



THE REFLECTOR

ISSUE #12
DECEMBER 2022

IEEE AWARDS AND REGION 1
AWARDS

P.19

PROF. DEV. TRAINING:
INTRODUCTION TO PRACTICAL
NEURAL NETWORKS AND DEEP
LEARNING (PART I) *NEW DATES*

P.25

PROF. DEV. TRAINING:
PRACTICAL RF PCB DESIGN,
WIRELESS NETWORKS AND
TELECOMMUNICATIONS

P.27

PROF. DEV. TRAINING:
DIGITAL SIGNAL PROCESSING
(DSP) FOR SOFTWARE RADIO

P.23

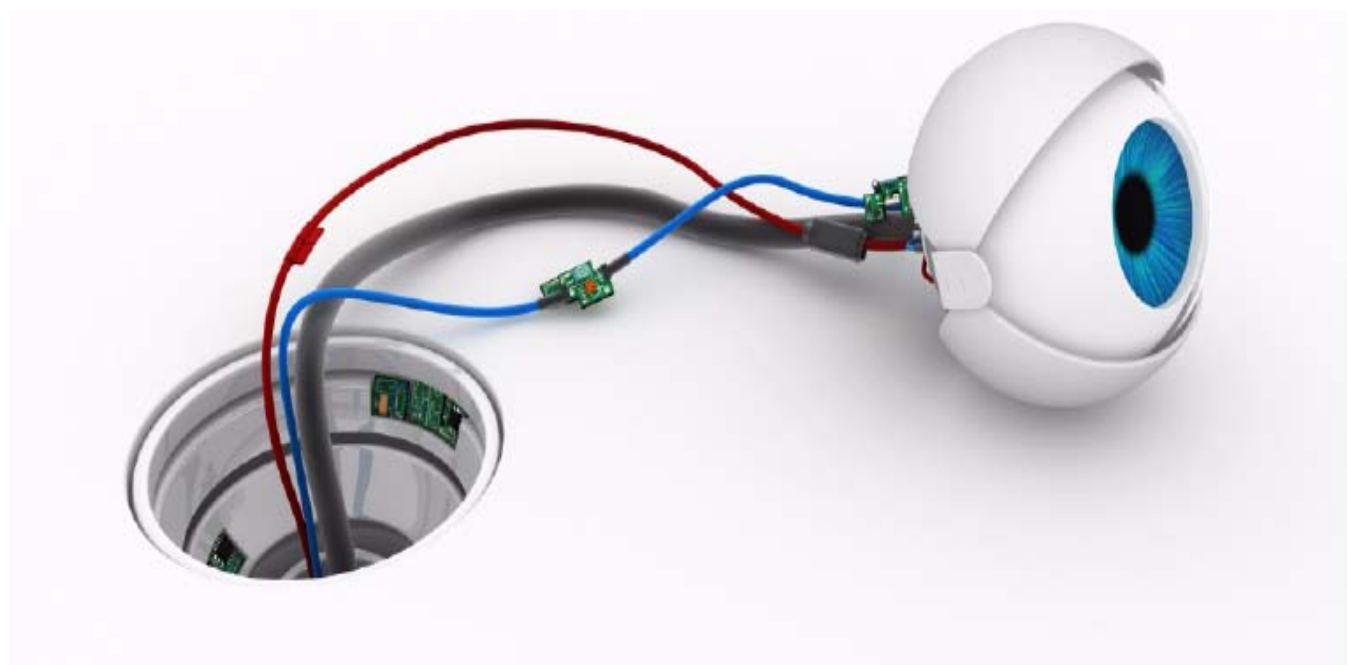


TABLE OF CONTENTS

Editorial - “The IEEE Elephant” by Karen Panetta, Reflector Editor	Page 3
IEEE Boston Section Online, self-paced, on-demand courses	Page 6
Call for Volunteers (Consumer Technology, and Engineering in Medicine & Biology Chapters)	Page 7
IEEE Video Series (Five videos on issues and technologies that impact planet Earth) and Call for Course Speakers/Organizers	Page 8
2022 High Performance Extreme Computing Conference Paper Awards	Page 9
Education Society Award and IEEE-HKN Election	Page 10
Robotics and Automation Society	Page 11
Entrepreneurs’ Network	Page 12
Reliability Society	Page 14
Engineering in Medicine and Biology Society	Page 15
Entrepreneurs’ Network	Page 16
IEEE and IEEE Region One Awards	Page 19
The Latest on Patent Assignor Estoppel; Federal Circuit Provides Guidance on Remand	Page 20
Digital Signal Processing (DSP) for Software Radio	Page 23
Introduction to Practical Neural Networks and Deep Learning (Part I)	Page 25
Practical RF PCB Design, Wireless Networks, Products and Telecommunications	Page 27



The IEEE Elephant

by Karen Panetta – Reflector Editor

IEEE is huge and despite many of us having spent years as a volunteer, we are still discovering something new about IEEE every day. Some people know IEEE for its publications, especially researchers and students. Others know IEEE for its continuing education programs and technical conferences.

I always use the analogy of the blind wise folks touching the elephant when describing IEEE. Each individual touching the elephant senses different experiences, depending on what part of the elephant they touch, whether it's the trunk, legs, or tail. Each body part is different making it difficult to comprehend the elephant as one entity. This is the same for IEEE. Unfortunately, some of the best parts of IEEE are not the most visible or the first to come to the forefront for brand recognition because IEEE is also an elephant in its size and complexity.

For instance, I am the Editor-in-Chief of the Women in Engineering (WIE) Magazine and former Chair of the WIE committee. People assume WIE is a group just for women and only those women in the fields of engineering, but a wise Boston IEEE member, let's call him Bruce, once described WIE as a support group for women and anyone who knows a woman.

Males used to be scared off when invited to a WIE event or asked to join as a member, fearful that they would be placed under scrutiny and be responsible for atoning for every wrong committed by the entire male population.

On the other hand, women also used to shy away from participating in WIE saying "I don't want to be associated with a woman's group." The polite translation for

this statement is: No one wants to be associated with a babbling bunch of brooding women and bring a negative stigma upon themselves that could impact their career advancement.

I have done many presentations to promote outreach and methods to empower Women in Engineering and Girls in STEM. I can assure you no one has ever left my presentations feeling attacked or stigmatized. On the contrary, I hear parents and grandparents tell me that they now feel they have the strategies and resources to engage their loved ones and that the methods work for all genders!

As the WIE Magazine Editor-in-Chief, I get to use my creative side, designing concept covers for the magazine and crafting the contents of the article themes that highlight stories from amazing role models that inspire all of us, not just women.

I have profiled men in WIE magazine in every issue. They are mentors, fathers, brothers, and sons who have taken it upon themselves to ensure that the women in their lives and community are supported. Most women, including myself, attribute our introduction to engineering to our fathers or some other male mentor. Here in Boston, we are fortunate the IEEE Boston Section is recognized throughout IEEE for having the best male mentors and advocates for women.

During the most recent IEEE WIE Conference, our own IEEE Boston member and Past-IEEE President, Dr. Arthur Winston was recognized by IEEE WIE for being an agent of change for his lifetime of support and empowerment of women. Congratulations Arthur! I have

been fortunate to have Arthur mentor me throughout my career and help me see that IEEE is more than just publications and technical meetings.

IEEE is an opportunity for us to build our careers, understand the world around us, and forge friendships around the globe with exceptional individuals dedicated to humanitarian efforts.

If you are interested in being profiled in IEEE WIE Magazine for your mentorship or know an individual who has an inspiring career story, regardless of whether you/they are a Life member, young professional or student,

send me an email: karen@ieee.org. Help us promote these wonderful individuals and share their stories with aspiring future engineers, scientists, mathematicians, and technologists around the globe!

You can learn more about IEEE WIE Magazine and see articles from a recent issue here: <https://wie.ieee.org/newsletter-magazine/>

If you want to participate in a local IEEE Boston WIE meeting, you can contact: ieeebostonsection@gmail.com

Call for Articles

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

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

Professional development or general interest articles should have broad applicability to the engineering community and should not explicitly promote services for which a fee or pay-

ment is required. A maximum length of two to three pages would be best.

