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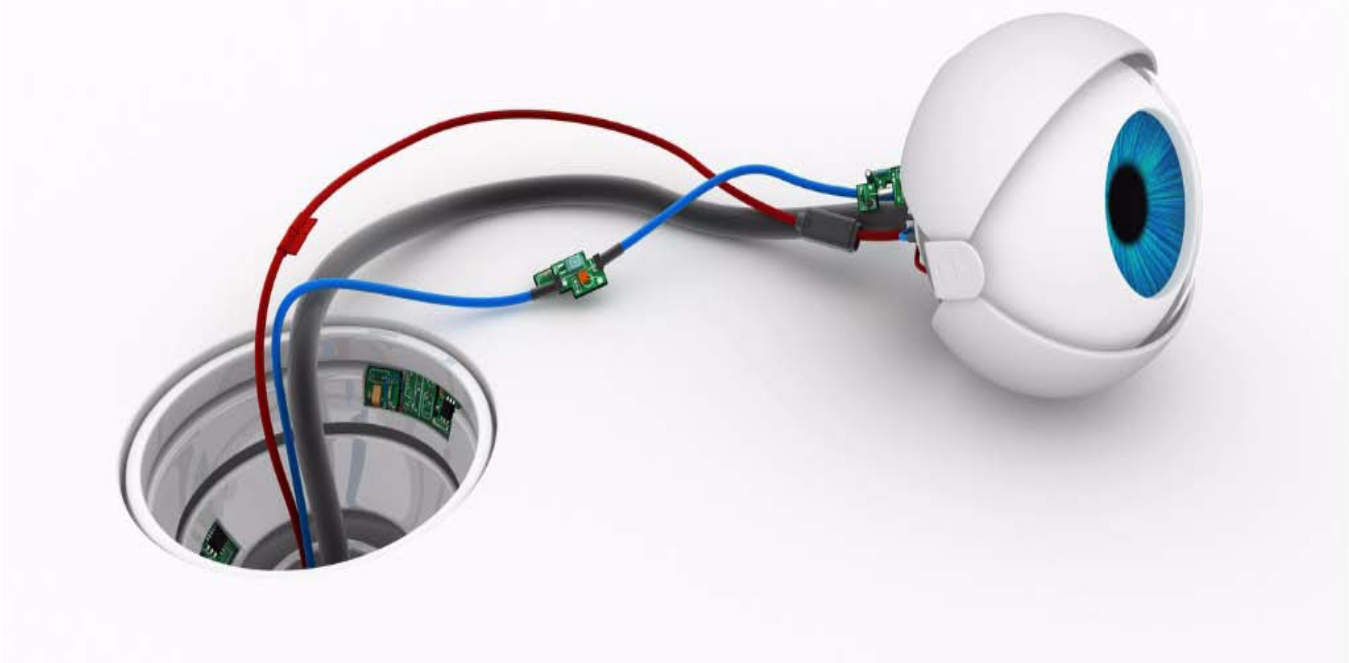

IEEE
Advancing Technology for Humanity

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What Did You do During the Pandemic?

by Karen Panetta, Reflector Editor

This is a question that will become an important interview question from prospective employers. The pandemic has created a unique generation of engineering graduates that have had to deal with extraordinary challenges. Thus, employers are going to want to know how young professionals managed to survive and thrive through this crisis.

An individual's response to this question reveals an individual's ability to deal with unanticipated scenarios and their adeptness to overcoming adversity. The more successful candidates will show the impact they have made and the strengths they have gained from the experience.

Many young people are responding that they "took a gap year waiting for things to return to normal." Unfortunately, there will be no "normal" after the pandemic and a response like this shows naivety and not being economically realistic. For instance, while hiring in many companies has ramped down or almost halted, students who assume they can just find a job until the germs go away and die, need to re-evaluate their plans. These students will be in competition with millions of more experienced workers that have lost their jobs and are aggressively seeking permanent full time opportunities rather than a short term opportunity for someone to fill their time while they wait for life to return to the way it was.

Employers are seeking innovative and positive people that show that the individual is prepared for anything and will be resourceful.

