

BOSTON



THE REFLECTOR

ISSUE #6
JUNE 2022

CALL FOR PAPERS - 2022 HIGH
PERFORMANCE EXTREME
COMPUTING CONFERENCE

P.25

DEADLINE, JULY 9, 2022

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

P.19

2022 IEEE INTERNATIONAL
SYMPOSIUM ON PHASED
ARRAY SYSTEMS AND
TECHNOLOGY

P.23

PROF. DEV. TRAINING:
INTRODUCTION TO PRACTICAL
NEURAL NETWORKS AND DEEP
LEARNING

P.17

CALL FOR PAPERS - 2022 IEEE
INTERNATIONAL SYMPOSIUM
ON TECHNOLOGIES FOR
HOMELAND SECURITY

P.24

DEADLINE, JUNE 15, 2022

PROF. DEV. TRAINING:
PYTHON APPLICATIONS FOR
DIGITAL DESIGN AND
SIGNAL PROCESSING

P.21

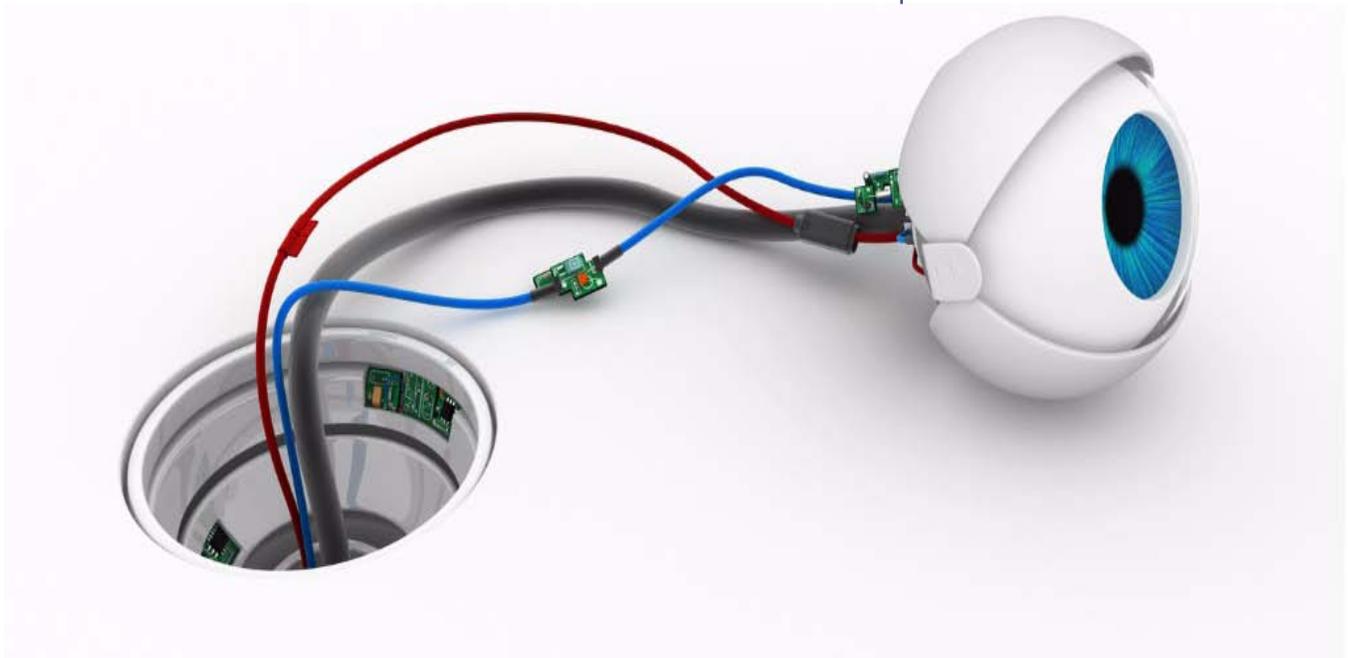


TABLE OF CONTENTS

Editorial - "Let Us Know What You Need" by Marie Hronik-Tupaj, Past Chair, IEEE Boston Section	Page 3
Interest Article - CPS is Now SoWa Power Station	Page 4
IEEE Boston Section Online, self-paced, on-demand courses	Page 5
2022 IEEE/MIT Undergraduate Research Technology Conference (URTC) - Call for Papers!	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
Entrepreneurs' Network	Page 9
Computer Society (Boston, New York and New Jersey Chapters).....	Page 12
Geoscience & Remote Sensing (Boston and South Italy Chapters), Aerospace and Electronic Systems Societies, and Life Members AG	Page 13
Entrepreneurs' Network	Page 14
Call for Course Speakers and Organizers	Page 14
Electromagnetic Compatibility Society	Page 15
Entrepreneurs' Network	Page 16
Introduction to Practical Neural Networks and Deep Learning (Part I)	Page 17
Digital Signal Processing (DSP) for Software Radio	Page 19
<i>(Last Notice, Please Register Now!!!)</i>	
Python Applications for Digital Design and Signal Processing	Page 21
2022 IEEE International Symposium on Phased Array Systems and Technology	Page 23
Call for Papers -2022 IEEE International Symposium on Technologies for Homeland Security	Page 24
<i>(Submission Deadline, June 15, 2022)</i>	
Call for Papers - 2022 IEEE High Performance Extreme Computing Conference (HPEC)	Page 25
<i>(Submission Deadline - July 9, 2022)</i>	



Let Us Know What You Need!

By Marie Hronik-Tupaj, Ph.D.

Skills for STEM jobs are becoming interdisciplinary and interpersonal in nature and academia needs to support this. At the 2020 American Association of Engineering Education (ASEE) Conference, Aldert Kamp gave the keynote address that emphasized engineering skills of 2030 will include the ability to communicate with others and the ability to work with different groups of people. One takeaway from this address is that engineering skills that are sought after vary to some degree and we need to train our students so that they begin their careers with the desired skill set. We do this by realigning our engineering curriculum.

When I am not teaching, I develop introductory engineering courses for my students at a local community college. Specifically, I work on ideas for new courses and class projects. Much of this material is created with an interdisciplinary focus in mind that utilize both applied skills and theoretical work – a balance that is important for professionals. While developing new types of courses and pedagogies can be time consuming and daunting, change is inevitable, yet good.