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

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

We are excited about this new feature and hope you are eager to participate!

Submissions should be sent to;
ieeebostonsection@gmail.com



What + If = IEEE

420,000+ members in 160 countries.
Embrace the largest, global, technical community.

People Driving Technological Innovation.

iee.org/membership

#IEEEmember



KNOWLEDGE

COMMUNITY

PROFESSIONAL DEVELOPMENT

CAREER ADVANCEMENT

IEEE Boston Section Online Courses:

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

Electronic Reliability Tutorial Series

Full course description and registration at ,
<http://ieeeboston.org/electronic-reliability/>

High Performance Project Management

Full course description and registration at ,
<http://ieeeboston.org/high-performance-project-management-online-course/>

Introduction to Embedded Linux Part I

Full course description and registration at ,
<http://ieeeboston.org/introduction-to-embedded-linux-part-i-el201-online-course/>

Embedded Linux Optimization - Tools and Techniques

Full course description and registration at ,
<http://ieeeboston.org/embedded-linux-optimization-tools-techniques-line-course/>

Embedded Linux Board Support Packages and Device Drivers

Full course description and registration at ,
<http://ieeeboston.org/embedded-linux-bsps-device-drivers-line-course/>

Software Development for Medical Device Manufacturers

Full course description and registration at ,
<http://ieeeboston.org/software-development-medical-device-manufacturers-line-course/>

Fundamental Mathematics Concepts Relating to Electromagnetics

Full course description and registration at ,
<http://ieeeboston.org/fundamental-mathematics-concepts-relating-electromagnetics-line-course/>

Reliability Engineering for the Business World

Full course description and registration at ,
<http://ieeeboston.org/reliability-engineering-business-world-line-course/>

Design Thinking for Today's Technical Work

<http://ieeeboston.org/design-thinking-technical-work-line-course/>

Fundamentals of Real-Time Operating Systems

<http://ieeeboston.org/fundamentals-of-real-time-operating-systems-rt201-on-line-course/>

Consumer Technology Society Call for Volunteers!

We are currently looking for volunteers who would be interested in pushing forward the mission of the Consumer Technology (CT-S), Boston Chapter. The chapter is looking for volunteers to help organize chapter meetings and help meet the needs of the local CT-S member needs.

The Boston Section is organizing chapters into groups of similar technical interest areas to pool their resources for easier and better chapter collaboration in planning the chapter events.

If you have interest in volunteering for a chapter leadership position or are interested in learning more about what these volunteer positions may entail, please send an email to Karen Safina in the IEEE Boston Section office at, ieeebostonsection@gmail.com

Aakash Deliwala, Chair, IEEE Boston Consumer Technology Chapter

Engineering in Medicine & Biology Society Call for Volunteers!

We are currently looking for volunteers who would be interested in pushing forward the mission of the Engineering in Medicine & Biology Society (EMBS), Boston Chapter. The EMBS - Boston Chapter was recently approved in July 2021, and we're looking to make a significant impact in the area of Biomedicine, Bioengineering, and Biotechnology in the region. The chapter is looking for volunteers to help organize chapter meetings and help meet the needs of the local EMBS members.

The Boston Section is organizing chapters into groups of similar technical interest areas to pool their resources for easier and better chapter collaboration in planning the chapter events.

If you have interest in volunteering for a chapter leadership position or are interested in learning more about what these volunteer positions may entail, please send an email to Karen Safina in the IEEE Boston Section office at, ieeebostonsection@gmail.com.

Aseem Singh, Marie Tupaj, Co-Chairs, Boston EMBS Chapter

IEEE Video Series

A collaborative discussion panel featuring esteemed members from the Institute of Electrical and Electronics Engineers has convened in 2021 to produce educational video presentations that embrace IEEE's mission of advancing technology for humanity.

Among the programs they've produced include "Electric Vehicles: Fun Saving Our Planet", "Greener Power For More Electric Vehicles", "Overcoming Nuclear Fears To Achieve Net Zero CO2 By 2050" and "Achieving a Net Zero Carbon Future", "Green Energy's Economic Progress", and "Net-Zero CO2 with Nuclear, Hydrogen and Geothermal". Projects currently in production include the expansive topic of futurology, with a focus on increasing the efficiency and transformation of aging electrical power generating stations and infrastructure to accommodate nuclear power; reviewing the viability of alternative energy (such as geothermal, wind and solar); and focusing on 'cleaner' fossil fuels that are more environmentally-friendly to slow the rate of climate change.

These shows are produced and directed by Lennart E. Long, IEEE Senior Life Member from the Executive Committee and Past Chair of the Boston Section; Dr. Paul H Carr, BS, MS, MIT; PhD Brandeis U, IEEE Life Fellow; Dr. Ted Kochanski, SB (MIT), Ph.D (U.Texas, Austin), IEEE Global Education for Microelectronic Systems and former Boston Section Chair; and Dr. Ken Laker, B.E. (Manhattan College), M.S. and Ph.D. (New York University), IEEE Life Fellow and past President of IEEE.

The panel is moderated by five-time Boston/New England Emmy Award-winner and television personality and star of "The Folklorist," John Horrigan. These video programs with presentations and discussions can be accessed at the IEEE Boston Section video portal at <https://vimeo.com/user18608275>.

We are looking for any IEEE members that would like to appear on the program in the role of presenter or discussion expert. Simply reach out to Robert Alongi at the Boston Section at, ieeebostonsection@gmail.com.

Call for Course Speakers/Organizers

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

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

The Boston Section is one of the largest and most technically diverse 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.

2022 IEEE High performance Extreme Computing Conference (HPEC) Paper Award Winners

IEEE Boston is pleased to recognize the following 2022 IEEE HPEC paper awards. Please join us in congratulating these outstanding contributors.

Best Student Paper Award

Constructing Optimal Contraction Trees for Tensor Network Quantum Circuit Simulation

(<https://doi.org/10.1109/HPEC55821.2022.9926353>)

Cameron A Ibrahim, Danylo Lykov, Zichang He, Yuri Alexeev, Ilya Safro

Outstanding Student Paper Award

Distributed Hardware Accelerated Secure Joint Computation on the COPA Framework

(<https://doi.org/10.1109/HPEC55821.2022.9926388>)

Rushi Patel, Pouya Haghi, Shweta Jain, Andriy Kot, Venkata Krishnan, Mayank Varia, Martin Herbordt

Outstanding Student Paper Award

Optimizing Performance and Storage of Memory-Mapped Persistent Data Structures

(<https://doi.org/10.1109/HPEC55821.2022.9926392>)

Karim Youssef, Abdullah Al Raqibul Islam, Keita Iwabuchi, Wu-chun Feng, Roger Pearce

Outstanding Student Paper Award

Processing Particle Data Flows with SmartNICs

(<https://doi.org/10.1109/HPEC55821.2022.9926325>)

Jianshen Liu, Carlos Maltzahn, Matthew Curry, Craig Ulmer

Outstanding Student Paper Award

AutoPager: Auto-tuning Memory-Mapped I/O Parameters in Userspace

(<https://doi.org/10.1109/HPEC55821.2022.9926409>)

Karim Youssef, Niteya Shah, Maya B Gokhale, Roger Pearce, Wu-chun Feng

Outstanding Student Paper Award

HuGraph: Acceleration of GCN Training on Heterogeneous FPGA Clusters with Quantization

(<https://doi.org/10.1109/HPEC55821.2022.9926312>)

Letian Zhao, Qizhe Wu, Xiaotian Wang, Teng Tian, Wei Wu, Xi Jin

Best Paper Award

GraphBLAS on the Edge: Anonymized High Performance Streaming of Network Traffic

(<https://doi.org/10.1109/HPEC55821.2022.9926332>)

Michael S Jones, Jeremy Kepner, Daniel Andersen, Aydin Buluc, Chansup Byun, K Claffy, Timothy Davis, William Arcand, Jonathan Bernays, David Bestor, William Bergeron, Vijay Gadepally, Micheal Houle, Matthew Hubbell, Hayden Jananthan, Anna Klein, Chad Meiners, Lauren Milechin, Julie Mullen, Sandeep Pisharody, Andrew Prout, Albert Rether, Antonio Rosa, Siddharth Samsi, Jon Sreekanth, Doug Stetson, Charles Yee, Peter Michaleas

