BOSTON

THE REFLECTOR

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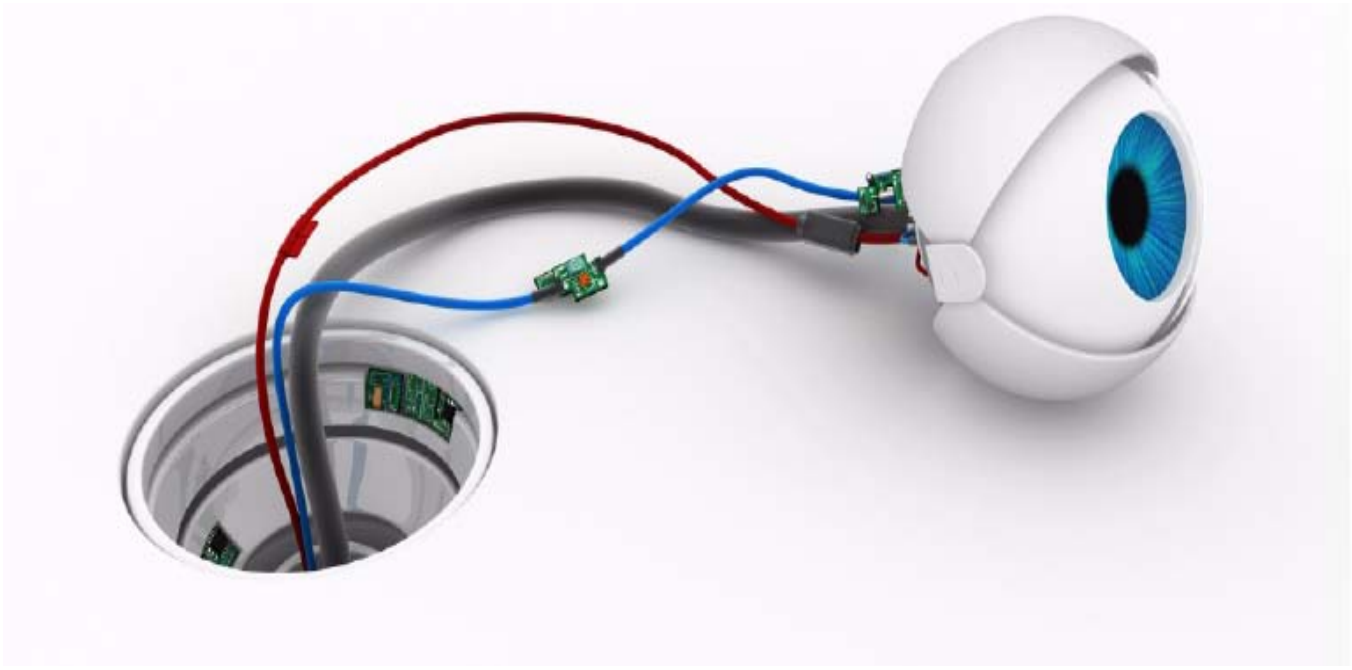

IEEE
Advancing Technology for Humanity

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Dive in to Career Promotion

by Len Long – Chapter Coordinator, IEEE Boston Section

When you get into the armed service, Church, service organizations or even family life, you make the best of it by participating in their activities. Then you will get a lot out of it. Your best is often diving into situations and providing input in many ways.

It is the same way when you join and contribute to IEEE-Boston. When I was serving the Section as a Congressional Delegate in Sydney, Australia I learned in a session there that IEEE-Boston Conferences, in-person courses and online courses served young, ambitious, self-motivated engineers by providing a roadmap to professional success. Also of career importance are the opinions expressed by experts in their fields as recorded in the Section Archives. If you wish to find out specific facts about fusion energy, for instance, you can stream, several presentations by experts in this field which are available on the IEEE-Boston website archives. They range from Department of Energy consultants to people who are historically or actively engaged in the field. Questions are answered like, “Will solar, hydraulic and wind power be sufficient to satisfy the world’s energy needs?”

So, as members of IEEE, if you would like to derive the utmost out of your membership and your career, dive in to the promotion of your career by getting the Section to help you organize and produce a one or multiple day conference or training course. Bob Alongi, our IEEE-Boston Section Manager, will field your request and put you in contact with one of our Executive Committee members to get the ball rolling with excellent support. Remember, if you put your best into IEEE, you will get a lot out of it!

