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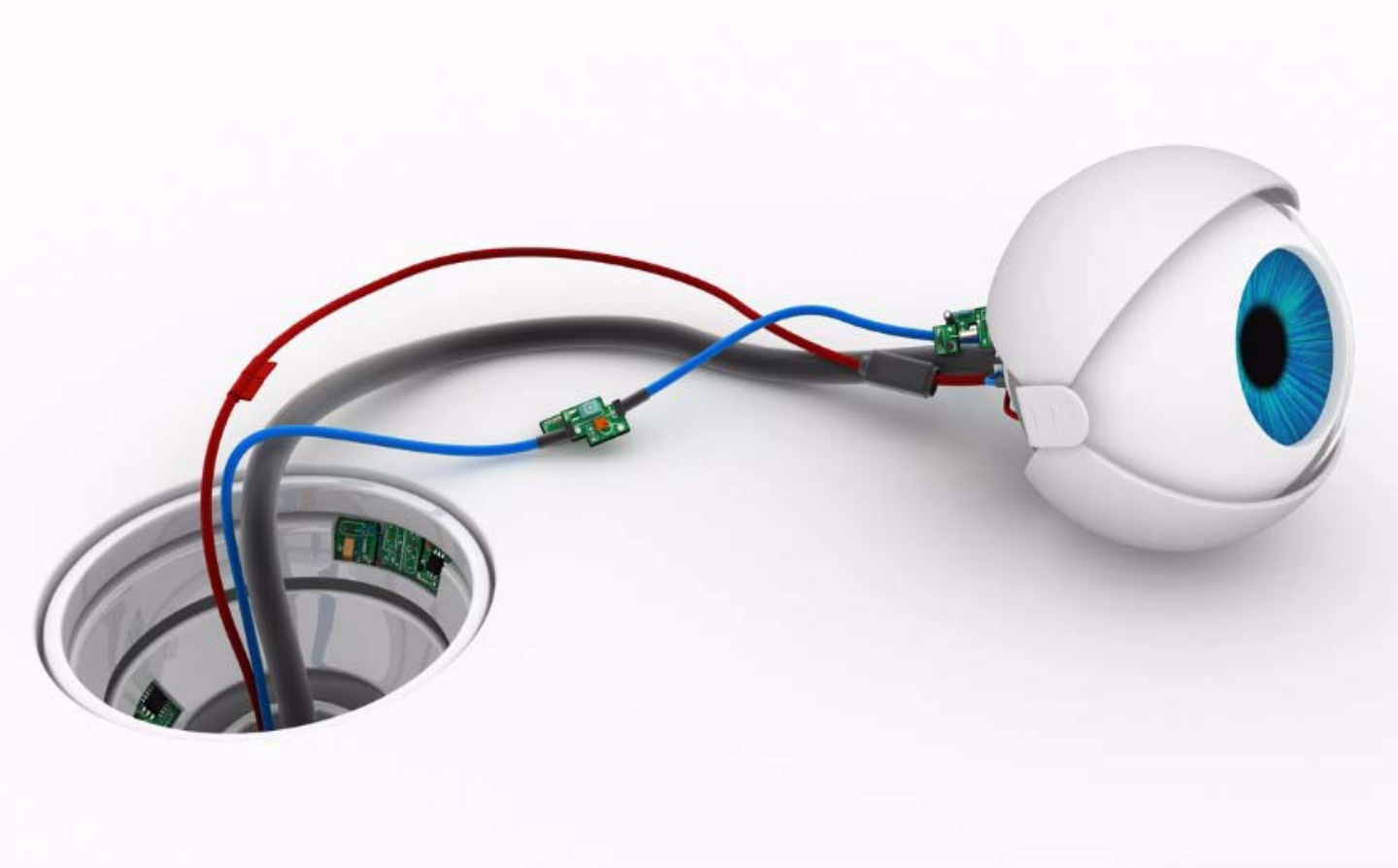

IEEE
Advancing Technology for Humanity

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What is Wrong with the IEEE Boston Section

by Kevin Flavin, Boston Section Electronic Communications Team Chair

We have an editorial calendar. It describes a schedule of topics for the 2018 calendar year. At times, we don't stick to it, most notably because of a current event, like GDPR last month, is more critical and timely. By the time you read this, GDPR will probably be in effect, even for you regardless if you are a European citizen or not. We will return to regularly scheduled programming soon at a day in the future.

But today is not that day.

Let me take this time to tell you what is wrong with the IEEE Boston Section.

Sure, we have thousands of members, geographically, we are responsible for the members living or working within the 495 belt, generally.

Yes, we have more than 30 special interest groups, called chapters and affinity groups in IEEE parlance.

Also, we organize a couple of conferences, attracting an international audience.

The remarkable thing, is that 99% of all of this is just a bunch of us simply doing it. For the sake of doing it, and it's important to us.

There are opportunities to publish research, if that's your thing, at the conferences.

There are opportunities to speak or to attend a speaking event with the chapters. In fact, chapters is where 90% of the activity happens. Local groups of Societies are called chapters - it took me a few weeks to put that one together.

Here is a list of Societies, they cover a very wide range of topics.

Chapters are like Meetups, if you are familiar with those. The difference is that the IEEE chapters happen all around the world, and they have regional, national, and international conferences on the topics organized by IEEE. And awards for those volunteers that have gone above and beyond the call to duty.

Chapters, arguably, are the life-blood of the IEEE. Through the chapters, members can share their own experiences, mistakes made, successes, and collaboration with their teams.

Members provide the technical information that the Societies publish, to advance knowledge of society. In addition, members organize, plan, and produce all of the periodicals and publications of the Societies. Also, conferences and technical standards are development and managed by members.

While at university, many of our members join as students, gaining very valuable connections and mentorships and internships to other members already out in the industry or vertical that they are interested in.

Through the IEEE, members can develop professionally immediately upon graduation from university by joining a young professionals group for networking and continuing to build on their knowledge through technical presentations and speakers.

My own personal journey involved jumping out of the technical world into the financial one, and after about a decade, I worked my way back through the software

side of financial services. I can tell you from my own experience, I would have loved to have an IEEE type of organization available to me over there. Yes, there are Series 6,7, 63, etc. or becoming a CPA or CFA. I have sat for those exams and let my licenses lapse when I returned to the software side, but it's not the same.

The IEEE Societies are groups of like-minded engineers, and scientists, that are on the cutting edge of technology. Whether the society's chapter is focused on Power, or Microwave, or Robotics, even Reliability which cuts across all disciplines, the people that come to the meetings learn something new, or to teach something new.

Where else can you do that, in person, at the level of detail and nuance than at a chapter meeting?

If you aren't a member of a society, then browse the listing included in this article, or go to https://www.ieee.org/communities/societies/index.html. Then look up your local chapter. If you can't find it on ieee.org, take a look at the chapter lists on http://www.ieeeboston.org.

If you aren't a member of the IEEE, why not? With the cost of an annual membership - which most employers will cover - you will have instant access to all society and chapter information, monthly periodicals, and some of the research that was just published! If that isn't cutting edge information, I don't know what is.

And don't forget, once you join a society, come to a meeting, and raise your hand to volunteer - I promise that you'll get more out of it than you'll ever put into it, just like I do.

So what's wrong with the IEEE Boston Section?

There's a huge opportunity for knowledgable people to 'lean in' and help others, most likely your colleagues in your industry.

If you want to really lean in, and I'm picturing Michael Jackson leaning in Smooth Criminal, join the IEEE Society on Social Implications of Technology (SSIT) to lead the conversation and direction of our society in the new technological world. You can start here to learn more: https://ieeexplore.ieee.org/document/6187687/.

Do you see the problem, yet? It's easy to solve, too. Solving it begins by taking advantage of this opportunity - to learn, to teach, to lead, to follow, to do some light lifting, or heavy lifting, to lean in, or lean way over the problems and smother them with intelligence, patience, perseverance, and guile.

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

The Institute of Electrical and Electronic Engineers, Inc.

Spring 2018 Professional Development and Education Program
www.ieeeboston.org

Phased-Array and Adaptive-Array Fundamentals and their Recent Advances
Dates and Time: Eight Monday Evenings,
March, 19, 26, April 2, 9, 30, May 7, 14, 21
(Snow/make-up dates) June 4 or 11
6:00PM - 9:00PM
MITRE Corporation, Bedford, MA

Fundamentals of Real-Time Operating Systems
Dates and Time: Mondays, March 19, 26, April 2, 9
6:00PM - 9:00PM

More Digital Signal Processing for Wireless Communications
Dates and Time: Wednesdays, March 28, April 4, 11, 18 and 25
6:00PM - 9:00PM

Software Development for Medical Device Manufacturers
Dates and Time: Wednesday, April 11 and Thursday, April 12
8:30AM - 4:30PM

Embedded Linux BSPs and Device Drivers
Dates and Time: Mondays, April 16, 23, 30 and May 7
6:00PM - 9:00PM

Making You A Leader Fast Track - Become the Leader You Want and Need
Date and Time: Monday, June 18
8:30AM - 5:00PM

Writing Agile User Story &Acceptance Test Requirements - Cut Creep Overuns, Disappointment, and Embarrrasment
Date and Time: Tuesday, June 19
8:30AM - 5:00PM

Determing and Communicating Project Value Return On Investment (ROI) - Communicate Right, Reliable, and Responsible REAL ROI Business Cases
Date and Time: Wednesday, June 20
8:30AM - 5:00PM

Proactive User Acceptance Testing - Confident Competence - The Testing Users Need to Be Confident the Software they Depend on Works
Date and Time: Thursday, June 21
8:30AM - 5:00PM

Developing Reusable Test Designs - Be an Instant Expert-Run More, and More Thorough, Tests in Less Time
Date and Time: Friday, June 22
8:30AM - 5:00PM

Online Courses
(Each Online Course - 90 day access for registrants!!!)

- Verilog 101: Verilog Foundations
- Systems Verilog 101 (SV101) Design Construct
- Systems Verilog 102 (SV102) Verification Constructs
- High Performance Project Management
- Introduction to Embedded Linux
- Fundamentals of Real-Time Operating Systems
- Software Development for Medical Device Manufacturers
- Reliability Engineering for the Business World
- Fundamental Mathematical Concepts Relating to Electromagnetics
- Embedded Linux Optimization
- Embedded Linux BSPs and Device Drivers
- Design Thinking for Technical Work

All Courses are being held at the Hilton Woburn, 2 Forbes Road, Woburn unless otherwise noted. For more information on these courses and other local IEEE activity see our website at www.ieeeboston.org, email: ieeebostonsection@gmail.com, or call 781-245-5405

Entrepreneur's Network – 6:30PM, Tuesday, 1 May

Using Senior Advisors and a Board of Directors in your Startup Company

Location: Constant Contact, Inc., Reservoir Place, 3rd Floor Great Room, 1601 Trapelo Rd., Waltham, MA
PRE-MEETING DINNER at 5:15 PM (sharp) at Bertucci's, Waltham

Trying to build a start-up company? Trying to get a product or service to market? Trying to recruit key players? Trying to raise capital? If you face these questions in your early stage company, and run into roadblocks and unforeseen obstacles, you may wish there was someone on your side, who's "been there, done that", to offer useful advice. It can get lonely at the top, and a Board can offer a key supportive resource.

Whether that Board is just an informal group of business advisors that meets with you at a restaurant once a quarter, or a board of techanical or scientific advisors, or a formal board of directors, having and using a board can offer access to contacts, expertise, information, experience and advice. It can serve as a key resource at the most critical times in the life of an early stage company.

The three speakers on the panel for this ENET meeting have all been directors, advisors and mentors to numerous companies in various life science, high tech, consumer and other product and service fields. One of the three speakers is also an active angel investor and two have been CEOs, so they will offer both management and investor perspectives on building and serving on boards. They will discuss recruitment and the benefits of informal advisors, more formal boards of directors, and other "sounding" boards focused on marketing. The panel will also suggest tax, legal and compensation techniques for cash-strapped start-ups, discuss liability issues of directors, and present the investor perspective on how creation and use of a board adds value, as you seek to raise money for expansion. The meeting moderator will be ENET chairman and Boston startup attorney Robert Adelson.

Agenda:
6:30-7:30 PM - Registration & networking
7:30-7:40 PM - ENET Chairman's announcements
7:40-7:55 PM - E Minute - 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
900-930 PM - Final networking includes meeting presenting speakers

A question and answer session follows the presentation, and panelists will be available afterwards 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 afterwards.