Outstanding Paper Award

Resource-Constrained Optimizations For Synthetic Aperture Radar On-Board Image Processing

(<https://doi.org/10.1109/HPEC55821.2022.9926327>)

Maron Schlemon, Martin Schulz, Rolf Scheiber

Outstanding Paper Award

C2QA - Bosonic (

<https://doi.org/10.1109/HPEC55821.2022.9926318>)

Timothy Stavenger, Eleanor Crane, Kevin Smith, Christopher T Kang, Steven Girvin, Nathan Wiebe

Outstanding Paper Award

Analyzing Multi-trillion Edge Graphs on Large GPU Clusters: A Case Study with PageRank

(<https://doi.org/10.1109/HPEC55821.2022.9926341>)

Seunghwa Kang, Joseph Nke, Brad Rees

Outstanding Paper Award

Benchmarking Resource Usage for Efficient Distributed Deep Learning

(<https://doi.org/10.1109/HPEC55821.2022.9926375>)

Nathan C Frey, Baolin Li, Joseph P McDonald, Dan Zhao, Michael S Jones, David Bestor, Devesh Tiwari, Vijay Gadepally, Siddharth Samsi

Outstanding Paper Award

Distributed Out-of-Memory SVD on CPU/GPU Architectures

(<https://doi.org/10.1109/HPEC55821.2022.9926288>)

Ismael Boureima, Manish Bhattarai, Maksim E Eren, Nick Solovyev, Hirsto Djidjev, Boian Alexandrov

Graph Challenge Champion

Accelerating Sparse Deep Neural Network Inference Using GPU Tensor Cores

(<https://doi.org/10.1109/HPEC55821.2022.9926300>)

Yufei Sun, Long Zheng, Qinggang Wang, Xiangyu Ye, Yu Huang, Pengcheng Yao, Xiaofei Liao, Hai Jin

Graph Challenge Champion

Towards Fast GPU-based Sparse DNN Inference: A Hybrid Compute Model

(<https://doi.org/10.1109/HPEC55821.2022.9926290>)

Shaoxian Xu, Minkang Wu, Long Zheng, Zhiyuan Shao, Xianguyu Ye, Xiaofei Liao, Hai Jin

Graph Challenge Innovation Award

FAST: A Scalable Subgraph Matching Framework over Large Graphs

(<https://doi.org/10.1109/HPEC55821.2022.9926298>)

Jiezhong He, Zhouyang Liu, Yixin Chen, Hengyue Pan, Zhen Huang, Dongsheng Li

Graph Challenge Innovation Award

HTC: Hybrid Vertex-parallel and Edge-parallel Triangle Counting (<https://doi.org/10.1109/HPEC55821.2022.9926383>)

Li Zeng, Kang Yang, Haoran Cai, Jinhua Zhou, Rongqian Zhao, Xin Chen

Graph Challenge Innovation Award

Improved Distributed-Memory Triangle Counting by Exploiting the Graph Structure

(<https://doi.org/10.1109/HPEC55821.2022.9926376>)

Sayan Ghosh

Graph Challenge Innovation Award

Kalman Filter Driven Estimation of Community Structure in Time Varying Graphs

(<https://doi.org/10.1109/HPEC55821.2022.9926358>)

Lisa JK Durbeck, Peter Athanas

Graph Challenge Honorable Mention

Sparse Deep Neural Network Inference Using Different Programming Models

(<https://doi.org/10.1109/HPEC55821.2022.9926362>)

Hyungro Lee, Milan Jain, Sayan Ghosh

Boston Education Society Chapter Receives Award!

The Boston Chapter of the IEEE Education Society has been selected to receive the 2022 IEEE Education Society Chapter Achievement Award.

This award is given to a chapter of the IEEE Education Society that provides exemplary technical activities, membership services, and societal activities to its members. Dr. Karen Panetta is the current Chair of the Boston Chapter of the Education Society

Congratulations to Karen and the Education Chapter!

IEEE Boston Section Chair Elected to IEEE HKN Board

Denise Griffin, the 2022 IEEE Boston Section Chair has been elected to serve on the IEEE - HKN Board of Governors representing Regions 1 and 2 of the IEEE. This position is a three year term.

Congratulations, Denise!

Eta Kappa Nu or IEEE-HKN is the international honor society of the Computer Science and Institute of Electrical and Electronics Engineers. "The organization promotes excellence in the profession and in education through an emphasis on scholarship, character, and attitude.

Robotics and Automation Society and co-sponsoring Wentworth Institute of Technology Student Chapter—
5:00PM, Thursday, December 1

Computational Challenges in Surgical Robotics



This is an in person event co-hosted by IEEE-RAS Boston Chapter and WIT-IEEE Student Chapter

Location: Annex Central 550 Parker Street Boston, MA 02120

Robotic surgery is the use of technology to perform complex medical procedures with more precision, flexibility, and control. Robotic Assisted Surgical Devices (RASDs) have the potential to reduce operation time and anesthesia use, minimize complication risk, and improve patient recovery. With the rapid acceptance of robotic surgery and slow-paced adoption, there exists several computational challenges for further exploring the limitations in functionality. This session will cover how optimization algorithms, ML, and model-based design are being used within the medical workflow, to perform pre-operative surgical planning and improve RASD design.

Speaker: Dr. Moiz Khan Dr. Moiz Khan received his

BS and MS from Rutgers University and New York University, in Applied Engineering and Biomechanics, respectively. He earned his PhD at Columbia University in Mechanical Engineering, working on rehabilitation robotic platforms. During his studies, he developed and patented a posture training robot for assisting in rehabilitation of children with cerebral palsy and adults with spinal cord injury. Immediately following, he was a postdoctoral fellow at Harvard Medical School and the Brigham and Women's Hospital, where his research focused on developing surgical planning and optimization algorithms and minimally invasive robotic devices. He has also served as a consultant for several industry leaders on robotics and design. Currently, he is the Manager of Electrical and Computer Engineering at MathWorks, leading development in several areas including robotics and AI.

Registration: <https://www.eventbrite.com/e/computational-challenges-in-surgical-robotics-tickets-473685354647>

IEEE Boston Section Social Media Links:

Twitter: <https://twitter.com/ieeeboston>

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

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

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

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

Sales and Marketing with Jack Derby

Attendees will have the option to join us in-person at the Microsoft Technology Center in Burlington, MA or online via Zoom.

Sales and Marketing with Jack Derby builds upon this year's previous sessions. In this session, Jack will discuss the need for process to capture total value of a deal – how to distinctly describe your product or service. The need to be bold in asking questions and humble in answering questions. In a world of instant gratification, understanding your customer buying journey to realistic expectations for the customer and your fulfillment team. We are featuring Jack Derby, Mass High Tech All-Star, co-founder of 9 companies, an investor in 54 companies, and Professor of Entrepreneurship. Bring your questions, your startup challenges, and learn the steps required to drive your startup to success.

Location: Microsoft Technology Center, 5 Wayside Road, Burlington, MA

Registration: <https://bostonenet.org/events/sales-and-marketing-with-jack-derby-2/>

More information:

This is a hybrid event. You may choose to participate in-person or online. In-person Participation (check-in begins at 6:00 PM):

PARKING: Free parking is available.

REFRESHMENTS: Pizza will be served.

COVID POLICY: You are required to provide proof of vaccination or self-attest to having received a negative COVID-19 test within the previous week via HealthCheck. Attendees who do not upload proof of vaccination must wear a face covering onsite.

Online Participation: Zoom links will be sent to all registrants after registration.

COST AND RESERVATIONS: This event is free for ENET members and \$10 for non-members. Click [here](#) to learn how to become a member. To expedite sign-in

for the event, we ask that everyone — members as well as non-members — pre-register. If you cannot pre-register, you are welcome to register in person at the door while seats are available.

Event Schedule

7:00 pm ET – Introduction - ENET Chairperson's announcements

7:10 pm ET - eMinute Pitch - Up to 3 Startup pitches

7:25 pm ET - Expert Panel - 4 expert speakers on the night's topic

8:10 pm ET - Q & A - Moderator and Audience Q & A with the speakers

8:30 pm ET - Networking

Panelists will be available afterward for responses to individual questions.