IEEE Boston Section Social Media Links:

Twitter: https://twitter.com/ieeeboston

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

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

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

IEEE
Advancing Technology for Humanity

2024 IEEE INTERNATIONAL SYMPOSIUM ON PHASED ARRAY SYSTEMS AND TECHNOLOGY

Returning to Boston in the Fall of 2024

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.

Important Dates and Call for Papers will be posted to the Symposium Web Site after May 1, 2023!

IEEE-ARRAY.org

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

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 divers sections of the IEEE. We have over 20 active chapters and affinity groups.
If you have an expertise that you feel might be of interest to our members, please submit that to our online course proposal form on the section's website (www.ieeeboston.org) and click on the course proposal link (direct course proposal form link is **http://ieeeboston.org/course-proposals/** . Alternatively, you may contact the IEEE Boston Section office at ieeebostonsection@gmail.com or 781 245 5405.

- **Honoraria can be considered for course lecturers**
- Applications oriented, practical focused courses are best (all courses should help attendees expand their knowledge based and help them do their job better after completing a course
- Courses should be no more than 2 full days, or 18 hours for a multi-evening course
- Your course will be publicized to over 10,000 local engineers
- You will be providing a valuable service to your profession
- Previous lecturers include: Dr. Eli Brookner, Dr. Steven Best, Colin Brench, to name a few.

CALL FOR PAPERS

The IEEE High Performance Extreme Computing Conference (HPEC '23) will be held virtually 25 – 29 September 2023. The HPEC charter is to be the premier conference in the world on the confluence of HPC and Embedded Computing.

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

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

HPEC accepts two types of submissions:	**IMPORTANT DATES**:
1. Full papers (up to 6 pages, references not included. Additional pages can be purchased for $200/page). 2. Extended abstracts (up to 2 pages, references included).	Submission Deadline: **JUL 07, 2023** Notification of Acceptance: **AUG 15, 2023** Camera Ready Deadline: **AUG 31, 2023**

Submissions to HPEC '23 will be accepted through the CMT submission site at:
https://cmt3.research.microsoft.com/HPEC2023/

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 and may be available on IEEE eXplore. All other accepted submissions and extended abstracts are published on ieee-hpec.org.

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

IEEE-HPEC.org

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

Fundraising for Startups

Location: Science and Technology Center, Lasell University, Newton, MA

Information and registration for this event will be posted shortly at https://bostonenet.org/events/fundraising-for-startups/

Attendees will have the option to join us in-person at Lasell University, Newton, MA or online via Zoom.

One of the most obvious and challenging key requirements for the success of an early-stage entrepreneurial company is developing your fundraising strategy and finding the right investment partners.

Join us Feb 7th to hear from an expert panel of Angel, VC investors and CEOs raising funds.

This panel will focus on the nature of early-stage investments to plan for initial investment in your company. The panelists will offer candid views and discussion on how to prepare a company for raising angel capital or seed stage investment, the raise itself, and how to work with angel, VC investor groups after getting the investment.

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

LOCATION: Science and Technology Center, Lasell University, Newton, MA, Room 210B. (google map: https://tinyurl.com/2twh785c) The address is 1844 Commonwealth Ave., but the entrance to the parking lot is on Central Street. Setting your GPS to 11 Central Street, Auburndale should help.

PARKING: Free parking is available. After arriving at the parking lot, take the steps on the right side of the brick building with large windows in front of you. At the top of the steps, you'll see Donahue Plaza. Enter the building and walk straight. You should see our check-in table.

REFRESHMENTS: Pizza and sandwiches will be served.
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.

Agenda:
7:00 PM - Introduction, ENET Chairperson's announcements
7:10 PM - eMinute Pitch, up to 3 Startup pitches
7:25 PM - Expert Panel, 4 expert speakers on the night's topic
8:15 PM - Moderator and Audience Q & A with the speakers
8:30PM-9PM - Networking, panelists will be available afterward for responses to individual questions.

Jeff Stoler - Angel Investor and Corporate Lawyer. Founder, SideCar Angels
Jeff has been an active angel investor since the 1980s. He has made more than 100 investments over the years. Jeff currently participates in all the major Boston angel groups, including Side Car Angels which he founded and co-manages.