Speakers:

GAIL HOFFMAN, Angel Investor and Managing Director of Golden Seeds. Gail is based in the Boston Office, and her involvement includes deal flow, membership, education, and operations. She is an active early-stage investor, mentor to entrepreneurs, and board member. Prior to Golden Seeds, Gail spent many years in private equity at Boston Ventures Management, where she focused on the communications, media, and entertainment industries. Gail earned an MBA with high distinction in Finance from The University of Pennsylvania's Wharton School.

LESLIE WILLIAMS, BS, RN, MBA, Director, Founder, President and Chief Executive Officer, ImmusanT, Inc. Leslie has more than 25 years of industry experience in healthcare, management, commercial product development and marketing. In 2010 she founded ImmusanT, Inc., which subsequently acquired the assets of Melbourne, Australia based Nexpep. She has built and led the team since inception. In 2015 Williams received the Distinguished Alumni Achievement Award from the University of Iowa in recognition of her accomplishments in her professional life. Prior to founding ImmusanT, she was President & CEO

of Ventaira Pharmaceuticals, which became a significant player in the pulmonary drug delivery market under her leadership. While President & CEO of Ventaira Pharmaceuticals, she was recognized as one of the top 100 leaders in life sciences by PharmaVOICE magazine. She served on the Boards of Hepregen Corporation and CDI Bioscience. She currently serves on the Advisory Board of The Capital Network

(TCN) and is on the Executive Board of the University of Iowa School of Pharmacy. She also serves on the Editorial Advisory Board of Life Science Leader as well as The Journal of Advanced Therapies and Medical Innovation Sciences. In addition, she serves as a mentor in the Boston University Kindle Program. Ms. Williams holds an MBA from Washington University, John Olin School of Business, and a BS degree with honors in nursing from the University of Iowa. Before entering industry, she was a critical-care nurse at Duke University, Medical College of Virginia and at the University of Iowa.

RICK WILLIAMS, Managing Director of Williams Advisory Partners, LLC. Rick has a wide breadth of experience, including medical technology, financial services, real estate, management consulting and public/private engagement developed through his wide-ranging roles as an executive and board director. Prior to founding Advisory Partners, Rick was a founding Partner of the Newport Board Group practice in New England. He was Founder and President of The Equity Company, an award winning multifamily real estate development company. He is Chairman of the Board of Point Care Technologies and former Chairman of a quasi-public bank/VC firm providing financing to companies with limited access to conventional financing. Rick is past President of the Harvard Business School Association of Boston. He was a management consultant with the global consulting firm Arthur D. Little, Inc., working on business strategy and acquisitions and the economic and strategic impact of government policy and regulations on a broad spectrum of industries. Before that, he was a physicist with Itek Corp, where he developed space and defense related photo & electro/optical systems.

Moderator:
ROBERT ADELSON, business and tax attorney, partner at Boston law firm of Engel & Schultz LLP, and Chairman of The Boston Entrepreneurs' Network. 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 and Chairman since 2009 and is 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

E-Minute Presentations will be given at the start of the meeting. These very short presentations enable young startup entrepreneurs to gain experience in presenting their summary business plans to expert panels and audiences.

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

See: http://www.constantcontact.com/about-constant-contact/office-location-waltham.jsp

Reservations: ENET Constant Contact meetings are 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 for the 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.

Reliability Society – 5:30PM, Wednesday, 9 May

From Interconnect to Innovation in the DoD

Livia M. Racz MIT Lincoln Laboratory

In electronics packaging, as in all areas of electronics in the 20th century, the military used to set the pace for new developments, with major investments in facilities and strategic initiatives, and engineering innovation happening in large, captive semi-monopolies. This is no longer the common model for innovation. Additionally, there is instant and widespread dissemination of technological information all over the world. The aggregate result of these shifts is that we are no longer optimally equipped to apply the best technologies to problems of national security.

This talk broadly examines some of the top unmet needs, reviews some of the approaches that are being used successfully to address the challenges, and focuses on the value added by truly innovative developments in Advanced Packaging and Microsystems Integration. An innovation framework is presented, which introduces rigor into value creation by integration, which goes beyond reduction of size, weight, and power. Case studies are selected and reviewed from the literature, and example research projects are highlighted that are currently in progress at MIT Lincoln Laboratory.

Livia M. Racz is the Assistant Leader of the Chemical, Microsystem and Nanoscale Technologies Group, where she is currently focused on advanced materials and their application of micro- and nanotechnology, in order to enable unique capability in scaled-down systems. In addition, she leads the Lincoln Laboratory research portfolio in Advanced Materials and Processes. Dr. Racz joined Lincoln Laboratory in February 2015 after 8 years at Draper Laboratory, where she held positions of Principal Technical Staff, Distinguished Technical Staff, Laboratory Technical Staff, Group Leader, and Division Leader. She has also spent time in two early-stage startups and in academia, in each case focused on some novel aspect of miniature electronic systems. Dr. Racz received her S.B. and Ph.D. degrees in Materials Science and Engineering from MIT and worked at the German Aerospace Research Center (DLR) in Cologne, Germany as an Alexander von Humboldt fellow.

Meeting Location: MIT Lincoln Laboratory, 3 Forbes Rd, Lexington, Massachusetts, 02421

Registration: click http://ewh.ieee.org/r1/boston/rl/events.html

Directions to 3 Forbes Road, Lexington, MA:
- Take Route 128/I-95 to Exit 30B, Route 2A Westbound.
- At the first traffic light, turn left onto Forbes Road.
- Go to the end of the street.
- At the traffic circle, turn right.
- Go halfway around the traffic circle and turn into the parking lot for MIT Lincoln Laboratory
- The main entrance is straight ahead, shared with “agenus”.

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 – 4:00PM, Wednesday, 9 May

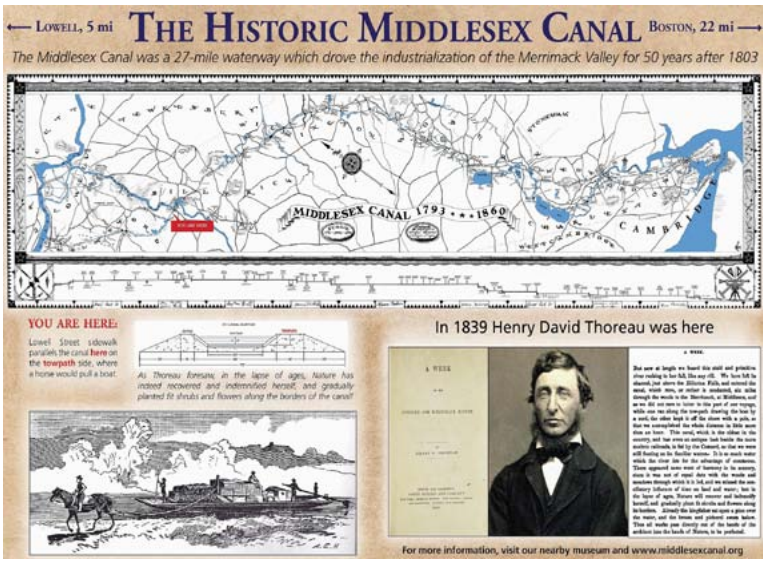
Tour of the Middlesex Canal Museum, Billerica Ma.

Incorporated in 1793 with John Hancock as the first proprietor, the Middlesex Canal connected the Merrimack River at Lowell with the Charles River at Boston by a ditch 3½' deep, 30' wide and 27 miles long. It was the greatest work of its kind in the US until the Erie Canal, and its efficient transportation of thousands of bales of cotton along with waterpower was the basis for the cotton mills of Lowell, Nashua, and Manchester. The canal operated for 50 years; then the one horsepower canal boat quickly lost to a new competitor, the 30 horsepower steam locomotive.

The guided tour of the Museum will start at the exhibit of the 1793 company charter, and continue through exhibits covering construction and operation of the canal. Before or after the tour, visitors are welcome to hike the Thoreau Towpath nearby.

During the tour, the Museum will be open only for tour participants. Attendance is limited, and pre-registration is required. 4:00PM -5:00PM - Prior registration required

Please contact Lori Jeromin (ljeromin@ieee.org) to sign up by May 2nd.



Photonics Society – 7:00PM, Thursday, 10 May

Design and Analysis of a Nanofabricated Interferometer for Interaction-Free Measurement with Electrons

Prof. Akshay Agarwal, Massachusetts Institute of Technology, Cambridge, MA

Interaction-free measurement (IFM) has been proposed as a means of high-resolution, low-damage imaging of radiation-sensitive samples, such as proteins and biomolecules. The basic setup for IFM is a Mach-Zehnder interferometer (MZI). Recent progress in nanofabricated electron diffraction gratings has made it possible to incorporate an MZI in a transmission-electron microscope (TEM).

In this talk, we will describe a modular, self-aligned, amplitude-division electron interferometer in a TEM. The interferometer consists of two 45-nm-thick silicon layers separated by 20 μm. Further, we will discuss our calculations comparing the error probability and number of scattered electrons for IFM and classical imaging schemes, with and without an additional detector for scattered electrons, for a black and white sample, with this interferometer. The additional detector reduced error for the same number of scattered electrons by an order of magnitude, for both IFM and classical schemes. We will also investigate a sample re-illumination scheme based on updating priors after each round of illumination until a stopping criterion is met. Implementation of these methods is likely achievable with existing instrumentation and would result in improved resolution in low-dose electron microscopy.

Akshay Agarwal is a graduate student in the Department of Electrical Engineering and Computer Science at MIT. He received his Bachelor's and Master's degrees in Electrical Engineering from the Indian Institute of Technology Bombay, India in 2014.

His current research focuses on electron diffraction and interferometry as part of the free-space quantum electron microscope project.

This meeting begins at 7 PM Thursday, May 10th, 2018 and will be located at 3 Forbes Road, Lexington, MA, 02420. Note this is a satellite location ~1.5mi away from MIT Lincoln Laboratory.

The meeting is free and open to the public. All are welcome. Prior to the seminar there will be social time and networking from 6:30 – 7:00PM. Pizza will also be provided. The seminar will begin at 7:00PM.

For more information contact Ajay Garg, IEEE Boston Photonics Society chair at ajay.sinclair.garg@ieee.org, or visit the IEEE Boston Photonics Society website at www.bostonphotonics.org.

Directions to 3 Forbes Rd Lincoln Laboratory: (from interstate I-95/Route 128). Take Exit 30B onto Marrett Rd in Lexington – Merge into left lane. Make the first Left onto Forbes Rd. Proceed straight through the small rotary and enter the parking lot. The entrance is by the flags.

Industry Applications and Power Energy Societies – 6:00PM, Monday, 14 May

IEEE 1584 Revolutionary Changes Coming

Marcelo E. Valdes, PE, IEEE Fellow Application Engineering Mgr, GE Industrial Solutions

Refreshments start at 6:00PM. Talk commences at 6:30PM

IEEE 1584 has been the definitive guide for Arc Flash calculations since its original publication in 2002. Today its impact on the electrical equipment industry would be difficult to exaggerate. Soon the guide will be republished with significant changes to the model used for predicting incident energy, arcing current and the 1.2 calorie arc flash boundary. Rather than an evolutionary change, this upcoming edition of this important IEEE guide will be a revolutionary change in how we understand the science of the arc flash hazard. Consultants, users and workers need to understand the new model and what it says about the hazard posed by exposure to live electrical equipment. Mr. Valdes will present on the current draft of this standard, contrast it with the 2002 model and discuss possible effects on industry.

Mr. Valdes has been with GE over 40 years in various roles: Field engineering, equipment sales, application engineering, product management and standards. Currently he participates in the NEC, CSA-Z462 and NFPA70B, as well as in various IEEE working groups, including IEEE 1584. He is active in various IEEE conferences such as IEEE Electrical Safety Workshop (ESW), PCIC, PPFIC, and I&CPS. He was chair of the 2014 IEEE ESW. He has won several awards from IEEE conferences for his contributions as well as several awards for some of his IEEE papers. He has published over 35 technical paper on various topics, mostly low voltage coordination and protection and holds 27 patents in related fields. Mr. Valdes holds an Electrical Engineering degree from Cornel University and is an IEEE Fellow.

Meeting Location: OMICRON, 60 Hickory Drive, Waltham, MA 02451

Registration:

Weblink- http://www.ieeepesboston.org/?ai1ec_event=ieee-pes-ias-boston-chapter-joint-technical-meeting-on-ieee-1584-revolutionary-changes-coming
Registration link - http://sites.ieee.org/boston-pes/?page_id=2638.
Facebook: https://www.facebook.com/ieeepesboston/

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 Ozgur Cosar (765-543-9172) , Amsa (781-907-3564) or Subhadarshi (781-907-2483)

Entrepreneur's Network – 6:00PM, Tuesday, 15 May

Trends and Innovations in Early Stage Technology Funding

Location: Foley Hoag, 155 Seaport Blvd. West Building, 13th Floor, Boston, MA 02210
REGISTRATION: free to ENET members and $10 for non-members.