They are also looking to see what personal actions and community involvement students participated in. For instance, in IEEE-HKN (Eta Kappa Nu) honor society, hundreds of HKN student members were the first offering online tutoring for kids whose parents needed help home schooling their kids while parents struggled to balance working from home. Other great examples include the students who have engaged in using their engineering skills to 3d print PPE for local nursing homes and other at-risk populations through IEEE-SIGHT (Special Interest Group for Humanitarian Technologies) projects.

Every engineering student comes out with technical skills, but the ones that used them in ways that demonstrated their compassion for humanity will be the ones that companies will jump to hire.

What's next?

Regardless of what engineering field an individual pursues, automation and robotics will become an intimate teammate throughout every discipline.

Robotics and technologies that help alleviate human contact to reduce the spread of disease will become commonplace. The most familiar applications of robotics include space exploration or manufacturing, but we will see more applications of specific application-based robots in our everyday lives. This includes disinfecting robots, health monitoring robots in schools and community spaces, delivery services and food production.

The pandemic has also renewed the importance for robust internet security, privacy and access to internet service. When the pandemic necessitated every social and educational interaction to move to virtual platforms, we became aware of just how inadequate and ill

prepared the world was to move online. Furthermore, it also highlighted how inequitable the availability of these services is throughout the world, despite living in a global economy.

What will be the enduring impact of the pandemic on graduates?

Just like children of the great depression, where previous generations became very frugal, reused and saved almost everything, we will see the behaviors of pandemic graduates change too. They will not take anything for granted and always be looking at scenarios of risk and alternative sources to ensure they have a plan of action in place when materials, supplies or even jobs are interrupted and lost.

As engineers, we know we must always keep learning, but now we must think of ways to execute innovative ideas when traditional assumptions of manufacturing and supplies are not readily accessible or cost-effective to obtain or transport.no

This generation will also have more empathy and champion safety and resources for those individuals that have been essential to keeping food supplies and the agricultural pipeline functioning. These individuals have traditionally been the most underserved invisible populations and now are the most vulnerable to virus exposure. Thus, the new engineers will not only be the architects of new technology but will be champions of social change.

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, k.safina@ieee.org.

Dennis Shapiro, Chair, IEEE Boston Consumer Technology Chapter

IEEE Boston Section Online Courses:

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

Verilog101:Verilog Foundations
Full course description and registration at ,
http://ieeeboston.org/verilog-101-verilog-foundations-online-course/

System Verilog 101: Design Constructs
Full course description and registration at ,
http://ieeeboston.org/systemverilog-101-sv101-design-constructs-online-course/

System Verilog 102: Verification Constructs
Full course description and registration at ,
http://ieeeboston.org/systemverilog-102-sv102-verification-constructs-online-course/

High Performance Project Management
Full course description and registration at ,
http://ieeeboston.org/high-performance-project-management-online-course/

Introduction to Embedded Linux Part I
Full course description and registration at ,
http://ieeeboston.org/introduction-to-embedded-linux-part-i-el201-online-course/

Embedded Linux Optimization - Tools and Techniques
Full course description and registration at ,
http://ieeeboston.org/embedded-linux-optimization-tools-techniques-line-course/

Embedded Linux Board Support Packages and Device Drivers
Full course description and registration at ,
http://ieeeboston.org/embedded-linux-bsps-device-drivers-line-course/

Software Development for Medical Device Manufacturers
Full course description and registration at ,
http://ieeeboston.org/software-development-medical-device-manufacturers-line-course/

Fundamental Mathematics Concepts Relating to Electromagnetics
Full course description and registration at ,
http://ieeeboston.org/fundamental-mathematics-concepts-relating-electromagnetics-line-course/

Reliability Engineering for the Business World
Full course description and registration at ,
http://ieeeboston.org/reliability-engineering-business-world-line-course/

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

Fundamentals of Real-Time Operating Systems
http://ieeeboston.org/fundamentals-of-real-time-operating-systems-rt201-on-line-course/

Entrepreneurs' Network – 7:00PM, Tuesday, September 1

How to validate a business idea?