As I think about new courses, I think about which class format would be of best use to the students. Engineering courses nowadays can be taken online, in person, or in a hybrid fashion. They can also meet synchronously or asynchronously. As we acquire more tools to teach remotely, we have learned new teaching techniques to meet the needs of different learning models and different student needs. Things to consider, are students in a location that allows them to travel to campus? Do they have work commitments that require online asyn-

chronous learning? As an advisor, I support students individually on their path towards work and graduation, however the path may take them. As an instructor, I consider which learning model is most effective for the material. For example, while an in-person class is needed to complete the lab and some exams, lectures may be more efficient in an online format.

The course schedule matters. Each semester I have employers calling me looking for students that can fill internship positions and full time work. Many of my students work while going to school. I ask them how classes will fit for them. I run polls in class, I send out surveys, and I also look into what students are signing up for. I look at the data. I look at the course scheduling.

The IEEE Boston Executive Committee is always thinking about new courses and events to hold for its members. How do we find out what courses we should develop or how to hold our next networking event? We ask you! Industry leaders, IEEE life members, and recent graduates, let us know your ideas so that we can better serve you! Contact the IEEE Boston executive committee at <https://ieeeboston.org/contact-us/> and tell us if you are interested in virtual or in-person events. Tell us what topics will fulfill a current need and the type of audience.

We are an inclusive group that aims to support many STEM fields. We can partner with you. You may go faster as one, but farther together. Let's work together and drive the change! Tell us what you need!

CPS is now SoWa Power Station

by Gilmore Cooke

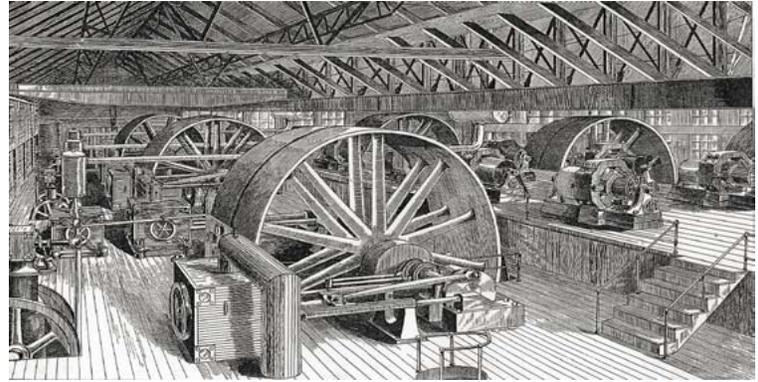
An article dated May 24, 2022 for the July newsletter of the IEEE History Center, submitted to Robert Colburn

The Central Power Station (CPS) was constructed beginning in 1889 by the West End Street Railway Company, predecessor of the 'T'. This power station provided direct current electricity for the growing streetcar system of Boston. With CPS as its flagship, the West End launched the world's largest commercial electrical traction system. Within a few years, 9000 tired horses that had transported passengers around the region became obsolete and were replaced by 1000 shiny new electric streetcars. The IEEE celebrated this Milestone achievement in 2004 with these words:

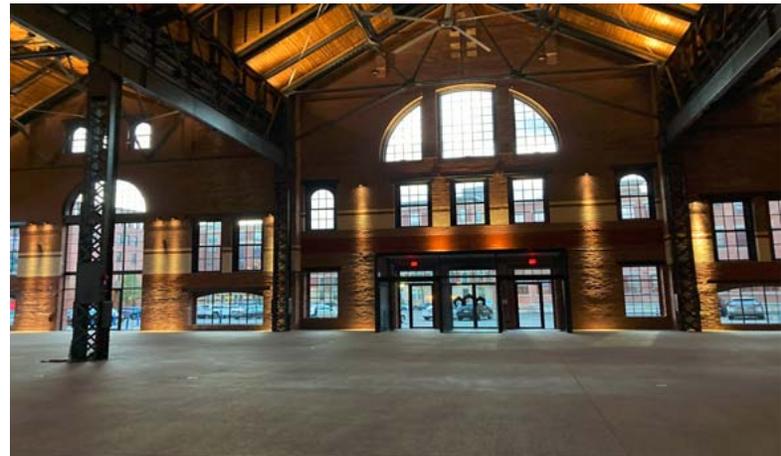
Boston was the first city to build electric traction for a large-scale rapid transit system. It was designed and developed by Henry Whitney and his associates, led by Chief Engineer Fred Pearson. The engineering challenge to design and construct safe, economically viable, and reliable electric power for Boston's rapid transit was met by the West End Street Railway Company, beginning in 1889. The company's pioneering efforts provided an important impetus to the adoption of mass transit systems nationwide.



CPS was renovated and repurposed by GTI Properties and is now known as the SoWa power station. It is located at 540 Harrison Avenue, Boston. Photo by Google.



The original equipment included four rows of the largest belt driven traction generators and six large Allis-Corliss triple expansion steam engines (note that only three are visible on the left). Line shafts and belt-lighteners were located in the basement. Image provided by G. Cooke



SoWa has been completely transformed by the new owner into an 'iconic architectural event space'. Photo by G. Cooke.

The writer would like to take this opportunity to thank Mario Nicosia and tour guides for showing me this fantastic space. Information for private and public events is available by contacting www.sowapowerstation.com.

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/>



2022 IEEE MIT Undergraduate Research Technology Conference

Sept 30 - Oct 2 | Massachusetts Institute of Technology (MIT), Cambridge MA, USA

IEEE
Advancing Technology for Humanity

Call for Submissions

To submit: <https://cmt3.research.microsoft.com/URTC2022>

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 for humanity. Participants can attend a rich program with renowned speakers, technical sessions, a student design competition, exhibits, networking, and social activities, presenting a great opportunity for students to interact with leading industry experts.