Entrepreneurs' need to fund their business. There many options available from self-funding to crowd sourcing to grants to venture capital investors, and everything in between. Every option has its benefits and drawbacks. Which one is right for your company?
How do you select the option for funding your business?
How do you prepare for the barrage of investor questions?
How do you create a support infrastructure to obtain the best outcome?

The panelists have deep experience in consulting entrepreneurs, seeking funding and funding start-ups. Our discussion will offer guidance in the funding process and practical suggestions in preparing for the process. Listen to our speakers share their stories from a 360 degrees purview for early stage funding and advice on avoiding funding pitfalls.

Agenda:
6:00-7:00 PM - Registration & networking
7:00-7:10 PM - ENET Chairman's announcements
7:10-7:25 PM - E Minute - Up to 3 Startup companies' presentations
7:25-8:15 PM - 3 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, delivering award winning products to the international market.

Speaker: Raymond Chang is a serial entrepreneur and the managing director of NXT Ventures, an early-staged investment fund based in Boston. He is also a Lecturer in the Practice of Entrepreneurship at the Yale School of Management, and an Adjunct Professor in Entrepreneurship at Babson College.

Raymond founded GigaMedia, the first broadband internet company in Asia. In 1999, GigaMedia received US$35mm strategic investment from Microsoft, and in 2000, the Company went public on NASDAQ and raised US$280mm, one of the largest IPOs for Internet company prior to 2000. In 2007, Raymond founded Luckypai, a leading TV shopping company in China and raised venture financing from Lightspeed Venture Partners, DT Capital, Intel, Lehman Brothers, and Goldman Sachs. In 2010, Luckypai was sold to Lotte Home Shopping for US$160mm. From 2012-2013, Raymond served as the CEO of New Focus Auto, the largest automobile after-sales service company dual-listed on Hong Kong & Taiwan exchanges, (US$1 Billion in market cap). In 2013, Raymond completed a US$160mm investment from CDH Capital, a leading Chinese private equity fund. In 2000, Raymond was selected by FORTUNE as one of the twenty-five Next Generation Global Leaders Under 40, (5/2001), and by BUSINESS WEEK Asia as one of Asia's 20 most influential new economy leaders in the 21st century, (7/2000). He was also featured as a panel speaker at World Economic Forum in Zurich, Switzerland in 2005.

Raymond also participates in various social, charity, educational, and Christian faith organisations. He Co-founded Shanghai West International Fellowship, was the Former Treasurer/Elected Board Member of Shanghai American School, and a member of Young President's Organization-Shanghai. He is a member of Launchpad Venture Group, Hub Angels, CEVG, and a mentor at Techstars Boston. He also serves on the Board of The Skating Club of Boston. Raymond received his BA from NYU, MBA from Yale, and MPA from Harvard JFK School of Government.

Speaker: Dr. Lissy Hu works with leading health systems and accountable care organizations to optimize

post-acute care outcomes. She serves as the CEO and Founder of CarePort Health which enables healthcare providers to enhance post-acute outcomes and costs by guiding patients across the care continuum and tracking their recovery in real-time. In 2016 CarePort was acquired by Allscripts to extend its breadth as the largest connected acute and post-acute provider network in the industry. Dr. Hu, an in-demand speaker and thought leader, has previously led sessions at the Institute for Healthcare Improvement, Harvard Business School, Case Management Society of America, HIMSS Population Health, Medical Group Management Association, Cleveland Clinic Innovation Summit, and SXSW among many others. Dr. Hu and CarePort received a certificate of special congressional recognition for outstanding contribution to Massachusetts. CarePort has been named "10 Boston Healthcare Tech Companies to Watch" by VentureFizz and "Best Patient Relationship Management Solutions" by MedTech. CarePort is a past winner of the Harvard Business Plan Competition. Dr. Hu is a graduate of Harvard Medical School and Harvard Business School, where she was a recipient of the Kaplan Life Sciences Award, and holds a bachelor's degree Summa Cum Laude from Columbia University.
Speaker: Chuck Goldstone is a renowned authority on communications and has helped organizations tell better stories and tell their stories better. He has brought together the art and science of influence, the impact of story, and the power of visuals and mnemonic devices to move audiences to decision.

Speaker: Chuck Goldstone He was founder, CEO, and Chief Creative Officer of !deaworks/!deaCorporation of America, Chuck Goldstone Communications, Presen+Suasion™, and CommInLaw™.

As communications strategist, author, concept catalyst, and consultant, he has the ear and trust of senior management in some of the planet's most prestigious domestic and global firms. As a consultant, he has helped organizations in nearly every discipline unleash the creative assets of executives.

Chuck has written and directed nearly 1000 programs for clients, reaching millions of viewers in the Americas, Europe, and Asia. He has taught at some of New England's most respected colleges and universities and holds an M.Ed from Boston University. He is author of a soon-to-be-published book on business communications, story, and organizational persuasion.

For more than ten years, Goldstone was a nationally recognized commentator on Public Radio International's Marketplace, heard on over 400 stations, and is still a popular radio and TV guest and keynote speaker. He is an author, business columnist, storyteller, humorist, author of This Book Is Not a Toy: Friendly Advice on How to Avoid Death and Other Inconveniences (St. Martin's Press). His business communications writings have appeared in national magazines and he is a national blogger on business communications and new employee communication

Moderator:

Daniel Skiba, President & CEO GOT Interface Human Machine Innovation. Orchestrating the design and manufacturing of Leading-Edge Products and Delivering Industry Leadership. As a Product Development and Company Executive, I provide strategic leadership in product innovation and managing global teams

Refreshments: Snacks and soft drinks.

Reservations: ENET meetings in Boston are free to ENET members and $10 for non-members. To expedite sign-in 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.

Public Transportation: Is accessible by public transportation.

Directions & Parking information can be found at http://foleyhoag.com/our-firm/offices/boston/directions?fh_lang=en.

Computer Society and GBC/ACM – 7:00PM, Thursday, 17 May

Von Neumann and the Origin of Life

Hyman Hartman

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

We will outline a historical solution to the Origin of Life based on the Origin and Evolution of the Genetic Code and the Origin and Evolution of Metabolism mediated by replicating Iron -Rich Clays. This is a historical reconstruction.

Biological research is in crisis, and in Alan Turing's work there is much to guide us. The most interesting connection with biology, in my view, is in Turing's most important paper: 'On computable numbers with an application to the Entscheidungsproblem', published in 1936, when Turing was just 24. Computable numbers are defined as those whose decimals are calculable by finite means. Turing introduced what became known as the Turing machine to formalize the Origin of the digital computer.

Von Neumann's Kinematic Self Replicating Machines: Turing's ideas were carried further in the 1940s by mathematician and engineer John von Neumann, who conceived of a 'constructor' machine capable of assembling another according to a description. A universal constructor with its own description would build a machine like itself. To complete the task, the universal constructor needs to copy its description and insert the copy into the offspring machine. Von Neumann noted that if the copying machine made errors, these 'mutations' would provide inheritable changes in the progeny.

Sidney Brenner: Nature 482,461(23 February 2012)
The Body of the Talk: 1) Cellular Automata according to Von Neumann and Ulam. 2) Probabilistic Cellular Automata 3) Ising Model 4) Spin glasses 5) Computers and the Brain according to Von Neumann 6) Evolution and Machine Learning the Valient way

In summary: Life began as a spin Glass and evolved into the Universal Turing Machine/ Von Neumann constructor

Hyman Hartman was born in Montreal, Quebec, Canada. He received his B.Sc with honors In Biochemistry from McGill University (1957) and his PhD in Biochemistry from Columbia University (1964). He began his studies on the Origin of Life by publishing two pioneering papers in 1974 on the Evolution of the Genetic Code and the Origin and Evolution of Metabolism. These papers were based on the Clay theory for the Origin of Life. He edited a book with Graham Cairns-Smith entitled Clay Minerals and the Origin of Life.(1987). He was on the Grant Board for NASA Exobiology Division and he was a co-editor with Jim Lawless and Phil Morrison on the book Search for the Universal Ancestors published by NASA. He and Temple Smith (Boston University) have been studying the Bioinformatics of the Ribosomal Proteins and the Aminoacyl-tRNA Synthetases. These studies have allowed them to reconstruct the Origin and Evolution of the Translational Apparatus and the Origin and Evolution of the Genetic Code. He is also active with a group in the University of Kentucky and McGill University studying the De Novo synthesis of Clay as catalyzed by Amino acids and Dicarboxylic acids.

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.

Consultant's Network – 6:30PM – Tuesday, 22 May

Building Your Business Through Referrals

Paul Hutchinson

Is there a way to succeed in business without really "selling"? Yes. It's called referral-based marketing.
Paul Hutchinson is a master at it, and if you attend this presentation, you'll be on your way to mastery, too.
Paul will help us with a problem many of us face: Independent consultants and other solo professionals often find "selling" the thing they least like to do. But the essence of being in business for yourself – "on your own," as they say – is taking responsibility for bringing in new work.

Paul will talk us through these questions you may have about building your business or practice through referrals.
• What is a referral-based marketing program?
• How can it drive the growth of my business or practice?
• Why do some people get great referrals, while others do not?
• How do I go about asking for referrals?
• How do I follow up effectively

Paul R. Hutchinson, a senior management consultant with a passion for selling and teaching engineers how to sell, has been working with small Engineering and Consulting companies for the past 15 years. He has delivered powerful and engaging sale seminars to numerous professional organizations such as, The IEEE Boston Section, The Society of Professional Consultants, the Middlesex West Chamber of Commerce.

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.

Meeting Location: Constant Contact, Great Room South, 3rd Floor, 1601 Trapelo Rd, Waltham, MA 02451
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 most summer months. For more information, e-mail cn.boston@ieee.org or chairman@boston-consult.com; or contact the Chairman Frederick Beihold at (508) 405-0499.

Power & Energy Society – 6:00PM, Tuesday, 22 May

2018 Annual Banquet

Come and join us for an evening of fun and networking!!! The Changing Energy Landscape in Massachusetts. Speaker: Judith Judson, Commissioner, Massachusetts - Department of Energy Resources

Featuring: Buffet style dinner, cash bar and live music by "Jazz in the Air"
Date: Tuesday, May 22, 2018. Time: Pre-dinner drinks at 6:00PM, program commences at 6:30PM
Location: Holiday Inn Boston – Brookline, 1200 Beacon Street, Brookline, MA 02446

Registration Details:
Price: $35 per person or $270 per table of eight. $10 per student

On-line Registration: https://ieee-pes-boston-annual-banquet-2018.eventbrite.com
*A small convenience fee will apply to online ticket transactions
Checks are also acceptable. Please make the check payable to IEEE PES Boston Chapter and mail it to:
IEEE PES Boston c/o Martin, 50 Church Street, Westwood, MA 02090

Registration Closing Date and Time: 3PM on Friday, May 18, 2018

Visit IEEE PES Boston Chapter's website for details! http://www.ieeepesboston.org/

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

Photonics Society – 7:00PM, Wednesday, 30 May

III-V Lasers Grown on (001) Si Emitting at Communication Wavelengths

To support an energy-efficient optical interconnect technology enabled by silicon photonics, development of low-power-consumption active devices and associated integration technologies is needed. Quantum dot (QD) active layers grown on lattice-matched III-V substrates have demonstrated their benefits for lasers with low-thresholds and temperature-independent operation. In addition, the reduced sensitivity of QD to defects and their unique capability of filtering dislocations make them an ideal candidate as the gain medium of hetero-integrated III-V on Si optical sources.

In this talk, I will discuss the growth of multi-stack InAs QDs on compliant III-V/Si substrates by MOCVD. Fabrication and laser characteristics of whispering-gallery-mode (WGM) micro-lasers using the grown epitaxial structures will also be discussed. The micro-disk lasers were one to four microns in diameter, with single mode lasing at either 1.3 or 1.55 μm, depending on the barrier/cladding system. With smooth sidewalls and sufficient undercut by wet etching of the pedestal, the air-cladded MDs exhibit ultra-low thresholds of a few □W by optical pumping. Results of electrically-pumped micro-lasers will also be presented. Using the aspect ratio trapping (ART) method, we grew high crystalline quality, well-aligned, in-plane InP/InGaAs nano-ridges on nominal (001) Si substrates. We demonstrate for the first time room-temperature (RT) lasing at telecom-bands from InP/InGaAs nano-ridges. The InGaAs quantum wells (QWs) emitting at telecom-wavelengths were grown inside InP nano-ridges on patterned (001) Si. Then, we achieve lasing through optical pumping after transfer of the InP/InGaAs nano-ridges onto SiO2/Si substrates.