Bruce Cohen - Venture Partner, Xeraya Capital. CEO, Anergent Pharmaceuticals
He was the founding President and CEO of Acacia Biosciences, Cellerant Therapeutics and VitaPath Genetics. He also served as CFO at GeneSoft Pharmaceuticals.

Previously, Bruce held senior positions in business development and marketing at Sequus Pharmaceuticals and at Baxter. As an independent consultant, Bruce

has taken on interim management roles in public and private biotech companies, focusing on merger transactions and restructurings. He began his health care career managing federally funded programs to bring medical services to underserved populations and as a member of the founding team at the Cummings School of Veterinary Medicine. Bruce holds a BA and an MA from Tufts University, as well as an MBA with distinction from Harvard Business School.

Ryan Meyers - PhD, President and CEO, CranioSense

Ryan Myers, PhD, has nearly 15 years of experience bringing revolutionary life science technology from concept to reality with a strong record in medical devices that leverage a neurophysiology and neuroscience foundation.

Prior to joining CranioSense, Ryan was the VP of Product Strategy and Corporate Development at Vivonics, where he was awarded nearly $10 Million in non-dilutive government contracts as Principal Investigator within four years, managed the recruitment of over $20 Million of the same, and grew annual revenue from $2.5 Million to nearly $5 Million in under 2 years. Ryan is currently the CEO of CranioSense, a clinical stage, medical device startup poised to deliver the 'holy grail of neurology', a non-invasive means of assessing and monitoring intracranial hypertension.

Vicki Anastasi - Angel Investor, Boston Harbor Angels, Keiretsu Forum

Vicki Anastasi is an active Angel investor with Boston Harbor Angels and Keiretsu Forum. She is also a startup strategic advisor with over 30 years of experience in the medical device industry, with over 20 years specifically focused on global medical device and diagnostic strategic consulting.

Vicki has held senior management roles for medical device and therapeutic companies focused in orthopedics, cardiovascular/metabolic disease and combination products. In diagnostics, she held senior positions at companies involved in the development of infectious disease and genetic-based products including companion diagnostics and precision medicine.

Moderator & Organizers

Kristin King - MBA. Angel Investor, BHA. VP M&A, Defibtech Nihon Kohden.

Kristin is an accomplished MedTech executive, serial intrapreneur, investor and strategic advisor to startups developing biotech solutions. With over 20 years spanning technical, marketing, and proud member of Boston Harbor Angels, she offers multi-discipline expertise transforming technologies from early concept to successful global divisions at leading Medical Device companies and startups.

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

Boston/Providence/New Hampshire Reliability Society Chapters – 11:00AM, Wednesday, February 8

BGA Reliability and Manufacturing Challenges

Speaker: Nathan Blattau, Ansys

Please visit www.ieee.org/bostonrel
FREE Webinar

The reliability and manufacturability of BGA devices is becoming more dependent on the PCB structure, layout and chassis design. With every increasing part densities the chassis design (PCB mounting), board layout, and underfills can cause additional stresses to be applied to the BGA device beyond just the thermal expansion mismatch. This presentation will cover some of the thermal-mechanical issues, manufacturing defects, and modeling techniques that can be used to help determine the reliability of BGA devices.

Location: This Webinar is to be delivered virtually.

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.

Hosts Boston/Providence/New Hampshire Jt Sections
Michael W. Bannan, Chair IEEE Boston/Providence/New Hampshire Reliability Chapter

Registration Starts 16 January 2023 12:00 AM Ends 07 February 2023 05:30 PM
All times are (GMT-05:00) US/Eastern No Admission Charge

Topic: BGA Reliability and Manufacturing Challenges

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.

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

Entrepreneurs: What NOT To Do In Trademarks, Patents, And Trade Secrets

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

Entrepreneurs know they should protect their intellectual property (IP) to appeal to prospective investors, partners, customers, and employees. This panel of IP professionals will discuss trademarks, patents, and trade secrets with a focus on how startups often go wrong and how to avoid major IP pitfalls while protecting IP assets, valuation, and credibility. Even if you think you know, it's always helpful to hear how IP professionals answer questions such as: Is trademark searching an expensive minefield when done wrong or at the wrong time? When should inventors search for prior art if at all? Are trade secrets at risk if employment agreements, confidentiality agreements, and supplier and customer contracts are not carefully constructed?