Speaker

Jack Derby



CEO, professor, entrepreneur, venture investor, board member & management coach

Jack is a professor within the Derby Entrepreneurship Center at Tufts where he teaches separate courses in marketing and in sales. Jack has taught at Tufts for 17 years and was the prior director of the

Center which consists of 16 professors and 800+ students a year constituting the largest minor on campus. The Center encompasses the study and practice of entrepreneurship through all the 11 Tufts schools.

Jack individually coaches 20-40 Tufts student startups each year. Today, he continues to teach a marketing course and a sales course in the Center, where he received the Henry & Madeline Fisher award voted by students as the highest rated professor on campus in the School of Engineering. For 22 years, he has taught business planning and marketing in MIT's Mechanical Engineering Department where he continues to teach. In 1990, Jack founded Derby Management, a regional

consulting firm specializing in strategic and business planning with deep expertise in the specializations of business planning, sales productivity and marketing optimization. Prior to starting Derby Management, Jack was CEO of Mayer Electronics and President of CB Sports. He is or has been a board member of 21 companies. Jack's 17 years of corporate background consisted of being President of Litton Industries Medical Systems, CEO of Datamedix and Executive Vice President of Becton Dickinson Medical Systems, a market leader in hospital monitoring.

For his work as an entrepreneur, Jack was named to the Boston Business Journal's Mass High Tech's All-Star Team, he received MIT Enterprise Forum's Vince Fulmer Award for his work as Chairman, and in 2019, received the Lifetime Achievement Award from the Association for Corporate Growth of Boston for his work as long-term Chairman of this leading M&A organization. Jack has founded or co-founded nine startups over the years acting as CEO in eight. He has just co-founded a science-based beverage company with a leading Tufts nutrition professor and two nutrition scientists. Today, Jack is an active and highly engaged board member with a long prior investing history as an early-stage

investor as General Partner at Kestrel Ventures and Chairman of Common Angels. He is currently a General Partner at Converge Ventures.

Moderator and Organizer

Dan Skiba



Managing Director, Skiba Advisory Associates; VP Printed Electronics, Chasm Advanced Materials; Vice-Chair, Programs, Boston ENET

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

Advertise with us!!!

Advertising with the IEEE Boston Section affords you access to a highly educated, highly skilled and valuable consumer. Whether you are looking to reach students with a bright future and active minds, or whether you are reaching households with priorities that may include a family, planning for vacations, retirement, or like-values, the IEEE Boston Section is fortunate to enjoy a consistent relationship. The IEEE Boston Section provides education, career enhancement, and training programs throughout the year. Our members, and consumers, are looking for valuable connections with companies that provide outstanding products. For qualified advertisers, the IEEE Boston Section advertising options are very flexible. Through our affiliate, we will even help you design, develop, and host your ads for maximum efficiency. A few important features of the IEEE Boston Section

IEEE Boston Section is the largest, most active, and technically diverse section in the U.S. Comprised of Engineers, scientists and professionals in the electrical and computer sciences and engineering industry

IEEE Boston Section Rate Card <http://ieeeboston.org/advertise-ieee-boston-section/>

IEEE Boston Media Kit <http://ieeeboston.org/advertise-ieee-boston-section/>

Contact IEEE Boston Section at ieeebostonsection@gmail.com for more information on rates for Online Advertising

Boston/Providence/New Hampshire Reliability Societies – 11:00AM, Wednesday, December 14

Openreliability Software Tools on R

Location - This Webinar is to be delivered virtually



To view complete details for this event,
<https://events.vtools.ieee.org/m/332882>
 Sponsor: Please visit www.ieee.org/boston-rel
 FREE Webinar

From OpenReliability.org:

"Open Reliability is dedicated to the development and use of reliability engineering and operations research applications under the open source paradigm.

Too often it is observed that engineers will choose to base decisions on what is believed to be the correct result from a shrink- wrapped program without actually understanding what has really taken place 'under the hood'. Indeed, some argue that their analysis may be superior, simply based on the popularity, or even expense, of the software used to generate a result. The goal here is to openly present the inner workings of various analytical techniques in a way that encourages deeper understanding of the basis for analysis. Turning these techniques into useful software may be a beneficial result, but not an end in itself."

The IEEE Boston Reliability Group presentation is expected to include a fast paced perusal of published tutorial type documents and pages. These cover topics from installation of R and acquisition of the relevant R packages to some interesting uses. We can pause for discussion throughout. However, it is expected that those interested in the topics can circle back to absorb the material on their own time. The presenter remains available to handle individual guidance at djsilk@openreliability.org

The following Reference Pages are provided:

WeibullR

https://www.academia.edu/38728015/Introducing_WeibullR_A_package_on_R_Life_data_analysis_in_the_graphical_tradition_of_Waloddi_Weibull

https://www.researchgate.net/publication/341170298_WeibullR_An_R_Package_for_Weibull_Analysis_for_Reliability_Engineers

WeibullR.ALT

https://www.academia.edu/82319632/Accelerated_Life_Testing_Application_Development_for_Data_Analysis

FaultTree

<http://www.openreliability.org/faulttree-users-tutorial/>

stosim

https://www.academia.edu/10053888/Using_Stochastic_RAM_Analysis_to_Establish_an_Optimal_Operating_Policy

At registration, you must provide a valid e-mail address to receive the Webinar Session link approximately 15 hours before the event. The link will only be sent to the e-mail address entered with your registration. Please double-check for spelling errors. If you haven't received the e-mail as scheduled, please check your spam folder and alternate e-mail accounts before contacting the host.

Contact: Michael W. Bannan, Chair - IEEE Boston/Providence/New Hampshire Reliability Chapter
 Registration:

David Silkworth is a retired engineer from Air Products. He has had much field experience ranging from producing liquid hydrogen fuel for the space shuttle, to tonnage oxygen/nitrogen and hydrogen/carbon monoxide production, electric power cogeneration, and ultra pure gas supply systems for electronics fabs. For the final 18 years of his career, David was responsible for establishing reliability engineering work practices for a global work force. In retirement David has developed a series of packages that operate in the open source R statistical computing environment. These packages are intended to provide a soft introduction to R for reliability engineers, while delivering high quality tools for these practitioners.

Beyond such reliability interests, David is an avid instructor for sailing and scholastic wrestling in Vero Beach, Florida.

Agenda

11:00 AM Technical Presentation

11:45 AM Questions and Answers

12:00 PM Adjournment

The meeting is open to all. You do not need to belong to the IEEE to attend this event; however, we welcome your consideration of IEEE membership as a career enhancing technical affiliation.

There is no cost to register or attend, but registration is required. Register, <https://events.vtools.ieee.org/event/register/332882>

*Engineering in Medicine and Biology co-sponsored by Worcester Polytechnic Institute (WPI) –
6:00PM, Wednesday, December 14*

Cybersecurity - Vulnerability Management and FDA Compliance



Speaker: Dr. Anita Finnegan of Nova Leah

Learn about the latest on Cybersecurity from Industry Experts & Network with the local Boston EMBS chapter and professionals, at the beautiful Seaport location. Attendees will have the option to join us in-person at the WPI Seaport, MA location

or online via Zoom.

Agenda:

Networking Sessions: 6:00PM - 6:30PM, and 7:30PM - onwards

Technical Presentation - 6:30PM - 7:30PM

This is a hybrid event. You may choose to participate in-person or online.

In-person Participation (check-in begins at 6:00 PM):

LOCATION: WPI-Seaport, Boston, MA 02210.

PARKING: Free parking is available.

REFRESHMENTS: Available to attendees on-site at no cost.

Online Participation:

Zoom links will be sent to all registrants after registration.

Registration: <https://events.vtools.ieee.org/m/333137>

Topic:

- FDA Submission
- SBOM Monitoring
- Threat Modeling
- Cybersecurity Risk Analysis

Dr. Anita Finnegan is the Founder and CEO of Nova Leah, a world leader in the provision of cybersecurity risk management solutions for connected medical devices. SelectEvidence® from Nova Leah is the first risk management tool in the world to deliver medical device compliance across multiple international standards. Anita is a global expert in cybersecurity for medical devices. She has authored two internationally regulated industry standards for medical equipment - ISO/IEC 80001-2-8 and ISO/IEC 80001-2-8.