Prof. Kei May Lau, Fang Professor of Engineering, Hong Kong University of Science and Technology, Kowloon, Hong Kong

Kei May Lau is Fang Professor of Engineering at the Hong Kong University of Science and Technology (HKUST). She received the B.S. and M.S. degrees in physics from the University of Minnesota, Minneapolis, and the Ph.D. degree in Electrical Engineering from Rice University, Houston, Texas. She was on the ECE faculty at the University of Massachusetts/Amherst and initiated MOCVD, compound semiconductor materials and devices programs. Since the fall of 2000, she has been with the ECE Department at HKUST. She established the Photonics Technology Center for R&D effort in III-V materials, optoelectronic, high power, and high-speed devices. Professor Lau is a Fellow of the IEEE (2001), a recipient of the US National Science Foundation (NSF) Faculty Awards for Women (FAW) Scientists and Engineers (1991), Croucher Senior Research Fellowship (2008), and the IEEE Photonics Society Aron Kressel Award (2017). She is an Editor of the IEEE EDL and Associate Editor of Applied Physics Letters.

Meeting Details:

This meeting begins at 7 PM Wednesday, May 30th, 2018 and will be located at 3 Forbes Road, Lexington, MA, 02420. Note this is a satellite location ~1.5mi away from MIT Lincoln Laboratory.

The meeting is free and open to the public. All are welcome.

Prior to the seminar there will be social time and networking from 6:30 – 7:00PM. Pizza will also be provided.

The seminar will begin at 7:00PM.

For more information contact Ajay Garg, IEEE Boston Photonics Society chair at ajay.sinclair.garg@ieee.org, or visit the IEEE Boston Photonics Society website at www.bostonphotonics.org.

Directions to 3 Forbes Rd Lincoln Laboratory: (from interstate I-95/Route 128)

Take Exit 30B onto Marrett Rd in Lexington – Merge into left lane. Make the first Left onto Forbes Rd. Proceed straight through the small rotary and enter the parking lot. The entrance is by the flags.

2018 MIT IEEE Undergraduate Research Technology Conference

Call for Submissions

CONFERENCE: Oct 5-7, 2018 | Massachusetts Institute of Technology, Cambridge MA, USA

SUBMISSION DEADLINE: June 30th, 2018

SUBMIT TO: https://ieee-r1-studentconference.myreviewroom.com

Envisioning a technical conference targeted towards undergraduate students all over the globe, the MIT IEEE Student Branch in 2015 inaugurated the IEEE MIT Undergraduate Research Technology Conference. This year we are organizing it again with the goal to make the conference a venue where undergraduate students can meet to present, discuss, and develop solutions advancing technology. Participants can attend a rich program with renowned speakers, technical sessions, a student design competition, exhibits, networking, and social activities, as well as a great opportunity for students to interact with leading industry experts. Our 2017 conference had 267 attendees, including several internationals and students from across the US, with a technical paper acceptance rate of 38%.

The conference theme is "Meet Innovative Technology," and the eight technical tracks include:

1. Machine Learning and Artificial Intelligence
2. Security and Communications
3. Human-Computer Interaction and Graphics
4. Robotics and Controls
5. BioEECS and Applied Physics
6. Computer Systems
7. Circuits, Materials, and Nanotechnologies
8. Theoretical Computer Science and Mathematics

Authors may submit content in the form of a technical paper, poster, or lightning talk.

All submissions must be written in English. Paper submissions must be no longer than 4 pages, single-spaced, with a minimum of 10 point font, and submissions may include figures, illustrations, and graphs. Abstract submissions for the poster and lightning talks are limited to 500 words.

All submissions will be peer-reviewed by faculty, graduate students, and industry professionals. Submissions are online, with a deadline of June 30th, 2018. Notification of acceptance will be sent via email by August 4th, 2018.

Please join the mailing list (MIT-Conference@ieee.org) for more information and updates on submission, the technical program, registration, and accommodation.

A conference proceeding of all the accepted papers that have been presented at the conference may be published and included in the IEEE Xplore journal. Electronic and online media containing all accepted submissions will be distributed to all registered attendees.

MEET INNOVATIVE TECHNOLOGY

Sponsored by the MIT IEEE Student Branch and IEEE Boston Section

http://ieee.scripts.mit.edu/conference

NOTE NEW EVENT DATE, LOCATION AND PAPER SUBMISSION DATES !!!!

Call for Papers and Posters

Co-sponsor: IEEE-USA

Call for Papers & Posters

The 18th annual IEEE Symposium on Technologies for Homeland Security (HST '18), will be held 23-24 October 2018, in the greater Boston, MA area. This symposium brings together innovators from leading academic, industry, businesses, Homeland Security Centers of Excellence, and government agencies to provide a forum to discuss ideas, concepts, and experimental results.

Produced by IEEE with technical support from DHS S&T, 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 to:

- **Cybersecurity**
- **Biometrics & Forensics**
- **Land/ Maritime Borders & Critical Infrastructure Protection**
- **Humanitarian Assistance and Disaster Relief**

We are currently seeking technical paper and poster session submissions in each of the above areas. Papers examining the feasibility of transition to practice will also be considered. *This year, we introduce a new track focused on the highly topical area of Humanitarian Assistance and Disaster Relief.* All areas will cover the following common topics:

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

Contact Information

For more detailed information on the Call for Papers and Posters, as well as Sponsorship and Exhibit Opportunities, visit the website http://ieee-hst.org/ or email: information@ieee-hst.org. Submissions should be made at the following website: http://cmt3.research.microsoft.com/HST2018/

Important Dates

Paper Extended Abstract Deadline:	**May 1, 2018**
Paper, Poster and Acceptance Notification	**July 2, 2018**
Final Paper Submission Deadline:	**September 15, 2018**

All deadlines are by midnight Eastern Time.

Organizing Committee

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IEEE Advancing Technology for Humanity

CALL FOR PAPERS

2019 IEEE International Symposium on

Phased Array Systems and Technology

Revolutionary Developments in Phased Arrays

BOSTON 2019

15–18 October 2019

Westin Waltham Hotel, Greater Boston, Massachusetts, USA

www.array2019.org

About the Symposium

Phased array systems continue to be a rapidly evolving technology with steady advances motivated by the challenges presented to modern military and commercial applications. This symposium will present the most recent advances in phased array technology and provide a unique opportunity for members of the international community to interact with colleagues in the field of Phased Array Systems and Technology.

Suggested Topics

- System Architecture
- Aperture Design
- Antenna Elements
- Beamforming Techniques
- T/R Modules
- Signal Processing for Arrays
- Array Measurements
- Advanced Materials
- Packaging and Manufacturing Techniques
- Applied Computational Electromagnetics
- 5 G
- Metamaterials
- Radio Astronomy

See website: www.array2019.org for details

Special Sessions

Please provide suggestions for special sessions to the Technical Program Chair at info@array2019.org

Paper Template and Submission Procedures

Template and submission procedures are available at www.array2019.org/call-for-papers

General Paper Submission Information

All paper submissions will be peer reviewed and must be received in PDF format via the symposium web site on or before Friday, 15 March 2019.This is a firm deadline. Papers will not be accepted after this date. Papers must be in IEEE dual-column format and must be 2 pages (minimum) to 8 pages (maximum) in length including figures. Additional instructions are on the website www.array2019.org/call-for-papers

Technical Program Schedule

Please note: Our submission process and dates have been streamlined – plan accordingly.

15 March 2019 – Full paper submission deadline

- Submitted paper must be final and in IEEE dual-column format, not an abstract
- Submitted paper must be 2-8 pages in length including figures

30 April 2019 – Author notification of paper acceptance

1 Sept. 2019 – Conference registration deadline for accepted authors

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Advisors:
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v.1.4

Determining and Communicating Project Value Return on Investment (ROI)

ROI Value Modeling ™ for Decision Making

Date & Time: **Wednesday, June 20; 8:30AM - 5:00PM (Note new date!)**

Speaker: **Robin Goldsmith, President, GoPro Management**

Location: **TBD, Woburn - Burlington, MA Area**

Companies are demanding reliable financial measures of proposed projects' value. Yet, project managers often don't know how to identify, calculate, or communicate a project's REAL ROI™ (Return on Investment). Traditional ROI calculations increasingly are being criticized for telling only part of the necessary story. The difficulty afflicts all types of projects but often is greatest in areas like IT, where benefits may seem intangible and frequent overruns impact estimates' credibility. This interactive workshop reveals 22 pitfalls that render common ROI determinations meaningless and shows instead how to identify full-story key effects on revenue and expense variables, reliably quantify tangible and intangible costs and benefits, and convincingly communicate the business value of project investments. Exercises enhance learning by allowing participants to practice applying practical techniques to a real case.

PARTICIPANTS WILL LEARN:

* The financial information that business decision makers need and demand.

* ROI and related calculations, strengths, weaknesses, and common pitfalls.

* Using ROI Value Modeling™ and Problem Pyramid™ to fully identify relevant costs and benefits.

* Quantifying intangibles, risk, flexibility, and opportunity.

* Professionally presenting credible business value measurements so people pay attention.

WHO SHOULD ATTEND: This course has been designed for business, systems, and project managers as well as analysts, implementers, users, and others who must know the return on project investments.

OUTLINE

WHAT MONEY HAS TO DO WITH IT

Project Manager role with regard to ROI
Situations demanding ROI, their issues
Difficulty of making convincing arguments
Linking ROI to the business case
Value Modeling™ Relationship Diagram
Investment vs. expense
Justification vs. objective analysis
Meanings of "It costs too much"
Total Cost of Ownership (TCO)
Factors other than cost to be considered
Costs and benefits, revenues vs. expenses
Return on Investment (ROI) calculations
Net present value, discounted cash flow
Payback period, annualized return
Internal rate of return (IRR), hurdle rate
'Telling the story' not just ROI calculations

Failing to quantify 'intangibles' and risk
Scenario approach to showing benefits
Mistakenly thinking ROI does not apply

DETERMINING MEANINGFUL BENEFITS

Why it's important to find the benefits first
Treacy's model of 5 revenue categories
Problem Pyramid™ to find requirements
Decision variable clarification chain
Putting a dollar value on intangibles
Opportunity, innovation, and flexibility
Mandates, project with no apparent benefits

ESTIMATING CREDIBLE COSTS

Problem Pyramid™ ties costs to value
Basing costs on implementation of design
Business case framework
Basic formula for estimating costs
Main causes of poor estimates
Top-down vs. bottom-up techniques
Risks that afflict ROI calculations
Three measurable ways to address risks
Best-, worst-, most-likely-case scenarios
Sources of parameter sizing assumptions
Defining a reasonable scenario for success
Getting reliable cost and revenue amounts

REPORTING AND MONITORING

Single vs. multiple scenario presentation
Applying apples vs. apples, when you can't
Scenario assumptions and parameters
No change vs. proposed scenarios' ROIs
Measuring intangibles' monetary effects
Continual, step-wise, and one-time changes
Percentage-likelihood impact adjustments
Presenting with spreadsheets
ROI Value Dashboard™ modeling tool
Caution about commercial ROI calculators
Using value modeling to improve decisions
Dashboard and scorecard-type notification
Capturing, calibrating with project actuals
Adjusting appropriately during project

Speaker's Bio: Robin F. Goldsmith, JD is an internationally recognized authority on software development and acquisition methodology and management. He has more than 30 years of experience in requirements definition, quality and testing, development, project management, and process improvement. A frequent featured speaker at leading professional conferences and author of the recent Artech House book, Discovering REAL Business Requirements for Software Project Success, he regularly works with and trains business and systems professionals.

Decision (Run/Cancel) Date for this Courses is Wednesday, June 13, 2018

Payment received by June 6
IEEE Members $235
Non-members $260

Payment received after June 6
IEEE Members $260
Non-members $280

http://ieeeboston.org/determining-communicating

Making You a Leader - Fast Track

Date & Time: **Monday, June 18; 8:30AM - 5:00PM (Note new date!)**

Location: **Hilton Hotel 2 Forbes Road, Woburn, MA**

Speaker: **Robin Goldsmith, President, GoPro Management**

Location: **TBD, Woburn - Burlington, MA Area**

We do projects to make change. Yet, change will not occur without leadership, and leaders are rare. Leaders make others want to do what the leader wants done. Leaders cause ordinary people to achieve extraordinary things. Managing is not the same as leading, and titles do not make leaders. Seminars can teach you to manage, but they cannot teach you to be a leader. Rather, making a leader takes special techniques—such as our personal development clinics—that can change deep-seated behaviors learned over a lifetime.

However, since clinics usually last about ten weeks, this mini-clinic was devised as a more convenient alternative. This format places responsibility upon the participant to carry out an extended informal follow-on program after completion of the formal seminar workshop session.