This meeting's presentations and discussion will cover the importance of IP to various people and aspects of startup companies, including, founders, investors, inventors, engineering, product development, and marketing. Especially, this meeting will cover the types of errors related to IP that startup companies make and how to avoid them.
A question-and-answer session will follow the panel discussion, and the panelists will be available afterward for responses to individual questions.

(All times are USA Eastern time, webinars will not be recorded, except that ENET members can review a recording of this webinar after the meeting.)

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 02142 – 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 or light sandwiches 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.

Event Schedule
6:00 am ET - Registration - In-person Registration and Networking

7:00 pm ET – Introduction - ENET Chairperson's announcements
7:10 pm ET - eMinute Pitch - Up to 2 Startup pitches
7:25 pm ET - Expert Panel - 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.

Speakers:

Nate S. Vogler - Associate at Morrison Foerster LLP
Nathan Vogler is an associate in Morrison Foerster Patent Group. Nathan's practice concentrates on patent prosecution, IP due diligence, IP counseling, IP portfolio management, and IP litigation support, including patent infringement and validity determinations. He has handled matters in all stages of patent prosecution, drafting and prosecuting patents in various technology areas, including medical devices, polymer chemistry, composite materials, industrial processing, nanotechnology, catalysts, batteries, magnets, consumer electronics, and software. In addition, Nathan has experience handling reexaminations, reissue applications, inter pares review proceedings, and supplemental examinations before the United States Patent and Trademark Office.

Nathan received his J.D. with high honors from The George Washington University Law School. He received his B.S. in chemical engineering summa cum laude from Purdue University.

Peter Fasse - Principal at Fish & Richardson P.C.
Peter's practice emphasizes client counseling and patent prosecution in a wide variety of technologies, with an emphasis on healthcare, medical devices, and other biological and medical fields as well as various green technologies. Peter helps clients from startups to multinationals to develop competitive worldwide patent strategies and to establish solid and defensible patent portfolios. He performs competitive patent analyses, identifies third-party patent risks, and provides patentability and freedom to operate opinions. Peter also has experience in opposing and defending patents before the European Patent Office and in U.S. litigation and post-grant proceedings.

Peter has experience in various fields including medical therapeutics, diagnostics, devices, and imaging, microfluidic systems, liquid biopsy, nucleic acid sequence analysis systems and software, cell culturing and bioprocessing, molecular biology, complex biomedical systems, optics, machine tools, lasers, vaccines, nanoparticle and vector-based delivery of therapeutics, automated blood analysis systems, tissue engineering, biochips, and wind and solar power.

William E. Hilton - Partner at Gesmer Updegrove, LLP
Bill is a scientist at heart who concentrates on logical legal analyses. With Bill's B.S. in electrical engineering and B.A. in computer science, Bill can speak the language of any technology entrepreneur as well as provide sharp legal advice. Bill's clients appreciate his deep understanding of the scientific, technological and legal principles underlying their inventions, which provides them with invaluable assistance in their efforts to leverage and protect their intellectual property. Bill concentrates his practice in prosecuting electronic, electro-optic, and computer-related patent applications, along with technology licensing and trademark and copyright protection. He also provides litigation-oriented services to enforce and protect the intellectual property rights of his clients and resolve their disputes.

Moderator & Organizers

Bob Weber - Managing Director, Patent Kinetics, LLC
Bob Weber is an intellectual property professional, inventor, serial entrepreneur, mentor, and management consultant. Since 2007 he has been Managing Director, Patent Kinetics, LLC, a company focused on Intellectual Capital Management with an emphasis on patents, patent strategy, and enforcement. Patent Kinetics helps organizations and individuals build and monetize valuable patent portfolios. Weber is also an inventor with 27 issued US patents and a number of foreign counterparts assigned to Intertrust Technologies where he served as SVP Business and Technology Strategy, 1996-1999. Weber has also been a Principal Consultant at Northeast Consulting Resources, Inc. At NCRI, his consulting practice focused on strategies for information creation, access and distribution; clients included Fortune 50 companies. Weber divides his time between Boston and Silicon Valley. He served on the Advisory Board of

the Boston Entrepreneurs' Network (ENET) at various times since 2004 and has co-organized and moderated ENET's "Legal Issues for Entrepreneurs" annual meetings Weber has been a member of the Silicon Valley Chapter of the Licensing Executives Society since 2010 and has served on the chapter's Board of Directors and Program Committee. His academic work focused on computerized text analytics for social science purposes.