The conference theme is “Meet Innovative Technology”, and the eight fields of focus are:

1. Biological and Biomedical Engineering (BioEECS)
2. Circuits, Materials, and Nanotechnologies
3. Computer Systems, Theoretical Computer Science and Mathematics
4. Machine Learning / Artificial Intelligence (AI)
5. Robotics and Controls
6. Security and Communications
7. Space Application and Technologies
8. Innovation Research

Early Paper Submission Deadline	July 10, 2022
Regular Paper Submission Deadline	July 31, 2022
Regular Notification of Acceptance	August 28, 2022
Poster and Lightning Talk Submission Deadline	August 31, 2022
Poster and Lightning Talk Acceptance Notification	September 7, 2022

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 5 pages, single-spaced, with a minimum font of 10 point, and submissions may include figures, illustrations, and graphs. Abstract submissions for the poster and lightning talk are limited to 500 words.

All submissions will be peer-reviewed. Submissions are online

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 MIT IEEE Student Branch and IEEE Boston Section

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.

Entrepreneurs' Network – 7:00PM, Tuesday, June 7

How Startups Can Leverage Partners for Market Access

Online Webinar

Register Now: https://us02web.zoom.us/webinar/register/WN_Ej25Fc8zSv-MC8pS2jT6iA

For today's entrepreneur – who faces high hurdles to funding, ever increasing competition, thin barriers to entry, and shortened cycles from invention – strategic alliances and partnerships can play an important role in your success and even in your survival. For the startup company, your strategic partner can leverage your market access in several ways. Your partner can be your first source of outside funding, the beta tester of your product or service, and source of credibility for your first angel or venture capital investment round. For the early-stage company, alliance partners can help you to gain competitive advantages, increase sales, scale up production, for access and to penetrate new markets and deliver new products and services. Sounds good. Well, how do you do it?

The ENET webinar on June 7, 2022, will include present and past CEOs, serial entrepreneurs and professionals, including those experienced with both tech and life science startup companies moderated by a past ENET Chairman who is also a contracts attorney, all with experience developing and building these relations with partners to deliver market access and value.

They will tell what to look for and what to avoid, including

- Addressing the process of identifying possible partners, drilling down to the best one and securing the relationship.
- Sharing experiences regarding what has made their partnerships successful, and, more importantly, what went wrong and why.
- Discussing how these relationships increase (or decrease) shareholder value, and enhancing your chances for investment.
- Discussing the risks to their companies, and the learning process that they went through.

Each of the three speakers will speak to the topic including experiences with both tech and life science startup companies they founded. The presentations will then be followed with a fireside chat, with audience and moderator questions for each of the speakers on the panel. There will also be a half hour of online networking available to registrants, after the presentations to give you the chance to “meet” virtually the speakers and moderator.

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.

This event is FREE, however, registration is required. Registration: <https://bostonenet.org/events/fueling-growth-how-to-build-a-sales-team-to-sell-more/#registration-form>

Webinar recording will be available for ENET members only. Learn how to become a member here <https://bostonenet.org/membership/>

Speakers



Eric Giler - Founder and Co-CEO @ OmniZare Imaging, Inc. and serial entrepreneur

His current company is an early-stage company developing next generation medical imaging equipment in the Boston area. He is also Chairman of Endevo, Inc. in Boston, Massachusetts. He was previously CEO and a board member of WiTricity

Corporation from 2008 to 2016. WiTricity Corporation was founded in 2007 to commercialize a new technology for wireless electricity invented and patented two years earlier by a team of physicists from the Massachusetts Institute of Technology (MIT). Previously, he was the Chairman and Chief Executive Officer of Groove Mobile, a provider of mobile music commerce platforms, from 2006 until its acquisition by LiveWire Mobile in 2008. Eric was the founder and served as the Chief Executive Officer and President of Brooktrout Inc., a provider of telecom software and hardware platforms, from 1984 until its go private transaction in 2005. Under Eric's leadership, Brooktrout grew to over \$150M in annual revenue, and had a successful IPO in 1992. He has been an adjunct professor at Babson College in Wellesley, Massachusetts and Chairman and CEO of Speedy Packets, a software company based in Boston. Eric is a trustee of Carnegie-Mellon University and a lifetime overseer of Newton-Wellesley Hospital. He is a board member of Streann Media in Miami, FL as well as an advisor to multiple technology companies. He is the author of over 30 patents. Eric holds a Bachelor of Science degree from Carnegie Mellon University and a Master's degree in Business Administration from the Harvard Business School.



Susan Israel - AIA LEED AP, Founder & President @ Climate Creatives

She founded her company to use art and design experiences to engage stakeholders on sustainability topics in all sectors. She consults to organizations on culture change, strategy, team development, and outreach. Her participatory public art, workshops, and STEAM programs have been used in three countries and with the United Nations. Climate Creatives has collaborated with 125 partners, reaching 500,000 people on-site plus digital impressions. Past clients include Fidelity Investments, Blue Cross Blue Shield MA, Harvard Business School, universities, boards, non-profits, museums, and municipalities. Susan is a licensed Architect and LEED AP, practicing architecture for over 20 years. She sits on advisory boards and is a Clean Tech Open Mentor. Susan is a lifelong Harvard alumni leader, holds an A.B. from Harvard College, a Master of Architecture from Harvard University Graduate School of Design, and attended the Boston Museum of Fine Arts School. www.ClimateCreatives.com



Naomi Vishnupad Ph.D. - Chief Scientific Officer @ Romeg Therapeutics, LLC and COO @ Imaginative Research Associates Inc.

She is an entrepreneurial business executive with 20+ years of pharmaceutical industry experience. With over 15 years in product research, development and commercialization, she has a history of successfully introducing novel pharmaceutical and consumer products to the market. Prior to her entrepreneur business experience, she worked extensively in pharma and biotech providing scientific expertise and regulatory guidance for innovative drug development and commercialization. As the Chief Scientific Officer at Romeg Therapeutics, a company that develops drug therapies for unmet needs, she has been responsible for executing the vision for the company and has managed key milestones for establishing a successful pharmaceutical startup. Naomi is also the Chief Operating Officer at Imaginative Research Associates, Inc., a private company providing patented innovative product technology for the dermatology industry. Naomi is the inventor on several patents resulting in over fifteen marketed products in dermatology and inflammation, and has a doctorate in immunology from Drexel University. She's a recreational runner and fitness enthusiast and lives and works in the greater Boston area.