During the follow-on period, the participant uses time-condensed methods that simulate the lifetime learning which makes a leader. Therefore, commitment to carrying out these exercises is essential for successful transformation.

PARTICIPANTS WILL LEARN:

- Leadership characteristics and practices that are essential for project and personal success.
- Differences between management and leadership, how they conflict, and why leaders are so rare.
- Behaviors leaders use to influence others, up and down, to want to do what the leader wants them to do
- Special techniques personal development clinics use to change lifetime learning and make leaders.
- How to employ those special techniques in a follow-on mini-clinic to develop the leadership skills they need to make their projects successful.

WHO SHOULD ATTEND: This course has been designed for business and systems professionals who want to improve their ability to lead and influence other people.

LEADERSHIP CHARACTERISTICS & ROLE
How leadership looks and feels
Management vs. leadership
Leadership components of project success
Basic leadership practices; power sources
Real change leaders in organizations

TEAMS AND LEADERSHIP
Everyone feels leadership is lacking
Everyone thinks s/he is a leader
Results, not actions or intent
Workgroups, teams, and leaders
Situational leadership styles
Coaching and sports analogies to projects

INSPIRING AND MOTIVATING
Gaining commitment to project success
Communicating that influences others
Addressing negativism and groupthink
Conscious and unconscious messages
Greatest management principle
Hierarchy of needs effects on projects
Hygiene factors vs. motivators

Helping project players get their rewards
Influencing up and down without authority
Inspiring the extra efforts projects need
Energizing the project team

SHARED VISIONS
Relating values and vision to projects
Getting others to embrace one's vision
Developing a motivating project vision

WHERE AND HOW LEADERS ARE MADE
Born or made? How do we know?
Habits of thought that affect project success
Overcoming self-limiting lifetime learning
Leader's critical success factors
Traditional education doesn't make leaders
Special way—personal development clinics

SETTING AND ACCOMPLISHING GOALS
S.M.A.R.T. goals for self and project
Action plans to achieve your goals
Visualizing and emotionalizing

DEFINING THE FOLLOW-ON PROGRAM
Clarifying project leadership objectives
Breaking into prioritized subgoals
Establishing rewarding daily achievements
Special techniques to change habits

CARRYING OUT THE MINI-CLINIC
Working with a follow-up support structure
Mapping results regularly to goals
Objectively recording leadership changes
Self-leadership through the process

Speaker's Bio: Robin F. Goldsmith, JD is an internationally recognized authority on software development and acquisition methodology and management. He has more than 30 years of experience in requirements definition, quality and testing, development, project management, and process improvement. A frequent featured speaker at leading professional conferences and author of the recent Artech House book, Discovering REAL Business Requirements for Software Project Success, he regularly works with and trains business and systems professionals.

Decision (Run/Cancel) Date for this Courses is Monday, June 11, 2017

Payment received by June 4
IEEE Members $235
Non-members $260

Payment received after june 4
IEEE Members $260
Non-members $280

http://ieeeboston.org/event/making-leader-fast-track-leader-want-need/

Proactive User Acceptance Testing ™ -- Confident Competence

The Testing Users Need to be Confident the Software they Depend on Works

Date & Time: Thursday, June 21; 8:30AM - 5:00PM (Note new date!)

Speaker: Robin Goldsmith, President, GoPro Management

Location: TBD, Woburn - Burlington, MA Area

Projects aren't complete until users/customers are sure the systems they depend on actually meet business requirements, work properly, and truly help them do their jobs efficiently and effectively. However, users seldom are confident or comfortable testing system acceptability. Project Managers and Testing professionals need to know how to guide and facilitate effective acceptance testing without usurping the user's primary role. This intensive interactive seminar shows what users need to know to confidently make the best use of their time planning and conducting acceptance tests that catch more defects at the traditional tail-end of development, while also contributing in appropriate ways to reducing the number of errors that get through the development process for them to catch in UAT. Exercises give practice using practical methods and techniques.

PARTICIPANTS WILL LEARN:

* Appropriate testing roles for users, developers, and professional testers; and what each shouldn't test.

* How Proactive Testin™ throughout the life cycle reduces the number of errors left to find in UAT.

* Key testing concepts, techniques, and strategies that facilitate adaptation to your situation.

* Systematically expanding acceptance criteria to an acceptance test plan, test designs, and test cases.

* Supplementing with requirements-based tests, use cases, and high-level structural white box tests.* Techniques for obtaining/capturing test data and carrying out acceptance tests.

WHO SHOULD ATTEND: This course has been designed for business managers and system users responsible for conducting user acceptance testing of systems they must depend on, as well as for system and project managers, analysts, developers, quality/testing professionals, and auditors.

ROLE OF USER ACCEPTANCE TESTING

- Why users may resist involvement
- Making users confident about testing
- Objectives, types, and scope of testing
- Acceptance testing as user's self-defense
- Why technical tests don't catch all the errors
- Essential elements of effective testing
- CAT-Scan Approach™ to find more errors
- Proactive Testing™ Life Cycle model
- Separate technical and acceptance test paths
- Place of UAT in overall test structure
- Making sure important tests are done first
- Developer/tester/user test responsibilities

DEFINING ACCEPTANCE CRITERIA

- Defining acceptance test strategy up-front
- Source and role of acceptance criteria

5 elements criteria should address
Functionality the user must demonstrate
How much, how often user must test
Determining system quality
Who should carry out acceptance tests
How acceptance tests should be performed
Added benefit, revealing requirements errors

DESIGNING ACCEPTANCE TEST PLANS

Expanding the acceptance criteria
Allocating criteria to system design
Refining the design to catch oversights
Checklist of common problems to test
Equivalence classes and boundary values
Making quality factors (attributes) testable
Structural testing applicable to users
GUI features that always need to be tested
Defining requirements-based tests
Constructing use cases
Cautions about use case pitfalls
One- and two-column use case formats
Turning use cases into tests
Consolidating tests into efficient test scripts

CARRYING OUT ACCEPTANCE TESTS

Differentiating test cases and test data
Traps that destroy value of acceptance tests
Warning about conversions
Documentation, training, Help tests
Configuration, installation, localization
Security, backup, recovery tests
Suitability of automating acceptance testing
Performance, stress, load testing
Issues on creating test conditions, data
Capturing results, determining correctness
User's defect tracking and metrics

Speaker's Bio: Robin F. Goldsmith, JD is an internationally recognized authority on software development and acquisition methodology and management. He has more than 30 years of experience in requirements definition, quality and testing, development, project management, and process improvement. A frequent featured speaker at leading professional conferences and author of the recent Artech House book, Discovering REAL Business Requirements for Software Project Success, he regularly works with and trains business and systems professionals.

Decision (Run/Cancel) Date for this Courses is Thursday, June 14, 2018

Payment received by June 7
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http://ieeeboston.org/proactive-user-acceptance

Writing Agile User Story and Acceptance Test Requirements

Date & Time: Tuesday, June 19; 8:30AM - 5:00PM (Note new date!)

Speaker: Robin Goldsmith, President, GoPro Management

Location: TBD, Woburn - Burlington, MA Area

Everyone complains that poor requirements are the major cause of project problems. Yet, like the weather, nobody does much about it, at least not effectively. Traditional approaches advocate writing voluminous requirements documents that too often don't seem to help much and may even contribute to difficulties. Agile goes to the opposite extreme, relying on brief requirements in the form of three-line user stories that fit on the front an index card and a few user story acceptance criteria that fit on the card's back. Surprise, as Mark Twain noted, in some ways it's even harder to write Agile's brief requirements effectively. This interactive workshop reveals reasons user stories and their acceptance tests can fall short of their hype, explains critical concepts needed for effectiveness, and uses a real case to provide participants guided practice writing and evaluating user stories and their acceptance criteria/tests.

PARTICIPANTS WILL LEARN:

* Major sources of poor requirements that cause defects, rework, and cost/time overruns.

* How Agile user stories and their acceptance criteria/tests address these issues.

* Difficulties that still afflict requirements in Agile projects and why they persist.

* Writing more effective user stories and acceptance criteria/tests.

* What else is necessary to produce working software that provides real value.

WHO SHOULD ATTEND:

This course has been designed for product owners, analysts, developers, and other Agile (and other) project team members who are or should be involved in defining requirements.

AGILE, USER STORY FUNDAMENTALS

Agile Manifesto's relevant points
Characterization of traditional approaches
Waterfall and big up-front requirements
Agile's sprints and backlogs alternative
Agile project team roles
User story "As a <role>…" (Card)
User story acceptance criteria (Confirmation)
Estimating user story size
Splitting and refining
Prioritizing and allocating to backlogs/sprint
Constructing/implementing (Conversations)
Reviewing, retrospectives
Grooming backlog and reprioritizing
Exercise: Write Needed User Stories
Exercise: Define their Acceptance Criteria
Exercise: Review Your User Stories/Criteria

REQUIREMENTS ARE REQUIREMENTS—OR MAYBE NOT

User stories are backlog items, features
Chicken and egg relation to use cases
Issues and inconsistencies
Business vs. product/system requirements

"Levels Model" of requirements
Other mistaken presumptions
Requirements overview
Where user stories should fit, do fit instead
Conversation conundrum

WRITING MORE SUITABLE USER STORIES

Problem Pyramid™ tool to get on track
Exercise: Using the Problem Pyramid™
Exercise: Business Requirement User Stories
Issues identifying requirements
Product owner and business analyst roles
Project team participation
Dictating vs. discovering
Data gathering and analysis
Planning an effective interview
Controlling with suitable questions
Then a miracle occurs…

AND USER STORY ACCEPTANCE TESTS

Missed and unclear criteria
Turning criteria into tests, issues
How many tests are really needed
Test design techniques
Checklists and guidelines
Decision trees, decision tables
Boundary testing
Testing is main means to control risk
Defects and new user stories
Testing that user story focus misses
Reactive vs. proactive risk analysis
Given, when, then format

Exercise: Write User Story Acceptance Criteria
Exercise: Design their Tests
Exercise: Review Your User Stories/Tests

Speaker's Bio: Robin F. Goldsmith, JD is an internationally recognized authority on software development and acquisition methodology and management. He has more than 30 years of experience in requirements definition, quality and testing, development, project management, and process improvement. A frequent featured speaker at leading professional conferences and author of the recent Artech House book, Discovering REAL Business Requirements for Software Project Success, he regularly works with and trains business and systems professionals.

Decision (Run/Cancel) Date for this Courses is Tuesday, June 12, 2018

Payment received by June 5
IEEE Members $235
Non-members $260

Payment received after June 5
IEEE Members $260
Non-members $280

http://ieeeboston.org/writing-agile-user-story

Developing Reusable Test Designs

Be an Instant Expert--Run More, and More Thorough, Tests in Less Time

Date & Time: **Friday, June 22; 8:30AM - 5:00PM (Note new date!)**

Speaker: **Robin Goldsmith, President, GoPro Management**

Location: **TBD, Woburn - Burlington, MA Area**

Would you like to be an instant testing expert, able to start testing effectively in new situations without delay? And would you like to spend more of your time running tests and less of your time creating the tests? Reusable test designs are a little-known but powerful test planning/design tool that make it possible for you to run more effective test cases in less time. This interactive seminar workshop shows you how to apply a systematic structured Proactive Testing™ approach that first enables you to design much more thorough tests than traditional methods. Then, you'll discover how to convert your test designs into reusable test designs that you can apply instantly in new situations. You'll develop several reusable test designs in class and be ready to add more to your toolkit back on the job. Exercises enhance learning by allowing participants to practice applying practical techniques to an actual case.

Participants will learn:

- How test designs fit into the overall test planning structure and provide special advantages
- Systematic reliably repeatable methods for identifying test designs to test a given system.
- Checklists and guidelines that enable you to spot the conditions traditional methods overlook.
- Converting your project-specific test designs into reusable test designs you can use for other systems.
- Applying reusable test designs to jumpstart your testing with instant expertise and effectiveness.
- Quickly and reliably selecting the subset of test cases suitable for scale and risk.

WHO SHOULD ATTEND: This course has been designed for testers, managers, analysts, designers, programmers, auditors, and users who plan, oversee, and/or carry out testing of software products.