William Byrnes Esq.

Bill is an attorney and senior executive with 25+ years of experience building value by commercializing information and technology. Bill's focus involves a unique application of his legal and business management experience on the day-to-day management of all elements of the product, sales, and contract life cycles as the core of the business. The effect of this focus can convert expense into value driven to the bottom line with increased shareholder value as the results.

William Mansfield - Secretary of Boston ENET

Attorney Mansfield is a patent attorney and is a lawyer in MA & NY; high bar exam scores allowed him to waive into the D.C. Circuit. He won the CALI Award for perfect grades in an IP course, and he has passed the Fundamentals of Engineering Exam covering all types of engineering. He assists clients with corporate and intellectual property law using trademarks, trade dress, copyrights, licensing, patents, trade secret protection, strategic partnerships, and succession planning. From 2004, he has worked on legal matters & he has counseled entrepreneurs/startups since 2009 thru Mansfield Law. He has worked on patent prosecution, especially business method, business process, electrical, mechanical, telecommunications, and e-commerce patents. He has filed for global IP protection and has a network of foreign IP professionals.

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The Boston Section is one of the largest and most technically divers sections of the IEEE. We have over 20 active chapters and affinity groups.
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- Courses should be no more than 2 full days, or 18 hours for a multi-evening course
- Your course will be publicized to over 10,000 local engineers
- You will be providing a valuable service to your profession
- Previous lecturers include: Dr. Eli Brookner, Dr. Steven Best, Colin Brench, to name a few.

Power & Energy Society – 6:00PM, Tuesday, February 21

Preparing the Distribution System for the Future:
Assessing the Impact of Electrification on Load Forecasting

Speaker: Sophia Zhang, Senior Engineer, Eversource

Reduction of greenhouse gas emissions are top of the agenda for state and federal jurisdictions. Electric utility companies need to proactively plan for system disruptions in a targeted manner to enable a future with electric homes and buildings. Eversource is using advanced forecasting techniques to identify system capacity needs and opportunities for distribution planning improvements. Short term load forecasting and long-term impact assessments have different underlying drivers and require a fundamentally unique approach. This presentation will give an overview of how electrification of transportation and heating systems, along with solar adoption, impacts load forecasting. Insights into how translating regulatory pathways, customer data and analytics can be used in demand assessments to inform program initiatives and policy.

Sophia Zhang is a Senior Engineer / Data Scientist for Advanced Forecasting and Modeling at Eversource Energy based in Boston. She develops large scale electrification forecasts and evaluates impacts from heating electrification, electric vehicles, solar, and distributed energy sources. In this role, Sophia helps to build innovative solutions using predictive analytics, machine learning, and data engineering. Sophia has ten years of experience as a consulting engineer in the energy sector, across US and Canada. She has optimized operations for multinational companies by building simulations for efficient engineering design. Sophia holds a Bachelor's in chemical engineering from the University of Alberta, Canada and a Master's in Data Analytics from Tufts University.

Time: Refreshments start at 6pm, talk begins at 6:30pm
Location: Wentworth Institute of Technology, Beatty 426 (Building: Beatty Hall) 550 Huntington Ave, Boston, MA 02115 (Free parking at West Parking Lot)

Free and Open to the Public; RSVP is appreciated
Visit the IEEE PES Boston Chapter website for further details - https://site.ieee.org/boston-pes/

For any questions regarding this presentation or any IEEE PES Boston Technical Meetings, please contact Amsa Mangga (Amsa.Mangga@eversource.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 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

Introduction to Quantum Software Development

Web-based Course with live Instructor!