Moderator & Organizer



Robert A. Adelson - Principal, Business and Tax attorney @ Adelson & Associates, LLC. Chair Emeritus @ Boston Entrepreneurs' Network (ENET)

Rob has been an attorney for over 30 years specialized in business, tax, stock and options, employment, contracts, financing, trademarks and intellectual property. Rob began as an associate at major New York City law firms before returning home to Boston in 1985 where he has since been a partner in small and medium sized firms before joining Engel & Schultz LLP where he was a partner from 2004 to 2019. When the senior partners retired, he moved his law practice to his own firm, effective 1/1/2020. Rob represents entrepreneurs, startups and small companies, independent contractors and employees and executives. Rob is a frequent speaker on business law topics and author of numerous articles published in Boston Business Journal, Mass High Tech

and other publications, plus more than thirty articles since 2016 on executive employment topics published by CEOWorld magazine. He has been named among the “Top 20 Boston Startup Lawyers” by ChubbyBrain.com, a website that provides tools for entrepreneurs. Rob has been on the ENET Board since 2002, was Vice Chair 2005-2009, and ENET Chairman 2009-2019. He was also a Co-Founder and Board member of the 128 Innovation Capital Group (2004 -2015). In 2016, he received the IEEE USA Professional Achievement award

for “extreme dedication to the entrepreneurship community.” He holds degrees from Boston University, B.A., summa cum laude, Northwestern University (Chicago), J.D., Law Review, and New York University, LL.M. in Taxation. www.executiveemploymentattorney.com
This event is FREE; however, registration is required. Webinar recording will be available for ENET members only. Learn how to become a member here!
Register Now: https://us02web.zoom.us/webinar/register/WN_Ej25Fc8zSv-MC8pS2jT6iA

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

Computer Society joint meeting with NY/NJ Chapters – 6:00PM, Wednesday, June 8

Innovations in IoT for a Safe, Secure, and Sustainable Future

Location: On-Line

Swarup Bhunia, University of Florida, Gainesville

Register in advance for this webinar at https://events.vtools.ieee.org/tego/_event/manage/313666. After registering, you will receive a confirmation email containing information about joining the webinar.

Internet of Things (IoT) promises to usher in the fourth industrial revolution through an exponential growth of smart connected devices deployed in myriad application domains. It gives rise to new relationships between man and smart connected machines that might transform our everyday experiences. Such a transformation, however, builds on innovations at all levels in the IoT architecture – from edge devices to the cloud. In this talk, we will cover the IoT design practices and core technological challenges that need to be addressed to enable widespread deployment of IoT. We will focus on innovations in the areas of energy-efficiency, security, interoperability and intelligent decision making. Next, we will discuss several compelling applications of IoT that give unprecedented capability to us. In particular, we will cover applications of IoT in addressing some of the critical safety, security, and sustainability issues in our society.

Dr. Swarup Bhunia is a preeminent professor, director of the Warren B. Nelms Institute for the Connected World and Semmoto Chair Professor of Internet of Things in the department of Electrical and Computer Engineering at University of Florida, Gainesville, FL, USA. Earlier, Dr. Bhunia has served as the T. and A. Schroeder associate professor of Electrical Engineering and Computer Science at Case Western Reserve University, Cleveland, OH, USA. He has over twenty years of research and development experience with over 250 publications in peer-reviewed journals and premier conferences and ten edited or authored books (two upcoming) in the area of VLSI design, CAD and test techniques. His research interests include low power and robust design, hardware security and trust, adaptive nanocomputing and novel test methodologies. He has worked in the

semiconductor industry on RTL synthesis, verification, and low power design for about three years. Dr. Bhunia received IEEE-CS TCVLSI Distinguished Research Award (2018), IBM Faculty Award (2013), National Science Foundation (NSF) career development award (2011), Semiconductor Research Corporation (SRC) technical excellence award (2005) as a team member, Dr. Bhunia has been serving as founding editor-in-chief in Journal of Hardware and Systems Security (HaSS), an associate editor of IEEE Transactions on CAD (TCAD), IEEE Transactions on Multi-Scale Computing Systems (TMSCS), ACM Journal of Emerging Technologies (JETC), and Journal of Low Power Electronics (JOLPE). He is a distinguished ACM speaker and a senior member of IEEE.

Agenda:

6:00PM: Welcome Remarks IEEE Promotion Video - IEEE- Engineers are the Solutionists of Tomorrow Distinguished Lecture “Innovations in IoT for a Safe, Secure, and Sustainable Future” 6:15PM Introduce Speaker, Speaker: Prof. Swarup Bhunia
6:15 - 7:15PM: Presentation
7:15 - 7:30PM: Q/A

This talk is a joint meeting of the Boston Chapter of the IEEE Computer Society and the IEEE Computer Long Island Chapter, IEEE Computer the Mid-Hudson Chapter, IEEE Computer New Jersey Coast Chapter, IEEE Computer Schenectady Chapter, IEEE Communications New York Chapter IEEE Student Branch at LIU-Brooklyn and the IEEE Student Branch at City College of Technology, CUNY. It is hosted by Webex MGA-New-York.

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

Geoscience & Remote Sensing (Boston and South Italy), Aerospace and Electronic Systems Societies, and Life Members AG – 12:00 Noon, Tuesday, June 21

Synthetic Aperture Radar for Oil Spill Observation

Speaker: Prof. Maurizio Migliaccio, FIEEE, Università degli Studi di Napoli Parthenope, Italy

Where: Zoom Meeting



Marine oil pollution monitoring is a topic of great applicative and scientific relevance. Use of remotely sensed measurements is of special interest and, in particular, the SAR because of its almost all-weather and all-day imaging capability at fine spatial resolution is the most effective tool. Conventional single-polarization SAR oil spill monitoring techniques are limited in their capability to detect oil slicks since they strongly rely on suitable thresholds, training samples, and ancillary information. Hence, an expert image analyst is due.

The launch of a number of polarimetric SAR missions, along with the understanding of the peculiar physical mechanisms governing the scattering by an oil slick, led to a new paradigm (known as physical processing) that fostered a set of polarimetric algorithms particularly robust and efficient. Hence, suitable polarimetric models that exploit the departure from the slick-free sea Bragg scattering have been developed to effectively address oil slick monitoring. A set of polarimetric features extracted following such electromagnetic models have been proved to be reliable for oil slick monitoring. Polarimetric SAR observations led to a significant improvement in sea oil slick observation since they allow distinguishing oil slicks from a broad class of lookalikes in an unsupervised way.