PROACTIVE TEST DESIGN BENEFITS

Proactive vs traditional reactive testing
Proactive Testing™ Life Cycle advantages
IEEE Standard for Test Documentation
Often-overlooked key to proper prioritizing
Systematic drill-down strategy
Master and detailed test plans
Test design specifications
Test case specifications
How taking time to structure saves time
Structuring to make test sets manageable
Facilitating reconstruction of test data
Taking off the blinders to allow selectivity
Re-using instead of rebuilding test designs
Instant expertise for testing new situations

IDENTIFYING NEEDED TEST DESIGNS

Functional (black box) testing
Three-level approach to functional testing
Keys for thoroughness
Breaking down to manageable pieces

Functionality Matrix technique
Use case perspective
Technical software actions
Test design specifications that are needed

DESIGNING TESTS MORE THOROUGHLY

How designing adds thoroughness
Traditional test design still misses a lot
Focused brainstorming for a better start
Checklists and guidelines to fill the gaps
Tests based on data formats
Coverage of data and process models
Decision trees and tables
Concerns common to all types of testing
Equivalence classes and partitioning
Ranges and boundary testing
GUI and navigation issues
Often-overlooked other dimensions to test
Formal/informal test design specifications
Extracting the reusable elements
Enhancing with system-specific tests
Link to driving effective automated tests

SPECIFYING (REUSABLE) TEST CASES

Translating test designs into test cases
Selecting scaled subset based on risk
Reusable test case specifications
Other essential test case component
Finding and creating test data
Test script and matrix formats
Simple and sophisticated automation

Speaker's Bio: Robin F. Goldsmith, JD is an internationally recognized authority on software development and acquisition methodology and management. He has more than 30 years of experience in requirements definition, quality and testing, development, project management, and process improvement. A frequent featured speaker at leading professional conferences and author of the recent Artech House book, Discovering REAL Business Requirements for Software Project Success, he regularly works with and trains business and systems professionals.

Decision (Run/Cancel) Date for this Courses is Friday, June 15, 2018

Payment received by June 8
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Payment received after June 8
IEEE Members $260
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http://ieeeboston.org/developing-reusable-test-designs

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Call for Papers

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About the Conference

22-26 April 2019

Westin Waterfront Hotel
Boston, Massachusetts, USA
www.radarconf19.org

A radar revolution is underway, made possible by the rapid evolution of digital electronics, and powered by new innovative architectures, advanced components, novel waveforms and sophisticated processing techniques. Please join us in historic Boston, birthplace of the original American Revolution, as we continue this new revolution in radar technology. The beautiful Westin Waterfront hotel, located in the heart of Boston's seaport district, will make the perfect venue for the international community as we meet to share the latest advances in radar. The conference will include three days of parallel technical sessions, and two days of tutorials with ample opportunity to interact with international radar experts from around the world.

Tutorials and Special Sessions

Please submit suggestions for tutorial topics or special sessions to the Technical Program Chair at info@radarconf2019.org

Suggested Topics

- Radar phenomenology
- Antenna technology
- Radar Electronics
- Over the horizon radar (OTHR)
- Bistatic, multistatic & passive radar
- Networked & distributed radar
- Commercial radar
- mm-wave & THz radar
- Environmental Sensing
- Airborne & space based
- SAR and ISAR imaging
- ATR and classification
- Tracking
- Cognitive methods
- Waveform diversity
- Spectrum sharing
- Electronic warfare
- Emerging Systems and Technology

Paper Submission Procedures

See website for details

Important Dates	
Special Session Proposals Due	17 Aug 2018
Tutorial Submissions Due	30 Aug 2018
Paper Submissions Due	17 Oct 2018
Notification of Acceptance	14 Jan 2019
Paper Submission Due	25 Feb 2019

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Draft 02

Fundamentals of Real-Time Operating Systems (*Online Edition*)

New Online Course

Students have access to this self-paced course for 90 days!!

Registration Fee: $350

Course Summary - This course introduces the basics of Real-Time Operating Systems (RTOSes) using VxWorks and Linux as examples. The course focuses on the primary principles of RTOSes including determinism, real-time scheduling, interrupt latency and fast context switching as well as time and space partitioning in hard real-time environments. The first part of the course focuses on acquiring an understanding of microkernel and memory architectures for Real-Time including scheduling, signals, system calls, synchronization, inter-process communications and interrupt handling. The latter part of the course covers considerations for timing, memory management, device drivers, booting, debugging and deployment of Real-Time embedded systems.

Who Should Attend - The course is designed for real-time engineers who are using or intending to use a Real-Time Operating System. It is also targeted at experienced developers requiring a refresher course on RTOSes. This course will clearly demonstrate both the strengths and weaknesses of Real-Time Operating Systems used in Embedded Systems.

Course Objectives

- To provide a basic understanding of Real-Time Requirements and Design Decisions
- To understand the complexities of RTOS scheduling and synchronization
- To learn how to configure, boot, test and deploy Real-Time embedded systems
- To give students the confidence to apply these concepts to their next RTOS project

Lecturer – Mike McCullough is President and CEO of RTETC, LLC. Mike has a BS in Computer Engineering and an MS in Systems Engineering from Boston University. He has held a variety of software engineering positions at LynuxWorks, Embedded Planet, Wind River Systems and Lockheed Sanders. RTETC, LLC provides Real-Time embedded training and consulting to many embedded systems companies. RTETC focuses on Real-Time operating systems (RTOS), Linux and Android solutions for the embedded systems market.

Hardware and Software Requirements - The student should have a working Linux desktop environment either directly installed or in a virtualization environment or have access to a development environment for a Real-Time Operating System such as VxWorks. An Embedded Linux or VxWorks target hardware platform is useful but not absolutely required for this course.

Embedded Development Basics

Embedded Systems Characteristics
Embedded Real-Time Systems
Real-Time Enough
Embedded Linux and Real-Time

Real-Time Operating System Basics

Microkernel Architecture
Microkernel Scheduling
Determinism
Rate Monotonic Analysis and Fixed Priority Scheduling
Latency and Latency Measurements
Fast Context Switching
Real-Time Memory Architectures
Time and Space Partitioning and ARINC
Multiprocessor Basics
Amdahl's Law

RTOS Kernel Overview

Real-Time Scheduling and Task Management
Signals and System Calls
Synchronization

Inter-Process Communications (IPC)
Interrupt Handling
Error Handling
Timing and Timers
Real-Time Memory Management

Real-Time Scheduling
OS Scheduling Types
Pre-emptive Multitasking
Typical Scheduling Issues
Linux Scheduling
VxWorks Scheduling
VxWorks Tasks
VxWorks Real-Time Processes (RTPs)
Linux Threads
Task and Thread-Specific Data (TSD)
Measuring Task and Thread Performance

Signals in Embedded RTOSes

System Calls in Embedded RTOSes

Synchronization
Via Global Data
Via Semaphores, Files and Signals
Condition and Completion Variables in Linux
Mutexes in VxWorks and Linux
Linux Futexes
Software Watchdog Timers

Inter-Process Communications (IPC)
More Semaphores
Message Queues
Shared Memory
Pipes and FIFOs
Remote Procedure Calls
Networking

Interrupts and Exception Handling
Basic Interrupt Process
VxWorks intLib and excLib
Routines You Can Call From Interrupt Context

Interrupt Service Routines (ISRs)
VxWorks and Linux ISRs

Bottom Halves in Linux

Deferring Work
Tasklets and Work Queues in Linux
Helper Tasks

Error Handling
Error Handling Approaches in OS Design

Error Handling in VxWorks
Error Handling in Tasks and Interrupts
Error Number Format
Using errnoSet, errnoGet and printErrno
Creating Your Own Errors

Error Handling in Linux
Standard Error Defines
errno and perror
strerror and strerror_r
Resets, OOPS, Panics and Segmentation Faults

Error Logging Approaches

Timing and Timers
How RTOSes Tell Time
VxWorks tickLib and timerLib
Linux Kernel, POSIX and Interval Timers
Linux High-Resolution Timers (HRTs)
VxWorks taskDelay
Linux Sleeping, Sleep Waiting and Spinlocks
VxWorks Watchdog Timers (wdLib)
Periodic Execution Example
Deadline Miss Detection
Embedded Recommendations for Timing

Memory Management and Paging
The VxWorks Memory Model
Real-Time Memory Algorithms
VxWorks memLib and memPartLib
Linux, Memory and Demand Paging
Mapping Device Memory in Linux
The Slab Allocators in Linux
The Linux /proc Filesystem
Memory Barriers
The Linux OOM Killer
Reserving and Locking Memory
Memory in Embedded Systems

Device Drivers in VxWorks
File Descriptors
The VxWorks IO Subsystem
VxWorks ioLib, fioLib and iosLib

The 5 Basic Device Driver Types
Char, Block and Network Drivers
Virtual Drivers and Basic I/O Drivers
Other Device Drivers
The VxBus in VxWorks

Device Drivers in Linux
File Descriptors in Linux
The UNIX Device Driver Model
Major and Minor Numbers
The New Device Driver Model

The VxWorks Boot Process
VxWorks Boot Example
Configuration Files
Application Startup
VxWorks 7

The Linux Boot Process
The Root Filesystem in Linux
Bootloaders and U-Boot
Configuring Linux
Embedded Linux Boot Methods
Building and Booting from SD Cards and eMMC
Yocto and Poky

Debugging Basics
How Software Debuggers Work
Debuggers and Intrusion
Types of Debugging Approaches
Process-Level vs System-Level Debug

Process-Level Debug
GDB, GDB Server and the GDB Server Debugger
The VxWorks Debug Agent (WDB)
Other Debug Tools for Linux and VxWorks
A Remote Debug Example
Printing and Logging

System-Level Debug
LTTng and the VxWorks Systems Viewer (Windview)
System-Level Debug Tools
The /proc and /sys Virtual Filesystems in Linux
Linux Kernel Debug
Linux Crash Dumps

Deploying VxWorks Systems
VxWorks Systems Customization and Configuration
VxWorks Field Upgrades

Deploying Embedded Linux Systems
Linux Systems Customization and Configuration
Choosing and Building the Root Filesystem
Module Decisions
Final IT Work
Final deployment of Embedded Linux Field Systems

RTOS Trends

Some Final Recommendations
Getting Help
Measuring Performance
Managing Memory
Things To Remember

Regsitration will be available by April 15. Look on our website (www.ieeeboston.org) or in the May Digitial Reflector

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Embedded Linux Board Support Packages and Device Drivers (*Online Edition*)

Students have access to this self-paced course for 90 days!!

Registration Fee: $350

Course Summary - This video course provides advanced training in the development of Embedded Linux Board Support Packages (BSPs) and Device Drivers. The first part of the course focuses on BSP and Software Development Kit (SDK) development in an Embedded Linux context with a focus on application performance measurement and improvement. The latter part of the course covers Embedded Linux Device Driver development including key device driver decisions and deployment considerations for Embedded Linux BSPs.

Who Should Attend - The course is designed for real-time engineers who are developing Embedded Linux BSPs and Device Drivers for Embedded Linux distributions. It is also targeted at experienced developers requiring a refresher course on Linux BSP and Device Driver development.

Course Objectives

- To gain an understanding of the complexities of BSP and SDK development and their uses in Embedded Linux systems.
- To provide a basic understanding of the Linux I/O Subsystem and the Device Driver Models provided with Embedded Linux distributions.
- To gain an in-depth understanding of character-based device drivers in Embedded Linux
- To understand key device driver subsystems including relatively slow I/O interconnects such as I2C, SPI and USB as well as high-speed interfaces such as Ethernet, USB 3.0 and PCIe
- To give students the confidence to apply these concepts to their next Embedded Linux project.

Lecturer – Mike McCullough is President and CEO of RTETC, LLC. Mike has a BS in Computer Engineering and an MS in Systems Engineering from Boston University. A 20-year electronics veteran, he has held various positions at LynuxWorks, Tilera, Embedded Planet, Wind River Systems, Lockheed Sanders, Stratus Computer and Apollo Computer. RTETC, LLC is a provider of Eclipse-based software development tools, training and consulting services for the embedded systems market.