Times & Dates: 6 - 8PM ET, March 7, 9, 14, 16, 21, 23, 28, 30

Speaker: Richard Preston, MITRE Corporation

Course Format: Live lectures interspersed with lab exercises in Visual Studio

MITRE | SOLVING PROBLEMS FOR A SAFER WORLD®

This course is organized by the MITRE Corporation and being offered as part of the IEEE Boston Section's professional development program.

Summary:
In recent years, there has been an enormous surge of interest in quantum computing. Government, academic, and commercial organizations have spent billions of dollars attempting to create reliable, general-purpose quantum computers. These systems leverage the unusual properties of quantum mechanics to perform computations that could never be performed on conventional computers in our lifetime. Such calculations have a wide range of applications, including:

- Breaking certain cryptographic algorithms
- Engineering new materials
- Simulating how systems behave in extreme environments
- Finding new medicines that target specific diseases
- Building secure transmission channels that cannot be eavesdropped

How do quantum computers accomplish these bold claims? How could we use this technology to tackle our most difficult challenges? And how do programmers like you access it? In this course, we will explore the answers to these questions and help you unlock the ability to write quantum software and simulate quantum algorithms. Students should bring some basic programming experience and an open mind as we delve into a new computing paradigm.

Format: Live virtual lectures with self-paced exercises.

Target Audience: Practicing software engineers.

Objective: Develop the practicable skills needed to implement and study quantum algorithms in software.

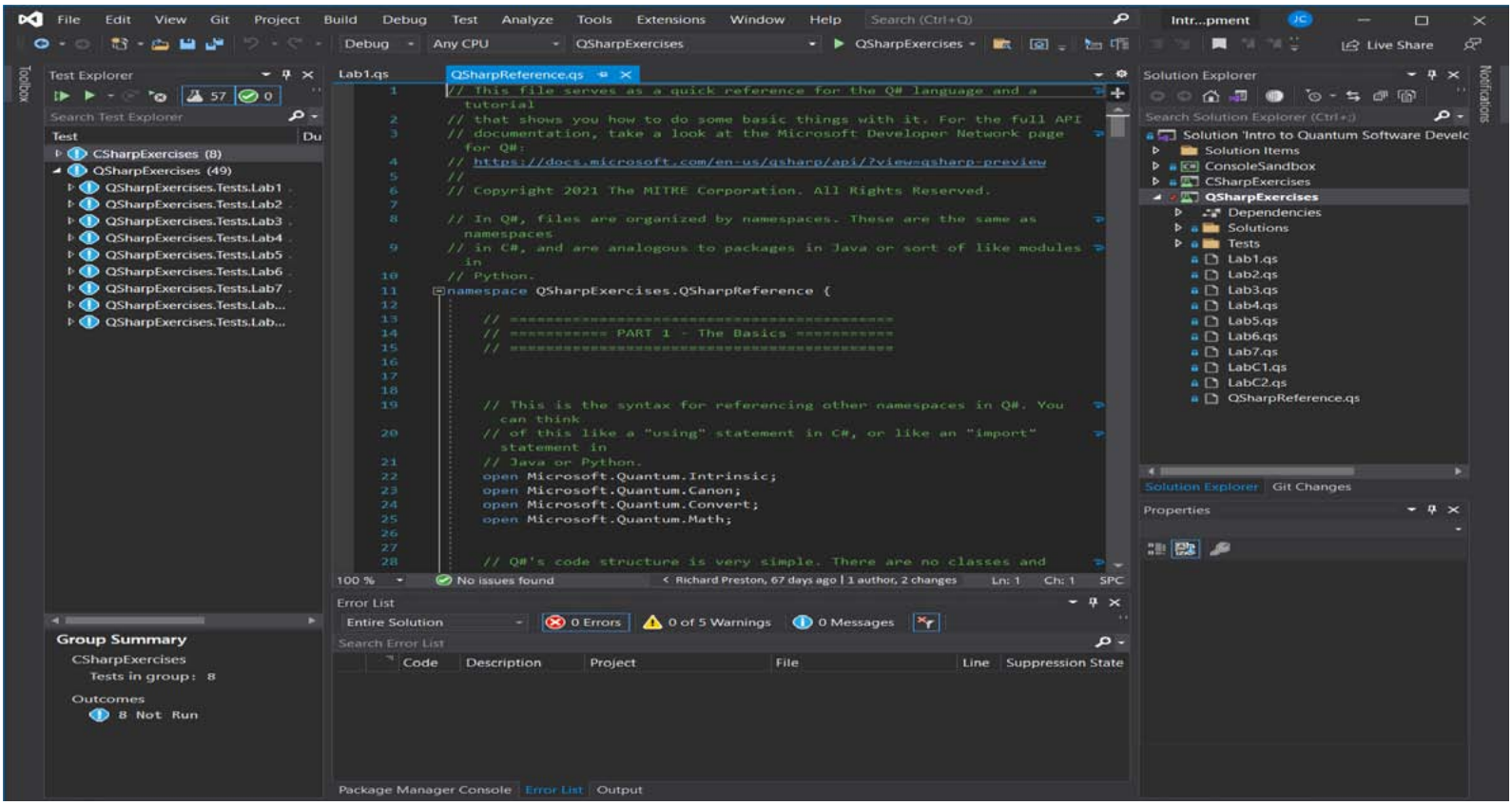
Prerequisites:
Students are assumed to have exposure to the following concepts:

- Complex numbers
- Vectors & Matrices
- Bra-ket and tensor notation
- Digital information
- Endianness
- Digital logic
- Low- and high-level programming
- Visual Studio

Learning materials covering the course prerequisites will be provided in advance. This way, students can fill in any gaps in their knowledge and everyone starts on the same page on day 1.

Outline:
The course consists of live lectures interspersed with lab exercises in Visual Studio. All the materials are available in the form of an online course guide, so students can learn at their own pace both during and outside of class time. To mitigate technical difficulties, each student is provided remote access to a virtual machine with a preconfigured environment. The following topics are covered:

- Qubits and quantum gates
- Multi-qubit systems
- Quantum circuits
- Quantum protocols
- Quantum algorithms
- Q# programming



The Visual Studio exercises are Q# operations that must be implemented correctly for a unit test to pass. This approach allows students to get immediate feedback on how well they understand a concept. We use the Discord platform as a course forum, where students can ask questions at any time and collaborate on solving the coding challenges.

Instructor Bio:

Richard Preston is a Network Analytics Group Leader in the Infrastructure and Networking Innovation Center at MITRE. He also serves as Co-Chair of MITRE's STEM Council, a group that supports STEM education initiatives across the company. He has been collaborating with Joe on quantum software research since 2019 and seeks to raise awareness and proficiency around this new technology.

Decision (Run/Cancel) Date for this Course is Wednesday, March 1, 2023

Payment by/on Feb 24
IEEE Members $250
Non-members $295

Payment After Feb 24
IEEE Members $270
Non-members $325

https://ieeeboston.org/event/ieeequantumsoftware/?instance_id=3387

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Comprised of Engineers, scientists and professionals in the electrical and computer sciences and engineering industry

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Call for Course Speakers/Organizers

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

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

The Boston Section is one of the largest and most technically divers sections of the IEEE. We have over 20 active chapters and affinity groups.
If you have an expertise that you feel might be of interest to our members, please submit that to our online course proposal form on the section's website (www.ieeeboston.org) and click on the course proposal link (direct course proposal form link is **http://ieeeboston.org/course-proposals/** . Alternatively, you may contact the IEEE Boston Section office at ieeebostonsection@gmail.com or 781 245 5405.

- **Honoraria can be considered for course lecturers**
- Applications oriented, practical focused courses are best (all courses should help attendees expand their knowledge based and help them do their job better after completing a course
- Courses should be no more than 2 full days, or 18 hours for a multi-evening course
- Your course will be publicized to over 10,000 local engineers
- You will be providing a valuable service to your profession
- Previous lecturers include: Dr. Eli Brookner, Dr. Steven Best, Colin Brench, to name a few.