Through her work with Nova Leah, Finnegan has won multiple awards for innovation, security, and technological impact. Nova Leah was named Emerging Company of Year at the 2019 Technology Ireland Awards in association with Ibec and was runner-up by Digital Europe for the European 'Future Unicorn Award' in 2020. Most recently, Dr Finnegan was named as a finalist in the EU Women Innovator Prize and won the 2020 Science Foundation Ireland (SFI) Entrepreneurship Award. Nova Leah was featured in WIRED Magazine as one of 'Europe's 100 Hottest Startups' and Finnegan was listed in '50 Female Entrepreneurs Everyone Should Know' by Crunchbase. As a global cybersecurity authority, Anita acts as an advisor to a number of government bodies.

Entrepreneurs' Network – 7:00PM, Tuesday, December 20

Manage the Stress and Strain of Your Startup

Location: CIC, One Broadway, Cambridge, MA 02142
 Registration: <https://bostonenet.org/events/manage-stress-strain-of-your-startup/>

Attendees will have the option to join us in-person at CIC, One Broadway, Cambridge, MA 02142 or online via Zoom.

Work can be a pleasure and a pain. For entrepreneurs, the uncertainty and pressure are different than working for an employer where an employee's focus is primarily on doing a good job and rising up the ranks.

An entrepreneur needs to, among other things, invent a product or service, find complementary talent, raise funds, balance revenue with expenses, lead or assist sales efforts, and chart a future for the company. It can be a pressure packed life. How do leaders and their colleagues cope with the stress and strain of their startups?

Two entrepreneurs, an HR executive, and a comic/entertainer share their different perspectives on dealing with pressure and most importantly how to de-stress.

A.J. Damiano started a tech business as a student at Syracuse University. When he graduated, it continued to grow when his CFO shocked him: the company was within days of running out of money. Learn how Damiano responded and what he's learned as a 26-year-old entrepreneur.

Linda Rossetti has spent her entire career leading businesses through radical changes, first as the CEO and founder of a VC-backed tech start up and later as a C-Suite exec in a Fortune 500 company that was undergoing a digital transformation. Linda will share stories on how to thrive as a leader when chaos is the common thread for your days.

Lisa Sholkin has served as a corporate recruiter and HR executive at five tech startups starting with Uber. As HR counsel to founders at several small companies, she's had to match business priorities with what she sees as health and wellness support for employees. For almost

three years, Covid has heightened employee needs and Sholkin will talk about those issues and her response.

For 17 years, Eddie Brill worked on the David Letterman show as part of a career as a standup comic, TV, and movie actor. Who could know better about the power of humor both as an entertainer and a speaker at corporate events?

More information:

This is a hybrid event. You may choose to participate in-person or online.

In-person Participation (check-in begins at 6:00 PM):

LOCATION: CIC, One Broadway, Cambridge, MA 01803 – a valid picture ID is required to enter the building!

TRANSPORTATION: Across the street from Kendall Square T station on the Red Line.

PARKING: Low flat rate parking available after 5pm

REFRESHMENTS: Pizza will be served.

Online Participation: Zoom links will be sent to all registrants after registration.

Cost and Reservation: This event is free for ENET members, \$5 for CIC members and \$10 for non-members. ENET members will also have the opportunity to view a recording of this webinar if you are unable to attend or wish to view it again. Click [here](#) to learn how to become a member.

To expedite sign-in for the event, we ask that everyone — members as well as non-members — pre-register. If you cannot pre-register, you are welcome to register in person at the door while seats are available.

Venue Sponsor

CIC believes in the entrepreneur. We recognize that invention propels innovation, density spurs collaboration, and a shared purpose drives a thriving community. CIC provides a home from which to work, allowing innovators to easily access resources and create substantive, positive global impact. Request to chat with a workspace expert about CIC's flexible workspace offering, or try out a complimentary, one-time day of coworking.

Agenda

7:00 pm - Introduction, ENET Chairperson's announcements
 7:10 pm eMinute Pitch, up to 3 Startup pitches
 7:25 pm - Expert Panel, up to 3 expert speakers on the night's topic
 8:15 pm - Moderator and Audience Q & A with the speakers
 8:30 pm-9pm - Networking, speakers will be available afterward for responses to individual questions.

Speakers:



Angelo Damiano, Head of Business Development, Stage TEN

Angelo (A.J.) Damiano is the Head of Business Development for Stage TEN, the industry leading live eCommerce platform powering live shopping experiences for the largest brands in the world - like Target, Walmart, Netflix, and Shopify. An entrepreneur at heart, Damiano was previously the co-founder, Chairman & CEO of Powerspike, Inc., a leading influencer marketing platform for gaming, esports, and live streaming until its acquisition in 2022 by Live Current Media, Inc. (OTCQB: LIVC).

Damiano serves on the advisory board of Pivan Entertainment, a startup using AI to enhance the production quality of thousands of Twitch Streamers. He advises various companies in the areas of digital media, entertainment, AI, and gaming / esports space, and is actively involved as a mentor for the Techstars program, from which he graduated in 2018. A proud alumni of Syracuse University, Damiano is involved in mentoring students in the Blackstone Launchpad and Center for Digital Media.

Damiano is a Forbes 30 under 30, and received the award alongside his co-founders in the gaming category in 2021. A swiss army knife of a person, and passionate problem solver, Damiano has led sales teams to annualized revenues of \$5MM+, product teams to over 70,000+ users, and customer success teams world class NPS. Damiano enjoys jumping into the critical stage between Seed and Series A, and helping businesses transform from reactionary startups into proactive scaleups.

<https://www.linkedin.com/in/angelo-damiano/>



Linda Rossetti, Managing Director, Golden Seeds LLC; Managing Director, The Transition Institute, LLC

Linda Rossetti is a pioneering writer, researcher, and business leader who is committed to advancing our understanding of personal and professional transformation. She has worked at the intersection of

growth and transformation throughout her professional career. As CEO of EMaven, Inc., a venture capital backed technology company, she led the digital transformation of some of the largest companies in the U.S. She then served as Executive Vice President of Human Resources and Administration at Fortune 500 Iron Mountain where she helped transform the business into a digital records management leader. She hosts the podcast, Destination Unknown, and wrote the Amazon top seller, Women & Transition: reinventing work and life. Learn more at <https://lindarossetti.com/>
<https://www.linkedin.com/in/lindarossetti/>



Eddie Brill, standup comic, TV and movie performer, presenter at corporate events

Eddie Brill is a standup comic, TV and movie performer, and presenter at corporate events about workplace issues. He's performed across the US and in many countries.

For 17 years, Brill worked on The Late Show with David Letterman where he served as the audience warm-up entertainer and for 11 of those years was the Stand Up Comedy Talent Coordinator.

Brill has taped more than 100 TV shows in six different countries including the "Dana Carvey Show," "Madigan Men," "This is Your Life" and early episodes of "Saved By The Bell."

He's a three-time MAC award winner for Outstanding Male Comic in NYC and has appeared in numerous films as an actor, including, "30 Years To Life" with Tracy Morgan and is the voice for animated series including Comedy Central's "Dr Katz" and ABC's "Science Court." Along with Norman Lear in 1978, he helped create one of the first college comedy writing departments in the country at Emerson College in Boston.

Brill has hosted, performed at, and helped raise money

for benefits including The Roberto Clemente Foundation (for underprivileged children), The David Ortiz Children's Fund, Sisters in Survival (women with Breast cancer), Juvenile Diabetes, The American Cancer Society, and with Reader's Digest and St. Jude on Stand-Up for the Children.

<https://www.linkedin.com/in/eddie-brill-52389684/>

Lisa Sholkin, VP of People, Teampay

Lisa Sholkin currently oversees the People function at Teampay, which includes HR, talent acquisition and office management. Prior to Teampay, She led People teams at Series B and Series C SaaS companies (Brandwatch, ALICE (now Actabl), and Radar Labs, Inc.), backed by organizations such as Expedia, Alpine Software Group, Accel and Insight Partners. She has helped lead companies in successful merger and acquisition scenarios and prides herself on being an empathetic and problem solving focused leader. Earlier in her career, Sholkin worked in college and experienced professional talent acquisition at McKinsey & Company, PwC and Uber.