Maurizio Migliaccio (M'91-SM'00-F'17) is Full professor of Electromagnetics at Università di Napoli Parthenope (Italy) and was Affiliated Full Professor at NOVA South-eastern University, Fort Lauderdale, FL (USA). He has been teaching Microwave Remote Sensing since 1994. He was visiting scientist at Deutsche Forschungsan-



*Geoscience and Remote Sensing
South Italy Chapter*

stalt für Luft und Raumfahrt (DLR), Oberpfaffenhofen, Germany. He was member of the Italian Space Agency (ASI) scientific committee. He was member of the ASI CosmoSkyMed second generation panel. He was e-geos AdCom member. He was Italian delegate of the ESA PB-EO board. He was Member of South Africa Expert Review Panel for Space Exploration. He serves as reviewer for the UE, Italian Research Ministry (MIUR), NCST, Kazakhstan and Hong Kong Research board. He lectured in USA, Canada, Brazil, China, Hong Kong, Germany, Spain, Czech Republic, Switzerland and Italy. He was Italian delegate at UE COST SMOS Mode Action. He is listed in the Italian Top Scientists.

He is an IEEE Trans. Geoscience and Remote Sensing AE, International Journal of Remote Sensing AE, and was IEEE Journal of Oceanic Engineering AE Special Issue on Radar for Marine and Maritime Remote Sensing, IEEE JSTARS AE of the Special Issue on CosmoSkyMed, Member of the Indian Journal of Radio & Space Physics Editorial board. His main current scientific interests cover SAR sea oil slick and man-made target monitoring, remote sensing for marine and coastal applications, remote sensing for agriculture monitoring, polarimetry, inverse problems for resolution enhancement, reverberating chambers. He published about 160 peer-reviewed journal papers on remote sensing and applied electromagnetics.

Registration:

<https://events.vtools.ieee.org/m/315036>

Entrepreneurs' Network – 7:00PM, Tuesday, June 21

Exit Strategies for Startups

Online Webinar

Registration: <https://bostonenet.org/events/exit-strategies-for-startups/>

This event is free of charge. However, prior registration is required to attend.

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.

A Question and Answer (Q&A) Session will follow the panel discussion, and the Expert Panelists will be available afterward for responses to individual questions. All times are USA Eastern Daylight Time (EDT) as listed below.

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.

This event is FREE, however, registration is required. Registration: <https://bostonenet.org/events/fueling-growth-how-to-build-a-sales-team-to-sell-more/#registration-form>

Webinar recording will be available for ENET members only. Learn how to become a member here!

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.

Electromagnetic Compatibility Society – 4:00PM, Wednesday, June 22

EMC and Electromagnetics for the Working Engineer

Dr. Bruce Archambeault



Electromagnetics theory is surrounded by mystery and magic. Mostly because the mathematics needed to solve Maxwell's equations are messy enough that most of us avoid them at all costs! EMI/EMC is even worse, and often considered voodoo magic!

This presentation is intended to remove the mystery behind EMI/EMC and electromagnetics by explaining things in everyday terms, and without the mathematics. Some of the basic symbols used in mathematics, such as integration, derivatives, and weird vector symbols are explained. Then using these simple explanations, Faraday and Maxwell's contribution to electromagnetics is explained.

These concepts are not just university-only-interest; they have real world application in the design of electronic equipment both for EMI/EMC control as well as high speed signal quality issues. Faraday's law is an introduction to inductance, and this presentation will examine inductance and its impact on printed circuit board (PCB) design, the concept of "ground", and return current flow in typical printed circuit board stack-ups. Various typical mistakes during PCB design that greatly impact the EMI/EMC performance will be demonstrated during this discussion. Simple design approaches that do not increase the cost of the PCB are explained.

Dr. Bruce Archambeault is an IEEE Fellow, an IBM Distinguished Engineer Emeritus and an Adjunct Professor at Missouri University of Science and Technology. He received his Ph. D. from the University of New Hampshire in 1997. His doctoral research was in the area of computational electromagnetics applied to real-world EMC problems. He has taught numerous seminars on EMC and Signal Integrity across the USA and the world, including the past 15 years at Oxford University.

Dr. Archambeault has authored or co-authored a number of papers in computational electromagnetics, mostly applied to real-world EMC applications. He currently serves as the Immediate Past President of the EMC Society. He is the author of the book "PCB Design for Real-World EMI Control" and the lead author of the book titled "EMI/EMC Computational Modeling Handbook".

Join Zoom Meeting

<https://us02web.zoom.us/j/82186138758?pwd=NEdW-NHg4YnE5Ry9xRFVhKkZhdz09>

Meeting ID: 821 8613 8758

Passcode: 211986

This information will be also posted on EMC Chapter website IEEE EMC Chapter

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>

Entrepreneurs' Network – 6:45PM, Thursday, July 14

Sunset Cruise & Networking Evening on Boston Harbor

Location: Rowes Wharf, Boston, MA

After two years hiatus due to the pandemic, ENET and our cruise partners much look forward to renewal of our annual year-end networking tradition with this year's "EntrepreneurSHIP 2022" Sunset Cruise. Our last cruise in July 2019 sold out and with pent-up demand we are seeing, we expect a sell-out might occur again this year. So, please do book early to not get left behind. We are looking forward to another great event cruising the Boston Harbor!

IEEE Boston Entrepreneurs' Network will hold its 18th annual Sunset Cruise & Networking Evening on Boston Harbor aboard the M/V Music City Queen, on Thursday, July 14, 2022. We board the boat at 6:45 p.m., and cruise from 7:15-9:30 p.m., with additional networking on the boat dockside until 9:45 pm. The event includes a light dinner catered again this year by the well-respected Off the Vine Catering, who received many compliments for the food the last four years. There will also be a cash bar.



Our ENET Sunset Cruise on Boston Harbor will be an enjoyable, casual wrap-up for the ENET 2021-22 season, our 31st year. We again expect over 150 attendees and

guests. To enhance the networking opportunities, we have invited all ENET speakers whose presentations you enjoyed during the past year's webinars along with those who were speakers in 2019-2020 who missed out on the cruise in 2020. We will also be joined by members and guests of several other Massachusetts technology-based entrepreneurial groups, who are partnering with ENET for this "EntrepreneurSHIP 2022" including Women in Bio – Boston, MASS Bio, and Prepare 4 VC.

