction to Blockchain Programming

Time & Date: 9:00AM - 4:00PM, Thursday, February 27, 2020

Speaker: Christine Miyachi, Xerox, Corp.
Ken Miyachi, San Diego Supercomputer Centers BlockLAB

Location: Crowne Plaza Hotel, 15 Middlesex Canal Park Road, Woburn, MA

Course Summary

This is a part-lecture/ part-bring-your-own laptop, hands-on course in Blockchain programming. Some programming experience is required.

After providing an introduction to Blockchain, we'll review cyptography which is an underlying technology of Blockchain. Then we will dive right into Etherum, the largest Blockchain platform used today. Then we will work with crypto-zombies - an interactive code school that teaches you to write smart contracts in Solidity through building your own crypto-collectables game. After that we'll introduce tools to use Ethereum.

Target Audience

Engineers and managers of engineers with some programming background who want to understand the mechanics of Blockchain. This is a class with both lecture and hands on exercises.

Goals/benefits of attending

You will understand the basics of blockchain and know the basic tools of programming blockchain.

Outline

1. Blockchain Primer
2. Cryptography - Public and Private Key cryptography 3. Ethereum Basics - programming in ethereum
4. Crypto Zombies Tutorial
5. Ethereum Tools
6. ERC 20 Smart Contract
(https://www.investopedia.com/news/what-erc20-and-what-does-it-mean-ethereum /)
7. Intro to HyperLedger
8. HyperLedger Tutorial - Hyperledger Fabric

Prerequisites

(in this case, laptop, etc.) A PC running Virtual Box. There will be a Virtual Box environment that will be provided for the class.

Speakers Expertise

Christine Miyachi has almost 30 years of experience working for startups and large corporations. She writes a blog about software architecture: http://abstractsoftware.blogspot.com/ . She is currently a principal systems engineer and architect at Xerox Corporation and holds several patents. She works on Xerox's Extensible Interface Platform which is a software platform upon which developers can use standard web-based tools to create server-based applications that can be configured for the multi-function peripheral's touch-screen user interface .

Miyachi graduated from the University of Rochester with a BS in electrical engineering. She holds two MIT degrees: an MS in technology and policy/electrical engineering and computer science and an MS in engineering and management. Chris is the chair of the IEEE Boston Blockchain group (https://www.meetup.com/Boston-

IEEE-Blockchain-Meetup-Group/). See more about Chris at www.christinemiyachi.com

Ken has a Computer Science degree from the University of California, San Diego and is currently a Principal Investigator at the San Diego Supercomputer Centers BlockLAB and the Chair for the IEEE San Diego Blockchain Initiative. After working in Natural Language Processing and Blockchain Development he was extremely interested in the potential of decentralized solutions in the compliance and regulatory space. He is the CEO of LedgerSafe. Find more about Ken at http://www.kenmiyachi.com

notes, lunch and coffee breaks included with registration

Decision (Run/Cancel) Date for this Courses is Tuesday, February 18, 2020

Payment received by Feb. 14
IEEE Members $195
Non-members $225

Payment received after Feb. 14
IEEE Members $225
Non-members $255

http://ieeeboston.org/introduction-to-blockchain-programming/

Call for Course Speakers/Organizers

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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**
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- 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.

Practical RF PCB Design, Wireless Networks, Products and Telecommunications

Time & Date: **9:00AM - 4:30PM, Thursday & Friday, January 9 & 10, 2020**
(13 hours of instruction!)

Speaker: **Henry Lau, Lexiwave Technology**

Location: **Crowne Plaza Hotel, 15 Middlesex Canal Park Road, Woburn, MA**

Overview: One of the most demanding consumer products in the market is the wireless telecommunication product. A well-designed Radio Frequency Printed Circuit Board (RF PCB) contributes significantly to the success of any wireless product as the layout of the PCB greatly affects the performance, stability and reliability of the product. In today's highly competitive wireless products market with increasingly compressed development time-frame, there is a strong demand for RF professionals who possess the knowledge and experience to design top-performing RF PCBs in less number of iterations. What matters is whether your level of competence is up to the required standard to meet such demand.

Audience: RF Designers, Wireless Product Designers, Field Application Engineers, Design Managers and related professionals.

Benefits: This course aims to provide participants with an insightful training on RF PCB design from a practical, industrial perspective. Participants will be led through a systematic, theoretical presentation with case studies on commercial products in the training. The course will be conducted by an RF expert with rich industrial experience. It is suitable for RF professionals who want to keep up-to-date their skills and knowledge in RF PCB design and stay competitive.

OUTLINE

1. Printed circuit board design for RF circuits
From product design, circuit design to PCB design
Layer stack-up assignment
Grounding methods and techniques
Interconnects and I/O
Bypassing and decoupling
Partitioning methods

2. Printed circuits board design for other circuits
Clock circuits
Base-band circuits
Audio circuits
Power supplies
Impedance-controlled circuits

3. PCB design for EMC/EMI compliance
EMC/EMI compliance
Grounding methods
Decoupling methods
Shielding methods

4. Additional Design Techniques
Production concerns
Systematic product design approach
RF Modules
Evaluation boards
Other RF concerns
Casing design

5. Case studies

Expertise:
Henry Lau received his M.Sc. and MBA degrees from UK and USA respectively. He has more than 25 years of experience in designing RF systems, products and RFICs in both Hong Kong and US. He worked for Motorola and Conexant in US as Principal Engineer on developing RFICs for cellular phone and silicon tuner applications. Mr Lau holds five patents all in RF designs. He is currently running Lexiwave Technology, a fables semiconductor company in Hong Kong and US designing and selling RFICs, RF modules and RF solutions. He has also been teaching numerous RF-related courses internationally.

notes, lunch and coffee breaks included with registration

Decision (Run/Cancel) Date for this Courses is Tuesday, December 31, 2019

Payment received by Dec. 27
IEEE Members $415
Non-members $445

Payment received after Dec. 27
IEEE Members $445
Non-members $465

http://ieeeboston.org/practical-rf-pcb-design-wireless-networks-products-telecommunications/

Call for Articles

Now that the Reflector is all electronic, we are expanding the content the publication. One of the new features we will be adding are technical and professional development articles of interest 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 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 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