Sholkin is a Boston, MA native, but has spent time working in both NYC and San Francisco. She is a graduate of Washington University in St. Louis with a B.S. in Political Science, and has an M.B.A. from Emory University in Atlanta with a focus on Marketing and Strategy. Sholkin served as a board member at Hunter College Hillel and also has served in leadership volunteer roles at UJA New York, Selfhelp and East Harlem Tutorial Program.

<https://www.linkedin.com/in/lisa-sholkin/>

Moderator:

Howard Sholkin, Sholkin Consulting



Howard Sholkin has several decades of marketing communication experience across industry sectors. From 2003-2014, Sholkin served in senior communications positions for International Data Group Founder Pat McGovern and the CEO of IDG Communications, a global technology media and events subsidiary. IDG brands include Computerworld, PCWorld, Macworld, and CIO. Sholkin also held senior marketing and communication positions at other technology product and services companies such as Computervision; Technology Concepts, a subsidiary of Bell Atlantic; and Digital Equip-

ment Corp./Compaq.

Following his corporate career, Sholkin is a consultant and serves on three non-profit boards including The Boston Entrepreneurs' Network. .

From 2015-21, he was a part-time lecturer at Boston University and Lasell University in Newton. He taught courses in writing, mass media, PR, and internships.

<https://www.linkedin.com/in/howardsholkin/>

Organizer:

Maureen Mansfield, Founder, ~ Protect Your Passion ~, Vice-Chair, Alliance Partners, Boston ENET



Maureen Mansfield is an entrepreneur and a business developer with a deep passion for all things innovative. She is the Founder of ~ Protect Your Passion ~ that is on a mission to educate entrepreneurs about protecting their passion when founding a company, scaling a startup, or licensing intellectual property, including patent protection. After sharing her story at ENET about cofounding a startup and raising a round, Maureen was asked to volunteer and currently serves as Vice-Chair, Alliance Partners with the IEEE Boston ENET.

With over 20 years of working with founders and business owners from small businesses to the c-suite of a F50s, Maureen brings sage wisdom from business development (marketing and sales), contracts, and building proprietary systems to automate data, which has helped many companies to enjoy their most profitable year to date, including a coveted award by a F50 that created a new profitable cost center nationwide saving over \$1 million to its bottom line annually.

Maureen holds several degrees from the University of Iowa and Harvard University, with selective admission into each program. Never forgetting her roots and those who have helped along the way, Maureen knows the value of giving back and has volunteered through her colleges, communities, and church, and founded of two charities that continue today. After being offered a full-scholarship for music, Maureen continues to play the alto saxophone, thanks to her mother who bought the saxophones. <https://www.linkedin.com/in/maureen-mansfieldalm7813692020/>

IEEE and IEEE REGION 1 AWARDS Announced

2023 IEEE Technical Field Awards

IEEE Control Systems Award: To recognize outstanding contributions to control systems engineering, science, or technology.

Naomi Ehrlich Leonard (Princeton/Central Jersey Section): "For contributions to applications and theory for control of nonlinear and multiagent systems."

IEEE Robotics and Automation Award: The award is presented for contributions in the field of robotics and automation.

Daniela Rus (Boston Section): "For pioneering contributions to the design, realization, and theoretical foundations of innovative distributed, networked autonomous systems."

IEEE Life Members Affinity Group Awards

Regional LMAG Achievement Awards

Michael A. Miller: Region 1 – North New Jersey LMAG, Chair

Life Members Individual Service Awards - This is the first year that the LMC has awarded the Global Life Members Individual Service Award and Regional Life Member Individual Service Awards to those Life Members who have provided exceptional and valuable service to the Life Member organization.

Lou Luceri: Region 1

Region 1 Awards:

The William Terry Distinguished Service Award: This award is intended to recognize those whose personal efforts have provided leadership, creativity, guidance, hard work and inspiration in a wide range of IEEE activities over a significant and sustained period of time.

Santosh K. Kurinec (Rochester) – For IEEE service, and outstanding research and teaching semiconductor technology and promoting semiconductor workforce generation

Technological Innovation (Academic): For distinguished development, advancement and pursuit of the IEEE's technical objectives

Hengyong Yu (Boston) – For pioneering contributions and international leadership in tomographic imaging, especially interior tomography and machine learning-based tomographic imaging

Wenliang Du (Syracuse) – For contributions in cybersecurity education

Oliver Kennedy (Buffalo) – For contributions to incremental view maintenance, understandable reproducible data science, and outreach efforts

Karthik Dantu (Buffalo) – For technical contributions to visual localization and mapping technologies for mobile systems and robotics

Technological Innovation (Industry or Government): For significant patents, discovery of new devices, development of applications or exemplary contributions to industry or government

Yuanqiu Luo (Princeton/Central Jersey) – For outstanding innovations on high-speed optical access system design and development, and leadership in driving international standards to promote broadband access worldwide

Yutaka Sugawara (Mid-Hudson) – For sustained contributions to architecture and design of world-class high performance computing systems

Outstanding Teaching in an IEEE Area of Interest (University or College): For outstanding contributions to education in an area of interest to the IEEE

Bina Ramamurthy (Buffalo) – For outstanding contributions to global education in the emerging area of blockchain technology

Outstanding Teaching in an IEEE Area of Interest (Pre-University or College): For improving communications between the IEEE and a student body; for support and service to a student body; for service and leadership to the student community

Chitra M. Venkatraman (North Jersey) – For significant contributions to employment networking, career development, women in engineering, and pre-university STEM education

Outstanding Support for the Mission of the IEEE, MGA, Region 1 and/or Section: For outstanding service to the IEEE at the Chapter, Section, Region, MGA and/or National level

Martin L. Cohen (Providence) – For outstanding and steadfast performance as Section Chair, Treasurer, and chair of numerous committees and events during two decades of service

Fatimah Shehadeh-Grant (New Jersey Coast) – For contributions in increasing STEM awareness among local pre-university students and promoting WIE initiatives

Michael Chirico (Buffalo) – For valued service and outstanding contributions to the IEEE Buffalo Section

Guest Article -

The Latest on Patent Assignor Estoppel: The Federal Circuit Provides Some Guidance on Remand

By Thomas McNulty and Peter Lando



Assignor estoppel is a judicially-created doctrine that prevents one from asserting that a patent that he or she assigned to another is invalid. The doctrine is based on the requirements of good faith and fair dealing between contracting parties and was created to prevent one from selling something for value and later asserting that what was sold is worthless.

The Supreme Court's 2021 *Minerva Surgical, Inc. v. Hologic, Inc.* decision limited the application of the doctrine to circumstances where an invalidity claim contradicts and explicit or implicit representation by the assignor that the assigned patent was valid. The Court noted several examples where the estoppel might not arise, including assignments of future, as-yet-unmade inventions, inventions whose patentability is affected by significant changes in patent law following the assignment, and claims that were materially broadened following the assignment, such that the assignor could not be said to have warranted validity of the full scope of the broadened claim.

The *Minerva* case involved an inventor who assigned a patent to Hologic. The inventor subsequently formed a new company, *Minerva*, to compete with Hologic. Hologic filed suit accusing *Minerva* of infringing a patent that Hologic had filed after the assignment but that claimed priority to the assigned patent.

The Federal Circuit has now on remand found that assignor estoppel applies, precluding *Minerva* from challenging the validity or enforceability of the patent-in-suit. The Federal Circuit considered whether a particular claim that had been advanced during prosecution but ultimately cancelled before the assignment took place was something that had been warranted by the assignor to be valid, and if so, whether it was broad enough to encompass the scope of the claim in suit.