We will be cruising on the Mass Bay Lines' M/V Music City Queen, an ornamental 19th century sternwheeler named for city on Cumberland River (Nashville): perfect for our year-end gala. Two decks are climate controlled for year-round comfort. The MV/Music City Queen is berthed at Rowes Wharf, behind the Boston Harbor Hotel on Atlantic Avenue in Boston. Parking is available for \$10 at International Place garage across the street from Rowes Wharf and there are two "T" stops nearby.

COST:

Early Bird Rates (available until June 30)

\$35. per person: ENET Member and member guest

\$45. per person: Non-ENET Members

Standard Rates (after June 30)

\$45. per person: ENET Member and member guest

\$55. per person: Non-ENET Members

Your seat can be saved only by paid-up registration!

PARKING INFO:

Low-cost parking is available after 5:00 pm at 1 International Place garage for just \$10.00, just across Atlantic Ave. from Rowes Wharf (Go to <https://parking.com/boston/lot/1-international-place/parking-coupon> and print coupon to bring with you (you need the coupon for the reduced rate – also please print out this coupon only after July 1 so it will not have expired) and there are two T stops within a ten minute walk (Aquarium and South Station).

SPACE IS LIMITED. So, you are encouraged to REGISTER NOW so you won't miss out.

CANCELLATION POLICY:

Any cancellation on or before June 25, 2022 will receive a full refund of amounts paid for the cruise. Any cancellation after June 25, 2022 up to July 12, 2022, 10:00pm will receive a full credit toward future ENET events or membership.

COVID POLICY:

The Entrepreneurship 2022 will adhere to all requirements of the City of Boston for the health and safety of our passengers and crew. These include any then applicable requirements occasioned by Covid-19 and any new variants. On the chance that a new Covid-19 outbreak makes the cruise inappropriate, in the sole discretion of ENET in consultation with our cruise partners, ENET has the ability to cancel the cruise on short notice to the cruise company and caterer. ENET is grateful to both of those vendors for their flexibility. Should such a cancellation occur, all funds received would be refunded.

ENET 2022 Boston Harbor Sunset Networking Cruise
Once registered, your confirmation email will contain a promo code for you to save \$10. either joining ENET as a new member or renewing membership!
Learn how to become a member here,
<https://bostonenet.org/membership/>

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

Web-based Course with live Instructor!

Times & Dates: 9AM - 12:30PM ET, Saturday, October 15

Speaker: CL Kim

Course Format: Live Webinar, 3 hours of instruction!

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

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

More from the book introduction: Reference book: “Neural Networks and Deep Learning” by Michael Nielsen, <http://neuralnetworks and deeplearning.com> “We’ll learn the core principles behind neural networks and deep learning by attacking a concrete problem: the problem of teaching a computer to recognize handwritten digits. ...it can be solved pretty well using a simple neural network, with just a few tens of lines of code, and no special libraries.”

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

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

Benefits of attending the series:

- * Learn the core principles behind neural 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
Monday, October 10, 2022**

IEEE Members	\$110
Non-members	\$130

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

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;
ieebostonsection@gmail.com**

Digital Signal Processing (DSP) for Software Radio

Dates & Times: Live Workshops: 6:00 - 7:30PM EST; Tuesdays, May 31, June 7, 14, 21, 28
First Video Release, May 25, 2022, additional videos released weekly in advance of that week's live session!

Speaker: Dan Boschen

**LAST NOTICE BEFORE COURSE BEGINS,
PLEASE REGISTER NOW!**

Location: Zoom

Course Information will be distributed on Wednesday, May 25, 2022 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 August 28) 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 suf-

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

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

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

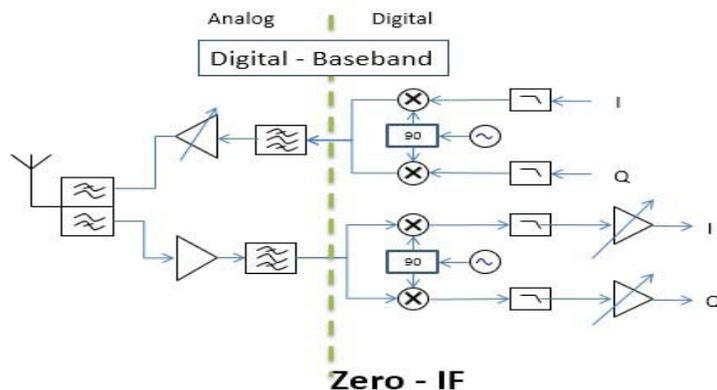
Class 4: Digital Control Loops; Carrier and Timing Recovery, Sigma Delta Converters

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

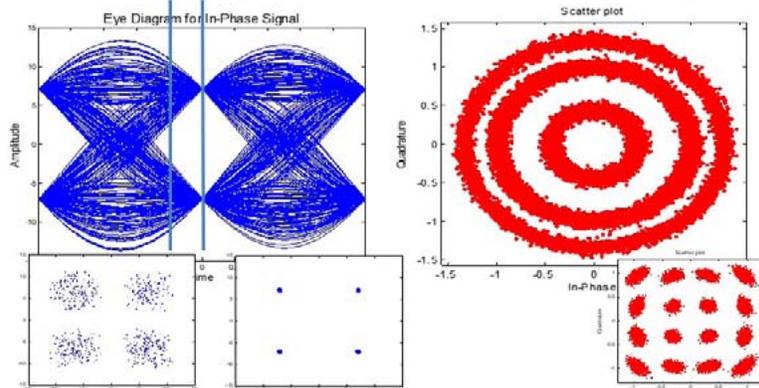
Speaker's Bio:

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.