Location: Webinar
Register: https://bit.ly/ENET3001 (Please note capacity is limited, so pre-registration is necessary)

You have a business idea. How do you determine if the idea will be successful? Let us first take a look at the top three reasons Start-Up fail; 1) Lack of market interest 2) Poor business model 3) Ran out of money. In this session, we will discuss the first two failure points. The Expert Panel will discuss; product discovery, validating the market, business model, and IP strategies. All to improve the odds of the product/market fit before launching new products.

Agenda:
7:00 - 7:10 PM - ENET Chairperson's announcements
7:10 - 7:25 PM – eMinute Pitch - Up to 3 Startup companies' presentations
7:25 - 8:10 PM - 3 expert speakers on the night's topic
8:10 - 8:45 PM – Moderator and Audience Q & A with the speakers
(all times are USA Eastern Daylight time)
A question and answer session will follow the panel discussion, and panelists will be available afterward for responses to individual questions.

Panel Members

Jim Semick, Founder, ProductPlan
https://www.linkedin.com/in/jimsemick/
Jim is co-founder and Chief Strategist at ProductPlan, a SaaS company based in Santa Barbara, California. Jim is passionate about software product management and validating successful business models. For over 15 years, he has been taking products from concept to market. He has helped validate and launch innovative software products that are used today by millions of people. Prior to founding ProductPlan, Jim was part of the founding team at AppFolio, a vertical SaaS company, helping develop multiple products. Prior to AppFolio, he validated and launched GoToMyPC, GoToMeeting, and GoToWebinar (acquired by Citrix, LogMein).

Stephanie Connaughton
Innovation and Marketing Advisor; Angel Investor; Member of Pipeline Angels, Harvard Business Analytics Program

https://www.linkedin.com/in/stephanie-connaughton-62a2148/
Stephanie is an expert in product/market fit for consumer facing companies.
Her innovation experience began while working as a Marketing Director at Gillette/P&G . Stephanie's teams validated and brought to market some of Gillette's most significant breakthroughs, including Venus, M3Power, and an externally licensed disruptive technology: a home laser hair removal device. She has been a founder herself. In 2012, she launched an inventive yoga mat direct to consumer anchored by four patents in layered grip technology.

Stephanie currently mentors full time, has worked with over 25 start-ups and recently completed the Harvard Business Analytics Program, a collaborative certificate program between Harvard Business School and the School of Engineering and Applied Sciences focused on data analytics, predictive techniques, digital strategy and the basics of programming.

She believes that marketing frameworks are essential in the earliest venture stages. She has distilled her practice in world-class consumer research into an accessible approach that she calls Marketing Thinking.

Bimal Maharjan
Product Management, AI, and Growth. I help build SaaS products and platforms
https://www.linkedin.com/in/bimalmaharjan/
Bimal is a founder at Caboom.ai. (It's a no-code recommendation system builder for non ML experts. It's at the incubation stage). He is a 3x founder who has lived and launched startups in three continents: United States, Western Europe, and South Asia.

Caboom is incubating at Leapfrog Technology Inc. Bimal is a Principal at Leapfrog Technology Inc, where he leads Product, R & D, and AI teams. Leapfrog provides product engineering and development services to startups and enterprises. Furthermore, he advises founders, CTOs, CPO's on product vision, strategies, and development practices.

He has a learn it all mindset. He is not only an ardent student of startup, product, and technology but also a curious reader of various subjects such as psychology, philosophy, and politics. His latest passion is running, and he has an ambitious goal to qualify for the Boston Marathon in 2022. He is a go-to-person to ask recommendations for books, meditation, and yoga.
Before Principal at Leapfrog Technology in the US, he ran Leapfrog Labs, the startup incubator that helped build and launch startups in Nepal. Before Leapfrog Labs, he operated his startups. He raised seed capital from the startup accelerator program, Techpeaks, in Italy, where he lived for six months to validate startup ideas. He strongly believes in building communities. He helped seed and grow communities such as mobile application development, startups, and open street maps in Nepal.