Regarding the first consideration, the patentee had argued for the validity of the earlier claim and had received

a notice of allowability from the Patent and Trademark Office. That claim was subsequently withdrawn and ultimately cancelled in response to a restriction requirement that forced the patentee to elect between method and product claims. Of import, the withdrawal and cancellation were made "without prejudice," meaning the patentee (or whoever ended up owning the patent) could refile the claim in a new, "divisional" application. The Federal Circuit found that this cancellation thus did not constitute a disclaimer of validity of the claim, and that the assignment, which assigned not just the application as it then existed but also all rights to continuations and divisional patent applications, resulted in the cancelled claim being assigned to Hologic. Further, the inventor had signed an oath when he filed the patent application that indicated his "implicit good-faith belief" that the claims were patentable, and had both argued that the claim should be allowed during prosecution and had indicated in the assignment that he had "no present knowledge from which [he] could reasonably conclude" that the assigned intellectual property rights were invalid or unenforceable. This was enough for the Federal Circuit to determine that the patentee had warranted, explicitly or implicitly, that the subject matter of the cancelled claim was valid.

The Federal Circuit next determined, after construing the claims, that the scope of the claim in suit was encompassed by the original claim, and that it therefore did not fall within the exception to the estoppel of claims that were materially broadened following the assignment. The Court noted that to fall outside of the scope of the estoppel, the claim would have to be "materially broader" (rather than just broader) than the original claim, although it did not provide any guidance on where this distinction might lie. Finally, the court noted that there was no dispute regarding the other aspects of the application of estoppel – that the inventor had executed a broad assignment of patent rights and had received appreciable value for the assignment, that he founded *Minerva* to compete with Hologic, and that he



was in privity with Minvera. Accordingly, the Federal Circuit estopped Minerva from arguing that the claim was invalid or unenforceable. Hologic had already obtained summary judgment of infringement and damages of about \$5 million, which remain in effect.

This decision provides guidance on when the estoppel will apply, but questions remain. The Federal Circuit expressly stated that the holding should not be stretched to cover claims that were cancelled for reasons other than in response to a restriction requirement. It remains uncertain whether claims cancelled “without prejudice” for other reasons would be treated similarly. There are times, for example, where some claims are deemed unpatentable by the PTO and an applicant opts to cancel the claims to obtain allowance of other claims deemed allowable. Usually these claims are cancelled without prejudice to the right of the applicant to reassert them in a continuation application, and presumably such a right would travel with an assignment of comparable breadth. Indeed, any patent rights that are assigned while a family member remains pending would seem to carry along each and every claim that is not expressly abandoned, as the failure to include the “without prejudice” language does not prevent the refiling of a cancelled claim in a continuation or divisional application.

Further, the Court seemed to stretch the import of the oath that is filed with a patent application to “implicitly” become a warranty of patentability by the inventor(s). The oath signed by the inventor in this case stated “I believe I am the original, first and sole inventor... of the subject matter which is claimed and for which a patent

is sought on the invention...” This merely states the inventor’s subjective belief, and cannot “warrant” patentability – else why go through examination? The decision, however, identifies this as an implicit warranty of patentability. Likewise, the assignment language that the inventor had “no present knowledge from which [he] could reasonably conclude” that the assigned intellectual property rights were invalid or unenforceable can reasonably be interpreted to warrant patentability over art known to the inventor as of the assignment, but it seems like a stretch to interpret this as warranting patentability over all prior art, as the Federal Circuit seems to do. In light of this, patent-holders may wish to put express language disavowing any warranties in their assignments to (hopefully) preclude the application of estoppel. Assignor estoppel eliminates a key defense to patent infringement allegations. Parties that assign patents and patent applications should ensure that they have taken any and all steps that they can to avoid the estoppel, especially if they intend to continue to work in the field and potentially compete with the assignee. Assignees, on the other hand, should ensure that warranties of patentability are expressly included in the assignment to avoid any doubt, and should familiarize themselves with the scope of all claims presented, not just those in existence at the time of the assignment, to understand the full scope of what they are receiving.

Peter Lando is a partner at Boston intellectual property law firm, Lando & Anastasi, LLP. He can be reached at PLando@LALaw.com or 617-395-7002. Thomas McNulty is counsel at Lando & Anastasi, LLP. He can be reached at TMcNulty@LALaw.com or 617-395-7040.

Call for Articles

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

Technical submissions should be of reasonable technical depth and include graphics and, if needed, any supporting files. The length is flexible; however, a four to five page limit should be used as a guide. An appropriate guide may be a technical paper in a conference proceeding rather than one in an IEEE journal or transaction. Professional development or general interest articles should have broad applicability to the engineering community and should not explicitly promote services for which a fee or payment is required. A maximum length of two to three pages would be best.

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

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

We are excited about this new feature and hope you are eager to participate!

Submissions should be sent to;
ieeebostonsection@gmail.com

Advertise with us!!!

Advertising with the IEEE Boston Section affords you access to a highly educated, highly skilled and valuable consumer. Whether you are looking to reach students with a bright future and active minds, or whether you are reaching households with priorities that may include a family, planning for vacations, retirement, or like-values, the IEEE Boston Section is fortunate to enjoy a consistent relationship. The IEEE Boston Section provides education, career enhancement, and training programs throughout the year. Our members, and consumers, are looking for valuable connections with companies that provide outstanding products. For qualified advertisers, the IEEE Boston Section advertising options are very flexible. Through our affiliate, we will even help you design, develop, and host your ads for maximum efficiency. A few important features of the IEEE Boston Section

IEEE Boston Section is the largest, most active, and technically diverse section in the U.S. Comprised of Engineers, scientists and professionals in the electrical and computer sciences and engineering industry

IEEE Boston Section Rate Card <http://ieeeboston.org/advertise-ieee-boston-section/>

IEEE Boston Media Kit <http://ieeeboston.org/advertise-ieee-boston-section/>

Contact IEEE Boston Section at ieeebostonsection@gmail.com for more information on rates for Online Advertising

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 diverse 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.

Digital Signal Processing (DSP) for Software Radio (New Dates!)

Dates & Times: Live Workshops: 6 - 7:30PM EST; Thursdays, Jan. 26, Feb. 2, 9, 16, 23
First Video Release and orientation, 6 - 6:30PM January 19, 2023,
additional videos released weekly in advance of that week's live session!

Speaker: Dan Boschen

Location: Zoom

Course Information will be distributed on Thursday, January 19, 2023 in advance of and in preparation for the first live workshop session.

Attendees will have access to the recorded session and exercises for two months (until April 23) after the last live session ends!

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

Course Summary This course builds on the IEEE course "DSP for Wireless Communications" also taught by Dan Boschen, further detailing digital signal processing most applicable to practical real-world problems and applications in radio communication systems. Students need not have taken the prior course if they are familiar with fundamental DSP concepts such as the Laplace and Z transform and basic digital filter design principles.

This course brings together core DSP concepts to address signal processing challenges encountered in radios and modems for modern wireless communications. Specific areas covered include carrier and timing recovery, equalization, automatic gain control, and considerations to mitigate the effects of RF and channel distortions such as multipath, phase noise and amplitude/phase offsets.

Dan builds an intuitive understanding of the underlying mathematics through the use of graphics, visual demonstrations, and real-world applications for mixed signal (analog/digital) modern transceivers. This course is applicable to DSP algorithm development with a focus on meeting practical hardware development challenges, rather than a tutorial on implementations with DSP processors.

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

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

All set-up information for installation of all tools used will be provided prior to the start of class.

Target Audience: All engineers involved in or interested in signal processing for wireless communications. Students should have either taken the earlier course "DSP for Wireless Communications" or have been sufficiently exposed to basic signal processing concepts

if you are uncertain about your background or if you would like more information on the course.

Benefits of Attending/ Goals of Course:

Attendees will gain a strong intuitive understanding of the practical and common signal processing implementations found in modern radio and modem architectures and be able to apply these concepts directly to communications system design.