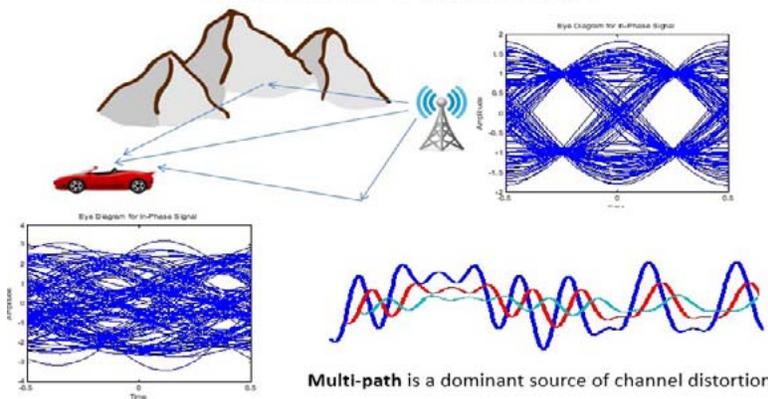
Radio Architectures



Timing and Carrier Recovery



Channel Distortion



Decision (Run/Cancel) Date for this Course is Friday, May 20, 2022

IEEE Members \$190
Non-members \$210

https://ieeeboston.org/event/dpswradio/?instance_id=3219

Python Applications for Digital Design and Signal Processing

Dates & Times: Live Workshops: 6:00 - 7:30PM EDT; Tuesdays, Sept. 13, 20, 27, Oct. 4
 First Video Release, September 7, 2022, additional videos released weekly in advance of that week's live session!

Speaker: Dan Boschen

Location: Zoom

This is a hands-on course combining pre-recorded lectures with live Q&A and workshop sessions in the popular and powerful open-source Python programming language.

Course Information will be distributed on Wednesday, September 7, 2022 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 December 4) after the last live session ends!

New Format with Pre-Recorded Videos: The course format has been updated to release pre-recorded video lectures that students can watch on their own schedule, and an unlimited number of times, prior to live Q&A workshop sessions on Zoom with the instructor. The videos will also be available to the students for viewing for up to two months after the conclusion of the course.

Overview: Dan provides simple, straight-forward navigation through the multiple configurations and options, providing a best-practices approach for quickly getting up to speed using Python for modelling and analysis for applications in signal processing and digital design verification. Students will be using the Anaconda distribution, which combines Python with the most popular data science applications, and Jupyter Notebooks for a rich, interactive experience.

The course begins with basic Python data structures and constructs, including key "Pythonic" concepts, followed by an overview and use of popular packages for scientific computing enabling rapid prototyping for system design.

During the course students will create example designs including a sigma delta converter and direct digital synthesizer both in floating point and fixed point. This will include considerations for cycle and bit accurate models useful for digital design verification (FPGA/ASIC), while bringing forward the signal processing tools for frequency and time domain analysis.

Jupyter Notebooks: This course makes extensive use of Jupyter Notebooks which combines running Python code with interactive plots and graphics for a rich user experience. Jupyter Notebooks is an open-source web-based application (that can be run locally) that allows users to create and share visually appealing documents containing code, graphics, visualizations and interactive plots. Students will be able to interact with the notebook contents and use "take-it-with-you" results for future applications in signal processing.

Target Audience: This course is targeted toward users with little to no prior experience in Python, however familiarity with other modern programming languages and an exposure to object-oriented constructs is very helpful. Students should be comfortable with basic signal processing concepts in the frequency and time domain. Familiarity with Matlab or Octave is not required, but the equivalent operations in Python using the NumPy package will be provided for those students that do currently use Matlab and/or Octave for signal processing applications.

Benefits of Attending / Goals of Course: Attendees will gain an overall appreciation of using Python and quickly get up to speed in best practice use of Python

Topics / Schedule:

Pre-recorded lectures (3 hours each) will be distributed Friday prior to each week's workshop dates. Workshop/ Q&A Sessions are 6 - 7pm on the dates listed below:

Class 1

Topic 1: Intro to Jupyter Notebooks, the Spyder IDE and the course design examples. Core Python constructs.

Class 2

Topic 2: Core Python constructs; iterators, functions, reading writing data files.

Class 3

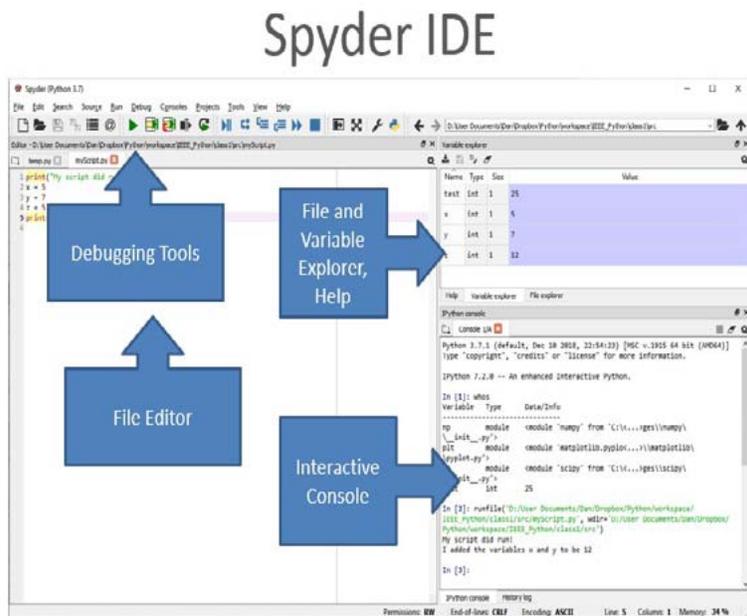
Topic 3: Signal processing simulation with popular packages including NumPy, SciPy, and Matplotlib.

Class 4

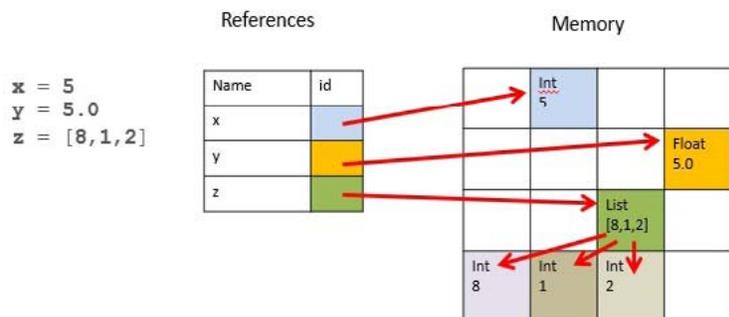
Topic 4: Bit/cycle accurate modelling and analysis using the design examples and simulation packages

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.