Course Schedule

Getting Started with Embedded Linux

Embedded Linux Training Overview
Linux Terminology, History and the GPL
Building the Kernel Source Code
Embedded Linux Kernels
BSPs and SDKs
Linux References (Books and Online)
BSP Requirements
U-Boot and Bootloader Development
Embedded Linux BSP Development Basics
Basic BSP Development
Files and Filesystem Support
The I/O Subsystem: Talking to Hardware
Memory Management and Paging
Error Handling in Embedded Linux BSPs
Timing and Timers
Interrupt and Exception Handling in BSPs
BSP Deployment Issues and Practices
Embedded Linux SDK Basics
The 3 Pieces of an SDK
Embedded Linux Distributions and the GNU Compiler

Collection (GCC)
Other Embedded Linux Development Tools
Library Support, Glibc and Alternatives
SDK Deployment and Support
Debugging
GDB, GDB Server and the GDB Server Debugger
Other Debug and Test Tools
An Eclipse Remote Debug Example
Advanced Debug with printk and syslogd
System-Level Debug
System-Level Debug Tools
The /proc and sys Filesystems
Advanced Logging Methods
KGDB and KDB
Crash Dumps
Debugging Embedded Linux Systems
Configuring Embedded Linux
Config Methods
Config Syntax
Adding Code to the Linux Kernel
Booting Embedded Linux
Processor Startup
Initial Functions
The initcalls
Using __init Functions
NFS Booting
Root File Systems
RAMdisk Booting with initrd
RAMdisk Booting with initramfs
initrd vs initramfs
Root File System Development
Busybox Development
Building a RAMdisk for an initrd
Building a RAMdisk for an initramfs
Flash File System Development

Testing and Debug of Embedded Linux BSPs
Kernel Debug and Kernel Probes
Kexec and Kdump
The Linux Test Project (LTP)
Performance Tuning Embedded Linux BSPs
Virtualization
Measuring Embedded Linux BSP Performance
Common Considerations
Uncommon Considerations
BootLoader Optimizations
Boot Time Measurements
Effective Memory and Flash Usage
Filesystem Performance Measurement
Some Ideas on Performance Measurement

The Original UNIX Device Driver Model
The fops and file structs
The inode and dentry structs
Major and Minor Numbers
Embedding Channel Information
Deferring Work
The /proc Filesystem
Configuring the Device Driver
A Simulated Device Driver
Modularization Revisited
The Evolution of a New Driver Model
The Initial Object-Oriented Approach
Platform Devices and Drivers
A Generic Subsystem Model
The Generic Subsystem Model in Detail
Subsystem Registration
The Probe and Init Functions
The Show and Store Functions
User Access via the /sys Filesystem
Configuring the New Device Driver
The udev Linux Application
Comparing the Two Driver Models
The Flattened Device Tree (FDT)
openBoot and its Effect on Embedded Linux
The Device Tree Script (dts) File
The Device Tree Compiler (dtc)
The Device Tree Blob (dtb) File
Building a dtb File
Hybrid Device Drivers
Other fops Functions
The Need for Ioctl
Linux Device Driver Subsystems
Direct Connect Device Drivers
Serial/Console Drivers, I2C & SPI
Real-Time Clocks and Watchdogs
GPIO and the Pinmux
Flash MTDs and Direct Memory Access
USB, Power and CPU Management
Video and Audio

PCI and VME
Block Devices
RAMdisk and Flash Filesystems
MMCs and SD Cards
Network Device Drivers
MAC and PHY Device Drivers
net_device and net_device_stats
Network Device Initialization
Device Discovery and Dynamic Initialization
Network Interface Registration
Network Interface Service Functions
Receiving and Transmitting Packets
Notifier Chains and Device Status Notification
Unwired Device Drivers
Wireless Device Drivers (WiFi, WLAN)
Bluetooth and BlueZ
Infrared and IrDA
Cellular from 2G to 5G
Drivers in User Space
Accessing I/O and Memory Regions
User Mode SCSI, USB and I2C
UIO
High-Speed Interconnects
PCIe
iSCSI
Infiniband
FibreChannel
Debugging Device Drivers
kdb, kgdb and JTAG
Kernel Probes
Kexec and Kdump
Kernel Profiling
User Mode Linux
Performance Tuning Device Drivers
Some Final Recommendations

http://ieeeboston.org/embedded-linux-bsps-device-drivers-line-course/

Embedded Linux Optimization - Tools and Techniques (*Online Edition*)

Students have access to this self-paced course for 90 days!!

Registration fee: $250

Summary - This video course provides advanced training in the debugging, testing, profiling and performance optimization of Embedded Linux software. The first part of the course focuses on advanced debugging, testing and profiling in an Embedded Linux context with a focus on using Eclipse, Backend Debuggers, JTAG and In-Circuit Emulators as well as Kernel Logging capabilities and Kernel Hacking. The latter part of the course covers performance measurement and optimization affecting boot, memory, I/O and CPU performance and key performance optimization tools for Embedded Linux software including the perf tool, advanced cache usage and compiler-based optimization.

Who Should Attend - The course is designed for real-time engineers who are developing high-performance Linux applications and device drivers using Embedded Linux distributions. It is also targeted at experienced developers requiring a refresher course on Advanced Embedded Linux optimization.

Course Objectives

- To understand debugging, profiling and testing high performance Embedded Linux software.
- To provide an overview of Linux application performance measurement and optimization.
- To understand the tools used for performance optimization of Embedded Linux software.
- To give students the confidence to apply these concepts to their next Embedded Linux project.

Lecturer – Mike McCullough is President and CEO of RTETC, LLC. Mike has a BS in Computer Engineering and an MS in Systems Engineering from Boston University. He has held a variety of software engineering positions at LynuxWorks, Embedded Planet, Wind River Systems and Lockheed Sanders. RTETC, LLC provides real-time embedded training and consulting to many embedded systems companies. RTETC focuses on real-time operating systems (RTOS), Linux and Android solutions for the embedded systems market.

Getting Started with Embedded Linux
Embedded Linux Training Overview
Terminology
Linux Versioning
The GPL
Building the Kernel Source Code
Embedded Linux Kernels
BSPs and SDKs
Linux References (Books and Online)
A Development Cycle Focused on Performance
A Basic Optimization Process

Basic Debugging Review
Embedded Applications Debug
GDB, GDB Server and the GDB Server Debugger
Other Debuggers
An Eclipse Remote Debug Example
Debugging with printk, syslog, syslogd and LTTng

System-Level Debug
System-Level Debug Tools
The /proc and /sys Filesystems

Basic Logging
KDB and KGDB
Crash Dumps and Post-Mortem Debugging
Debugging Embedded Linux Systems
Backend Debuggers
In-Circuit Emulators
Hardware Simulators
Analyzers
Requirements Development
Performance Requirements
Derived Requirements
Testability and Traceability
Reviewing Requirements
Designing for Performance
Design for Test (DFT)
Agile Software Design
Software and Linux Decomposition
Memory Management
CPU and OS Partitioning
Design Reviews
Coding for Performance
Coding Standards and Consistency
Languages, Libraries and Open Source Components
Learning Magic Numbers
Letting Compilers Work For You
Global, Static and Local Variables
Code Reviews

Software Testing
Unit-Level Testing
System-Level Testing
Code Coverage Tools
gcov
Automated Testing
Some Embedded Linux Test Recommendations
DebugFS
Configuring DebugFS
DebugFS Capabilities
Advanced Logging
LogFS
Using Logwatch and Swatch
Using syslogd and syslog-ng
Tracing
ptrace and strace
New Tracing Methods
SystemTap
Ftrace, Tracepoints and Event Tracing
Tracehooks and utrace
Profiling
Basic Profiling
gprof and Oprofile
Performance Counters
LTTng
Another DDD Example
Manual Profiling
Instrumenting Code
Output Profiling
Timestamping
Addressing Performance Problems
Types of Performance Problems
Using Performance Tools to Find Areas for Improvement
Application and System Optimization
CPU Usage Optimization
Memory Usage Optimization
Disk I/O and Filesystem Usage Optimization
Measuring Embedded Linux Performance
Some Ideas on Performance Measurement
Common Considerations
Uncommon Considerations
Using JTAG Methods
BootLoader Measurements
Boot Time Measurements
The Perf Tool
Origins of Perf
The Perf Framework
Perf Commands and Using Perf
Listing Events
Counting Events
Profiling with Perf
Static Tracing with Perf
Dynamic Tracing with Perf
Perf Reporting
Performance Tool Assistance
Recording Commands and Performance
System Error Messages and Event Logging
Dynamic Probes
Jprobes and Return Probes
Kernel Probes

Kexec and Kdump
- Improving Boot Performance
- Boot Time Optimization
- The Linux Fastboot Capability
- Building a Smaller Linux
- Building a Smaller Application
- Filesystem Tips and Tricks
- Some Notes on Library Usage
- Improving Kernel Performance

Kernel Hacking
CONFIG_EMBEDDED
Configuring printk
Test Code
Configuring Kernel and IO Scheduling

- Improving CPU Performance

Run Queue Statistics
Context Switches and Interrupts
CPU Utilization
Linux Performance Tools for CPU
Process-Specific CPU Performance Tools
Stupid Cache Tricks
- Improving System Memory Performance

Memory Performance Statistics
Linux Performance Tools for Memory
Process-Specific Memory Performance Tools
More Stupid Cache Tricks
- Improving I/O and Device Driver Performance
- Disk, Flash and General File I/O
- Improving Overall Performance Using the Compiler
- Basic Compiler Optimizations
- Architecture-Dependent and Independent Optimization
- Code Modification Optimizations
- Feedback Based Optimization
- Application Resource Optimization
- The Hazard of Trust
- An Iterative Process for Optimization
- Improving Development Efficiency
- The Future of Linux Performance Tools

Some Final Recommendations

http://ieeeboston.org/embedded-linux-optimization-tools-techniques-line-course/

IEEE Boston Section Social Media Links:

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

Software Development for Medical Device Manufacturers *(Online Edition)*

Students have access to this self-paced course for 90 days!! ***Registration Fee : $125***

Course Description This course provides an introduction to the development of medical device software. The course is comprised of 4 modules that range from 30-45 minutes in duration. The focus is on complying with FDA Design Controls and IEC 62304 requirements.

This course is intended for software developers who are actively involved in developing medical device software.

Module 1

- Medical Device Definitions: FDA and European Union (EU)
- Regulatory Roadmap
- FDA/EU Device Classifications
- FDA QSR Regulation
- FDA Guidance Documents that pertain to medical device software

Module 2

- International Standards that pertain to medical device software
- Types of Software Regulated by FDA
- Quality System basics: Procedures, Work Instructions and Records
- ALL Software is Defective…

Module 3:

- Design Control Overview
- General Requirements
- Design and Development Planning
- Software Development Models
- Design Input
- About Requirements…
- Design Output
- Design Reviews

Module 4:

- Design Control (continued)
- Design Verification
- Software Verification Process
- Testing Overview
- Design Validation
- Software Validation Process
- Design Changes
- Design Transfer
- Design History File
- Course Summary

Speaker Bio:

Steven R. Rakitin has over 40 years experience as a software engineer including 25 years of experience in the medical device industry. He has worked with over 85 medical device manufacturers worldwide, from startups to Fortune 100 corporations. He has written several 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 and a member of MassMEDIC. He is on the Editorial Review Board for the ASQ Journal Software Quality Professional.

As President of Software Quality Consulting Inc., he helps medical device companies comply with FDA regulations, guidance documents, and international standards in an efficient and cost-effective manner.

http://ieeeboston.org/software-development-medical-device-manufacturers-line-course/

Fundamental Mathematics Concepts Relating to Electromagnetics (*Online Edition)*

Students have access to this self-paced course for 90 days!!

Registration Fee: $150

Course Summary This course is designed for people wishing to refresh or to learn the fundamental mathematical concepts that are used to describe electromagnetic wave behavior. The modules address all of the basic math concepts covered in a traditional undergraduate electromagnetics course in an ECE curriculum. These concepts include Vector Basics, Integral Vector Calculus, Differential Vector Calculus, Fundamental Coordinate Systems and Complex Numbers. After completing these modules, a person should have sufficient math skills to pursue graduate studies in electromagnetics and/or be able to decipher the math presented in an upper-level text on the subject.

Target audience: This course is designed for people wishing to refresh or to learn the fundamental mathematical concepts that are used to describe electromagnetic wave behavior.

Course chapters

1. Vector Basics
2. Dot Product
3. Cross Product
4. Contour Integration
5. Vector Algebra
6. Surface Integration
7. Metric Coefficients
8. Coordinate Systems
9. Vector Coordinate Conversion
10. Del Operator and the Gradient
11. The Curl
12. Divergence
13. Stokes Theorem
14. Divergence Theorem
15. Laplacian
16. Complex Numbers

Instructor's Bio:

Dr. Kent Chamberlin is the Chair and a Professor in the Department of Electrical and Computer Engineering. In his more than thirty-five years in academia, he has performed research for more than twenty sponsors, including the National Science Foundation. He has received two Fulbright awards, including the prestigious Fulbright Distinguished Chair, which he served in Aveiro, Portugal. He has also served as an Associate Editor for the Institute for Electrical and Electronics Engineers, and he continues to be active in performing and publishing in a range of research areas.

http://ieeeboston.org/fundamental-mathematics-concepts-relating-electromagnetics-line-course/

Reliability Engineering for the Business World *(Online Edition)*

Students have access to this self-paced course for 90 days!!

Registration Fee: $320

Course Description

This course is about becoming a leader in reliability engineering. While statistics are the tools of reliability engineering, it takes knowledge not only of these tools but also of the business. Developing knowledge of the business, from sales, engineering, customer service, to supply chain management can determine how effective you can be in improving reliability.