Topics / Schedule:

Class 1: DSP Review, Radio Architectures, Digital Mapping, Pulse Shaping, Eye Diagrams

Class 2: ADC Receiver, CORDIC Rotator, Digital Down Converters, Numerically Controlled Oscillators

Class 3: Digital Control Loops; Output Power Control, Automatic Gain Control

Class 4: Digital Control Loops; Carrier and Timing Recovery, Sigma Delta Converters

Class 5: RF Signal Impairments, Equalization and Compensation, Linear Feedback Shift Registers

Speaker's Bio:

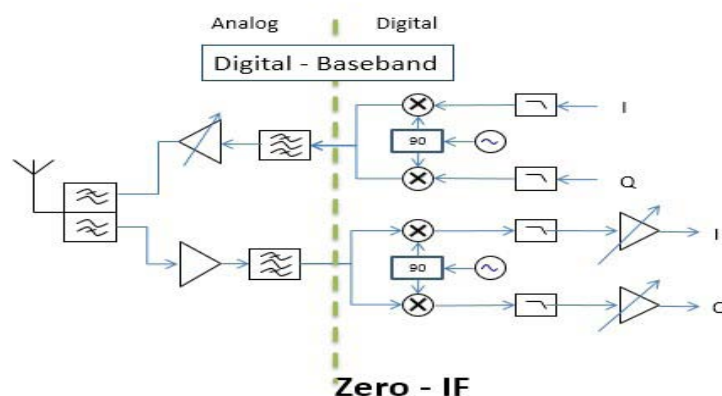
Dan Boschen has a MS in Communications and Signal Processing from Northeastern University, with over 25 years of experience in system and hardware design for radio transceivers and modems. He has held various positions at Signal Technologies, MITRE, Airvana and Hittite Microwave designing and developing transceiver hardware from baseband to antenna for wireless communications systems and has taught courses on DSP to international audiences for over 15 years. Dan is a contributor to Signal Processing Stack Exchange <https://dsp.stackexchange.com/>, and is currently at Microchip (formerly Microsemi and Symmetricom) leading design efforts for advanced frequency and time solutions.

**Decision (Run/Cancel) Date for this Course is
Monday, January 16, 2023**

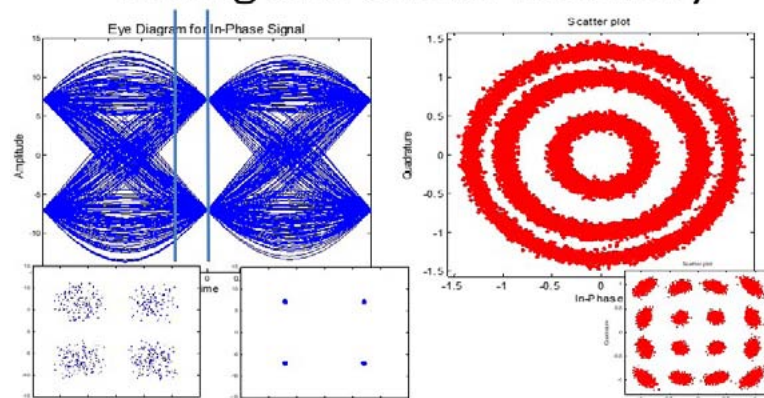
IEEE Members	\$190
Non-members	\$210

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

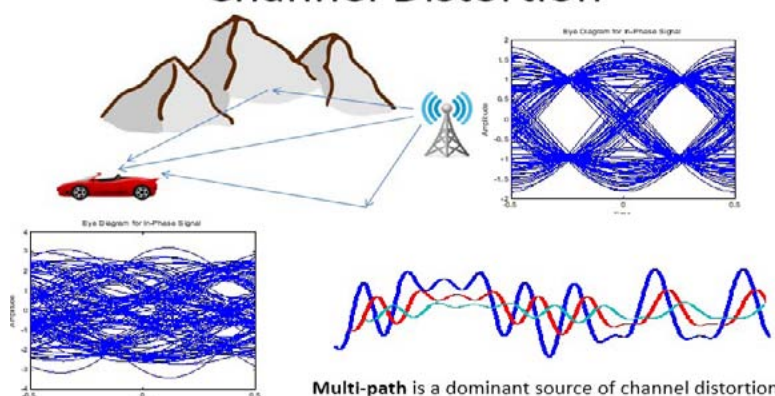
Radio Architectures



Timing and Carrier Recovery



Channel Distortion



Multi-path is a dominant source of channel distortion

[https://ieeeboston.org/event/dsps radio/?instance_id=3302](https://ieeeboston.org/event/dsps%20radio/?instance_id=3302)

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

Web-based Course with live Instructor!

Times & Dates: 9AM - 12:30PM ET, Saturday, March 18, 2023 **(New Date!)**

Speaker: CL Kim

Course Format: Live Webinar, 3 hours of instruction!

Series Overview: Neural networks and deep learning currently provides the best solutions to many problems in image recognition, speech recognition, and natural language processing.”

Reference book: “Neural Networks and Deep Learning” by Michael Nielsen, <http://neuralnetworksanddeeplearning.com/>

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

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

“But you don’t need to be a professional programmer.”

The code provided is in Python, which even if you don’t program in Python, should be easy to understand with just a little effort.

Benefits of attending the series:

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

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

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

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

Outline:

Feedforward Neural Networks.

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

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

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

**Decision (Run/Cancel) Date for this Course is
Friday, March 10, 2023**

IEEE Members	\$110
Non-members	\$130

https://ieeeboston.org/event/neuralnetworks/?instance_id=3285

Advertise with us!!!

Advertising with the IEEE Boston Section affords you access to a highly educated, highly skilled and valuable consumer. Whether you are looking to reach students with a bright future and active minds, or whether you are reaching households with priorities that may include a family, planning for vacations, retirement, or like-values, the IEEE Boston Section is fortunate to enjoy a consistent relationship. The IEEE Boston Section provides education, career enhancement, and training programs throughout the year. Our members, and consumers, are looking for valuable connections with companies that provide outstanding products. For qualified advertisers, the IEEE Boston Section advertising options are very flexible. Through our affiliate, we will even help you design, develop, and host your ads for maximum efficiency. A few important features of the IEEE Boston Section

IEEE Boston Section is the largest, most active, and technically diverse section in the U.S. Comprised of Engineers, scientists and professionals in the electrical and computer sciences and engineering industry

IEEE Boston Section Rate Card <http://ieeeboston.org/advertise-ieee-boston-section/>

IEEE Boston Media Kit <http://ieeeboston.org/advertise-ieee-boston-section/>

Contact IEEE Boston Section at ieeebostonsection@gmail.com for more information on rates for Online Advertising

Practical RF PCB Design, Wireless Networks, Products and Telecommunications

Time & Date: 9:00AM - 4:30PM, Wednesday & Thursday, January 4 & 5, 2023
(13 hours of instruction!)

Speaker: Henry Lau, Lexiwave Technology

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

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

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

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

OUTLINE

1. Printed circuit board design for RF circuits

From product design, circuit design to PCB design
Layer stack-up assignment
Grounding methods and techniques
Interconnects and I/O
Bypassing and decoupling
Partitioning methods

2. Printed circuits board design for other circuits

Clock circuits
Base-band circuits
Audio circuits
Power supplies
Impedance-controlled circuits

3. PCB design for EMC/EMI compliance

EMC/EMI compliance
Grounding methods
Decoupling methods
Shielding methods

4. Additional Design Techniques

Production concerns
Systematic product design approach
RF Modules
Evaluation boards
Other RF concerns
Casing design

5. Case studies

Expertise:

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

*notes, lunch and coffee breaks
included with registration*

**Decision (Run/Cancel) Date for this Courses is
Friday, December 27, 2022**

Payment received by Dec. 23

IEEE Members \$415

Non-members \$445

Payment received after Dec. 23

IEEE Members \$445

Non-members \$465

https://ieeeboston.org/event/practical-rf-pcb-design/?instance_id=3308

Additional Courses Planned for later in 2023

Python for Signal Processing and Digital Design – April 1, 2023

DSP for Wireless Communications – July 22, 2023

DSP for Software Radio – October 14, 2023

Look in future Reflector issues and our website for more details

IEEE Boston Section Social Media Links:

Twitter: <https://twitter.com/ieeeboston>

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

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

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



Stay Connected & Subscribe Now!

@ mwjournal.com

Join Us at the RF and Microwave Community.



Follow Us:
@MWJEditor

Subscribe now to access:

- In-Depth, Technical Articles
- Insights from Industry Leaders
- Focused Reports
- Product & Industry News
- eLearning Opportunities
- Video and Podcast Libraries
- Print Editions/Technical eBooks



Subscribe Now!