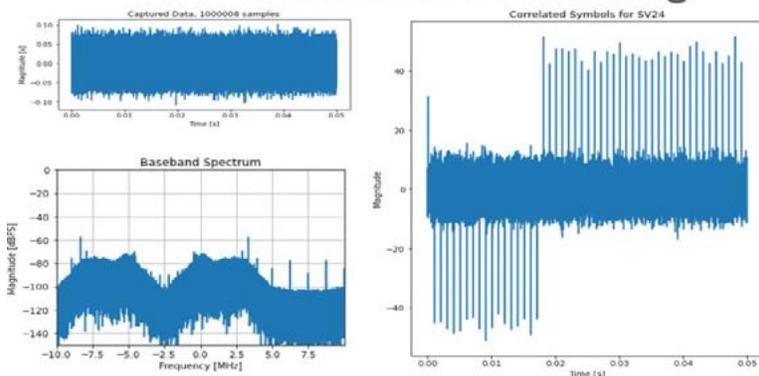
For more background information, please view Dan's Linked-In page (<https://www.linkedin.com/in/dan-boschen/>)



Mutable / Immutable



GPS Waveform Processing



Decision (Run/Cancel) Date for this Course is Friday, September 2, 2022

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

2022 IEEE International Symposium on Phased Array Systems and Technology

Revolutionary Developments in Phased Arrays



11–14 October 2022
The Westin Waltham Boston
Waltham, Massachusetts, USA

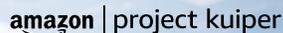


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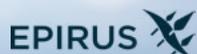
Gold



Silver



Bronze



Conference Registration

Early Discount Deadline September 1st
 see www.array2022.org for details

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 present a unique opportunity for members of the international community to interact with colleagues in the field of Phased Array Systems and Technology.

Sessions (*special session)

- 5G Arrays
- Array Design
- Array Measurements
- Array Signal Processing
- Automotive Arrays
- Beamforming & Calibration
- European Phased-Arrays Systems and Technology*
- Low Frequency Arrays*
- Intelligent Arrays*
- SATCOM Arrays*
- Weather Arrays*
- Wideband 3D-Integrated mmWave Array Tiles*
- Dual Polarized Arrays
- MIMO Arrays
- Medical Applications
- Metamaterial Phased Arrays
- mmWave and Terahertz
- T/R Modules

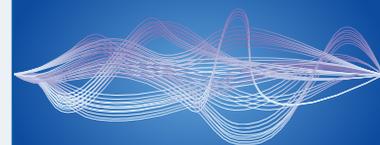
Tutorials

- Phased Array Measurements
- Digital Arrays
- Full Duplex Phased Array Systems and Technologies
- Modeling Multifunction Phased Array Radars
- Arrays for Space Applications
- Digital Signal Processing for Phased-Array Radar
- Low-Complexity Phased Arrays for Modern Applications
- T/R Modules and Array Electronics

Technical Sponsors



Media Sponsor



Note: there will be a virtual component of the conference to accommodate potential travel restriction or concerns due to COVID19



Co-Sponsor:



2022 IEEE Virtual International Symposium on Technologies for Homeland Security

November 14–15, 2022 • information@ieee-hst.org

Call for Papers

We are pleased to announce that the 21st Annual IEEE Symposium on Technologies for Homeland Security (HST '22), will be held November 14–15, 2022 as a virtual event. This symposium will bring together innovators from leading academia, industry, businesses, Homeland Security Centers of Excellence, and government agencies to provide a forum to discuss ideas, concepts, and experimental results.

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

**Border Security, Critical Infrastructure
Protection, and Law Enforcement**

**Climate Change and
Homeland Resilience**

Cyber Security

**Frontier and
Emerging Technologies**

We are currently seeking technical paper submissions in the above areas. This year, the Homeland Security Technology community has come together to respond and develop technology to address the challenges of COVID-19 and we anticipate HST'22 to reflect that focus. Accordingly, all areas are inclusive of technologies related to the global COVID-19 pandemic. Papers examining the feasibility of transition to practice will also be considered. All areas will cover the following common topics:

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

Contact Information

For more detailed information on the Call for Papers, as well as Sponsorship and Exhibit Opportunities, visit the website: <http://ieee-hst.org/> or email: info@ieee-hst.org. Submissions should be sent to the following website: <https://cmt3.research.microsoft.com/HST2022/>

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

Paper Extended Abstract Deadline: June 15, 2022
 Paper Acceptance Notification: August 15, 2022
 Final Paper Submission Deadline: October 15, 2022

Organizing Committee

General Chair: James Flavin, MIT Lincoln Laboratory
 Technical Chairs: Gerald Larocque, MIT Lincoln Laboratory
 Anthony Serino, Raytheon
 Local Arrangement Chair: Bob Alongi, IEEE Boston
 Sponsorship/Exhibits Chair: Bob Alongi, IEEE Boston
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Technical Program Committee

*Climate Change and
Homeland Resilience*
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*Border Security, Critical
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 Bengt Borgstrom, MIT Lincoln Laboratory
 Rich Moro, Raytheon
 Arash Samani, Systems & Technology Research

 Cyber Security
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26th Annual
2022 IEEE High Performance
Extreme Computing Virtual Conference
19 - 23 September 2022



www.ieee-hpec.org

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A Note from the HPEC Committee:

IEEE HPEC 2022 will be presented as a virtual conference that will allow safe participation and full publication in IEEE Xplore.

The IEEE High Performance Extreme Computing Conference (HPEC '22) will be held in the Greater Boston Area, Massachusetts, USA on 19 – 23 September 2022. The HPEC charter is to be the premier conference in the world on the confluence of HPC and Embedded Computing.

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

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

HPEC accepts two types of submissions:

1. Full papers (up to 6 pages, references not included. Additional pages can be purchased for \$200/page).
2. Extended abstracts (up to 2 pages, references included).

IMPORTANT DATES:

Submission Deadline: **JUL 09, 2022**
Notification of Acceptance: **AUG 15, 2022**
Camera Ready Deadline: **AUG 31, 2022**

Submissions to HPEC '22 should be <https://cmt3.research.microsoft.com/HPEC2022/>

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

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



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