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

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 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 Friday, March 10, 2023

Payment	on/by March 6	After March 6
IEEE Members	$95	$110
Non-members	$115	$130

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

Python Applications for Digital Design and Signal Processing

Dates & Times: **Live Workshops: 6:00 - 7:30PM EDT; Thursdays, April 6, 13, 20, 27**
First Video Release, March 30, 2023, 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 Thursday, March 30, 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 June 27, 2023) 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

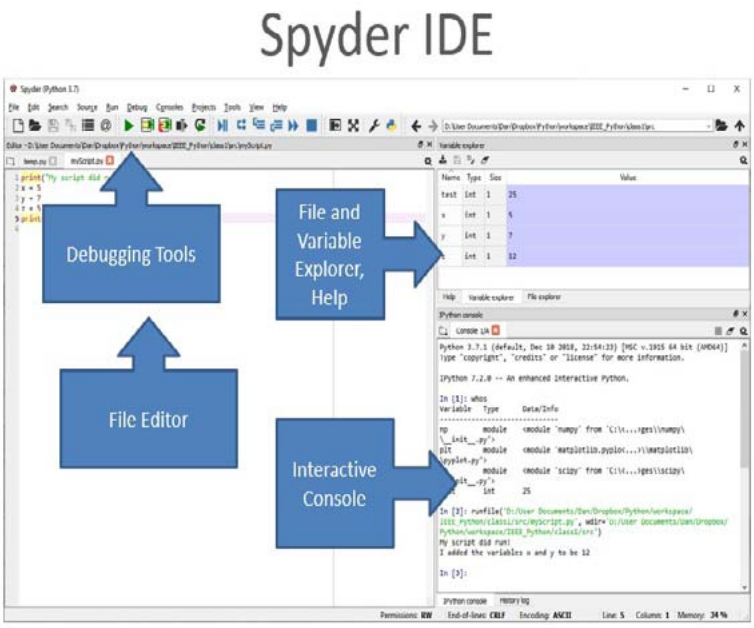
Topic 3: Signal processing simulation with popular packages including NumPy, SciPy, and Matplotlib.

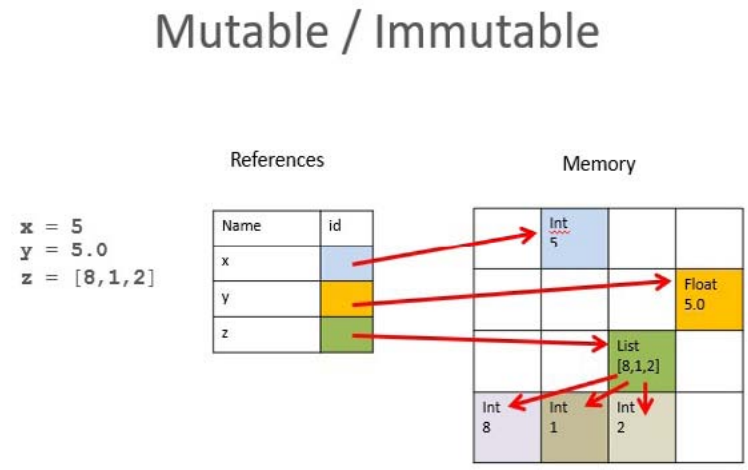
Class 4

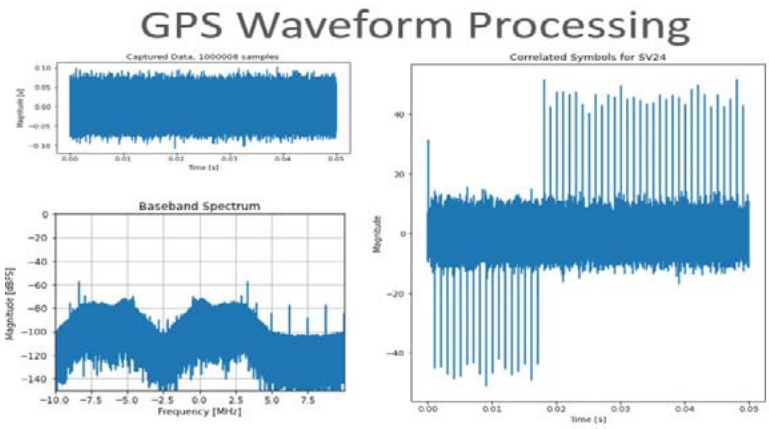
Topic 4: Bit/cycle accurate modelling and analysis using the design examples and simulation packages

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/)







Decision (Run/Cancel) Date for this Course is Friday, March 24, 2023

Payment	On/by March 20	After March 20
IEEE Members	$180	$195
Non-members	$195	$215

https://ieeeboston.org/event/pythonapplications/?instance_id=3380