Never take anything for granted, even some rules of thumb in reliability can be misleading, this course will show you how to prove what truly happens in the real world and how to effect change in any part of the business where it is needed. We will explore the balance sheet, organizational structure, customers, service, and high volume manufacturing. It's not just about how often things fail, it is also about where the defect came from, what is the financial effect, the recovery, when should a business take field action, effect of human error, failure analysis/material science, reliability testing, and much more. I will also discuss how you develop executive buy in for change. The course assumes a basic knowledge in reliability statistics. There are 12 sessions that cover the following topics.

Course Outline

Basics – Measurements
Business Model
Design Model (HW and SW)
HALT/RDT/Predictions
Manufacturing Model
Early Life Failures
Wear Out and Mid Life Crisis
Advanced Reliability

Course Objective

To teach you how to become the go to person in your business for objective business sensed reliability answers and requirements.

Instructor's Bio

Kevin is an innovative leader in reliability methodologies with more than 30 years experience in the storage industry. In his latest role as Director of Engineering, he developed a top down reliability/availability management process for design organizations developing mission-critical storage systems. Kevin previously directed the most extensive HALT/HASS operation in the industry, with over 300 chambers worldwide. He has written several papers, consulted with many companies, 3 patents awarded and 2 pending related to systems reliability and test.

His most recent work has been performing system architectural analysis to optimize system availability, serviceability and costs. Providing guidance to development to maximize system reliability and reduce service costs. He has provided consultation to many large companies such as EMC, CISCO, AT+T, HP, Seagate and many others. His position and experience has enabled him to perform extensive field studies and design of experiments. Kevin has developed many

http://ieeeboston.org/reliability-engineering-business-world-line-course/

Introduction to Embedded Linux
(Online Edition)

Students have access to this self-paced course for 90 days!! ***Registration Fee: $350***

Course Summary:
This first of a 2-part series introduces the Linux Operating System and the use of Embedded Linux Distributions. The course focuses on the development and creation of applications in an Embedded Linux context using the Eclipse IDE. The first part of the course focuses on acquiring an understanding of the basic Linux Operating System, highlighting areas of concern for Embedded Linux applications development using Eclipse. The latter part covers the methods for booting Embedded Linux distributions including embedded cross-development and target board considerations.

Who Should Attend:
The course is designed for real-time engineers who are building Embedded Linux solutions. It is also targeted at experienced developers requiring a refresher course on Embedded Linux. This course will clearly demonstrate both the strengths and weaknesses of the Linux Operating System in Embedded Systems.

Course Objectives:
To provide a basic understanding of the Linux OS and the Eclipse IDE framework.
To gain an understanding of the complexities of Embedded Linux Distributions and their use in embedded systems.
To give students confidence to apply these concepts to their next Embedded Linux project
Hardware and Software Requirements

The student should have a working Linux desktop environment either directly installed or in a virtualization environment. The desktop Linux should have the GNU compiler and binary utilities (binutils) already installed. A working Eclipse C/C++ installation or prior knowledge of C-based Makefiles is useful for completion of lab exercises. Lab solutions are also provided with the course. An Embedded Linux target hardware platform is useful but not absolutely required for this course.

Additional Reference Materials
Linux Kernel Development by Robert Love
Linux System Programming by Robert Love
Linux Debugging and Performance Tuning by Steve Best
Optimizing Linux Performance by Phillip G. Ezolt
Embedded Linux Primer by Christopher Hallinan
Pro Linux Embedded Systems by Gene Sally
Embedded Linux Development Using Eclipse by Doug Abbott
Linux Device Drivers by Jonathan Corbet et al
Essential Linux Device Drivers by Sreekrishnan Venkateswaran
Course Downloadable Content:

Video Lecture
Hands-On Lab Instructions
Hands-On Lab Solutions
Additional Related Materials

The Basics
Linux Terminology, History and Versioning
The Linux Community: Desktop & Embedded
The GPL
Linux References (Books and Online)

Getting Started
Kernel Source Code
Building the Kernel
Embedded Linux Kernels
Linux 2.6

Basic Kernel Capabilities
Process and Threads Management
Signals and System Calls
Synchronization, IPC and Error Handling
Timing and Timers

Memory Management and Paging
The I/O Subsystem: A Tale of Two Models
Modularization

Debugging
Process-Level and System-Level Debug
GDB and KGDB
GDB Server and Remote Debugging

An Eclipse Debug Example
Other Debug and Test Tools
Other System-Level Debug Approaches
Process & Threads Management
What are Processes and Threads?
Virtual Memory Mapping
Creating and Managing Processes and Threads
Thread-Specific Data (TSD) POSIX
The Native POSIX Threading Library (NPTL)
Kernel Threads

Signals
System Calls
Scheduling
Linux 2.4 and 2.6 Scheduling Models
The O(1) Scheduler
The Completely Fair Scheduler (CFS)

Synchronization
Via Global Data
Via Semaphores, Files and Signals

Inter-Process Communications (IPC)
Message Queues
Semaphores Revisited
Shared Memory
Pipes, FIFOs and Futexes
Remote Procedure Calls
Networking

Error Handling
errno and perror
strerror and strerror_r
oops, panics and Segmentation Faults
Timing
How Linux Tells Time
Kernel, POSIX and Interval Timers
High-Resolution Timers (HRTs)

Memory Management and Paging
Demand Paging and Virtual Memory
Allocating User and Kernel Memory
Mapping Device Memory
The Slab Allocator
The OOM Killer
Memory in Embedded Systems

Modularization
Creating a Module and Module Loading
Dependency Issues
In Embedded Systems

Shared Libraries
A Shared Library Example
Static and Dynamic Libraries

The I/O Subsystem: A Tale of Two Models
The Original Device Driver Model
The Standard I/O Interface
The New Device Driver Model and Kernel Object Classes
Initialization
Platform Devices, Busses, Adapters and Drivers
Comparing the Two Models

Embedded Linux Trends
Development, Monitoring and Testing

Some Final Recommendations

Lecturer:
Mike McCullough is President and CEO of RTETC, LLC. Mike has a BS in Computer Engineering and an MS in Systems Engineering from Boston University. A 20-year electronics veteran, he has held various positions at Tilera, Embedded Planet, Wind River Systems, Lockheed Sanders, Stratus Computer and Apollo Computer. RTETC, LLC is a provider of Eclipse-based development tools, training and consulting for the embedded systems market.

http://ieeeboston.org/introduction-to-embedded-linux-part-i-el201-online-course/

Design Thinking for Today's Technical Work

New Online Course

Students have access to this self-paced course for 90 days!!

Registration Fee: $160

Course Description:

This course covers the principles of Design Thinking; the steps commonly used; how it enhances the likelihood of success in a wide variety of applications; and, in particular, how to apply it to technical work. Examples of its application to technical work are presented along with the successes that followed.

Design Thinking has garnered much attention in recent years mainly as a way to design consumer products that engage users, such as Apple's iPhone. But its use is spreading to situations ranging from how to provide medical care to planning one's career. This course explains what Design Thinking is about, but, most important, explains how an individual can apply Design Thinking to their own technical work. Care has been taken to focus the course content on using Design Thinking as a structured, practical process for the daily work of technical professionals. A specific technical example is carried through the teaching of the five stages of Design Thinking. The course covers applying Design Thinking to the range of tasks performed during a technical project, including design of: technical functions; user interactions (if applicable); factors for business success; solutions to problems that arise; and project presentations and reports to influence adoption of project outcomes, funding approval, and hiring for consulting. The content applies to employees of large to small companies, start-ups, consultants and contact work, and government organizations. The course is focused on an individual worker employing Design Thinking.

Course Objectives

Provide an understanding of Design Thinking and how an individual can apply it to their technical work:

- Understand the steps of Design Thinking (Understand, Define, Ideate, Prototype, and Test)
- Learn how to apply Design Thinking in technical work
- Understand where Design Thinking can be applied in project activities.

Who Would Benefit from this Course

Anyone who works on solutions to problems or designs hardware, software, products, services, and processes. This includes technical professionals, project managers, and organizational managers. Also, anyone who wants to learn what Design Thinking is about in a practical sense.

Course Modules

- Module 1 – How Design Thinking Can Help Technical Work (60 minutes)
- Module 2 – Understand: Explore the Problem (44 minutes)
- Module 3 – Define: Synthesize What Is Needed (23 minutes)
- Module 4 – Ideate: Generate Solutions (26 minutes)
- Module 5 – Prototype: Build Versions to Test (23 minutes)
- Module 6 – Test: Examine and Learn (28 minutes)
- Module 7 – Design Thinking for Presenting and Writing (23 minutes)

• Module 8 – Getting Started with Design Thinking (30 minutes)

Speaker biography

Speaker: James L. Poage, President/Owner JLP Performance Consulting

Dr. James L. Poage has been designing future concepts for Air Traffic Control for 25 years, first with the Volpe National Transportation Systems Center and then for the past dozen years as an independent consultant (JLP Performance Consulting). He has taught short courses on Benefit-Cost analysis to the FAA and NASA, as well as spoken at conferences and published in professional journals. Over the past 15 years, Dr. Poage has been applying Design Thinking to his project work; to marketing his consulting services; and to planning briefings, reports, and courses. His clients have included FAA, NASA, BAE Systems, Engility, Georgia Tech University, San Jose State University, and Saab Sensis. Dr. Poage has co-authored the book, Flair: Design Your Daily Work, Products, and Services to Energize Customers, Colleagues, and Audiences (Maven House Press, 2016), with his daughter, Jennifer Poage who works in fashion design. Dr. Poage has a Ph.D. in applied mathematics from the Harvard University School of Engineering and Applied Sciences and a M.S. and B.S. in electrical engineering from Stanford University.

Note: Course participants will receive a copy of the book, Flair.

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.

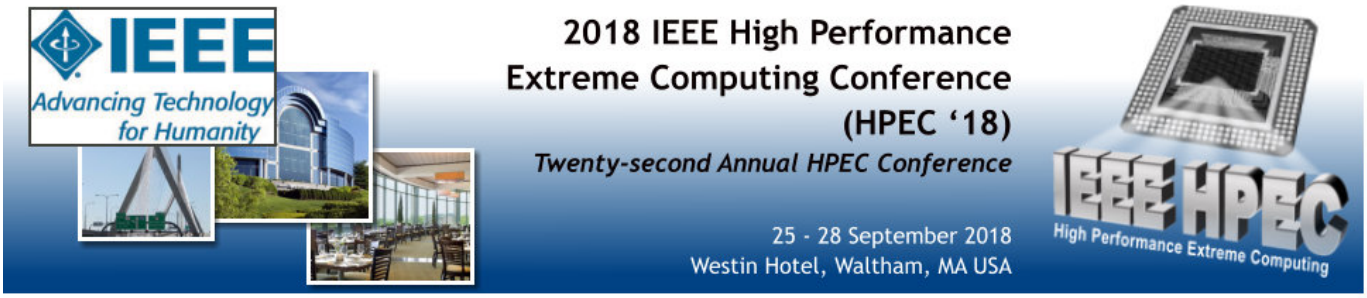
Twice each year a committee of local IEEE volunteers meet to consider course topics for its continuing education program. This committee is comprised of practicing engineers in various technical disciplines. In an effort to expand these course topics for our members and the local technical community 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.

CALL FOR PAPERS



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The IEEE High Performance Extreme Computing Conference (HPEC '18) will be held in the Greater Boston Area, Massachusetts, USA on 25 – 28 September 2018. 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:

- Machine Learning
- Graph Analytics and Network Science
- Advanced Multicore Software Technologies
- Advanced Processor Architectures
- Automated Design Tools
- Big Data and Distributed Computing
- Big Data Meets Big Compute
- Case Studies and Benchmarking of Applications
- Cloud HPEC
- Computing Technologies for Challenging Form Factors
- ASIC and FPGA Advances
- 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 and Scheduling of Parallel and Real-Time Applications
- New Application Frontiers
- Open System Architectures
- Secure Computing & Anti-Tamper Technologies

HPEC accepts two types of submissions:

1. Full papers (up to 6 pages, references not included), and
2. Extended abstracts (up to 2 pages, references included).

IMPORTANT DATES:

Submission Deadline: **May 18, 2018**
Notification of Acceptance: **July 1, 2018**
Camera Ready Deadline: **August 1, 2018**

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. 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. 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. 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. Full paper submissions should use the approved IEEE templates. The highest scoring submissions will be published by IEEE in the official HPEC proceedings available on IEEE eXplore. All other accepted submissions are published on ieee-hpec.org.

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- 5G Advanced Communications
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- Simulation & Modeling
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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/

New

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
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New

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

New

Fundamentals of Real-Time Operating Systems
Registration will be available by April 15