Before the startup bug bit him, he graduated at the top of his class with an engineering degree in Industrial Engineering and Management and was a software engineer for three years in Infosys, India.

Matt Karlyn Partner at Morrison & Forester LLP - Commercial Life Sciences | Licensing | Technology - Focused on the convergence of life sciences and technology across the global economy
https://www.linkedin.com/in/matt-karlyn-7421b57/
For the past 23 years, my practice has focused on commercial transactions, largely devoted to all aspects of transactions in the life sciences, licensing, technology and outsourcing.

I work with clients on IP and technology licenses, strategic partnerships, collaboration agreements, joint development agreements, distribution agreements, manufacture and supply relationships, significant software deployments, data center transactions, and numerous information technology and business process outsourcing transactions. I regularly advise companies with respect to transactions designed to maximize the value of corporate assets.

I represent numerous clients in the life sciences and technology sectors, including pharmaceutical, medical device, and software companies -- ranging from Fortune 100 companies to start-ups, and I work with these companies on matters involving IP commercialization, complex collaboration transactions, licensing initiatives, subscription-based economics, and business transactions related to the procurement, development, commercialization, and use of technology and life sciences products.

I regularly use the skills I learned getting a MBA in economics and strategic management from the University of Chicago to advise my clients on deal strategy, economics and pricing strategies, and now to structure deals that reduce risk and work for the long term. My business experience, coupled with the time I spent as an in-house lawyer at both a publicly held corporation as well as a start-up company, enables me to bring a unique business and strategy background to my practice.

Organizer and Moderator:
Dan Skiba, Managing Director Skiba Advisory Associates,
Vice-Chair Boston ENET
As a Product Development Company Executive, I provide strategic leadership in product innovation and managing global teams, delivering award-winning products to the international market. My ability to problem solve, direct the entire product development lifecycle, and gain commitment to a common goal have driven faster release of products and market penetration. By building synergies across all Product Life Cycle disciplines, we have delivered products that result in 100% product utilization and seamless integration into customer environments. My skills in optimizing international resources have significantly reduced costs and streamlined production, delivering product excellence.
eMinute PITCH Presentations will be given at the start of each meeting. These 90-second elevator-style presentations enable early-stage startup entrepreneurs to gain experience in presenting a summary of their business plans to expert panels and audiences.

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

Quantum Control of Trapped-Ions via Integrated Photonics

Please Join us on Thursday, September 10th, at 7:00pm for the first talk of the 2020-2021 IEEE Photonics Society Boston Chapter's Lecture Series!

Dr. Jeremy Sage of MITLL will be speaking about integrated photonic control of trapped-ions for quantum computing and sensing.

Due to the COVID-19 situation we will be meeting via zoom. Zoom link and registration info (registration is free) will be posted to our website one week before the talk. See below for more details. We hope you can make it!

Trapped-ions are one of the most promising qubit modalities for realizing practical quantum computers and quantum sensors. Ion qubits are typically controlled and measured using lasers delivered with free-space optics, an approach which works well for small and/or laboratory-based systems, but one that presents challenges to scaling and portability. Delivery of light to trapped ions via photonics integrated into chip-scale ion traps is another approach, which offers the potential to overcome some of these challenges. In this presentation, I will discuss the basics of trapped-ion quantum computing and sensing and the technological demands of trapped-ion quantum systems.

I will then discuss the development and performance of an integrated-photonics platform that functions over a wavelength range from the near ultraviolet to the near infrared which is aimed at meeting many of these demands, as well as demonstrations of trapped-ion quantum control and readout using this platform.

Biography: Dr. Jeremy Sage is a senior staff member in the Quantum Information and Integrated Nanosystems Group at MIT Lincoln Laboratory, where he co-leads the trapped-ion quantum information processing projects, and is a Principal Investigator in the Research Laboratory of Electronics at MIT. His current research is focused on the science and engineering of trapped-ion and integrated-photonic systems for quantum information processing. Dr. Sage received a B.S in Physics/Mathematics from Brown University and a Ph.D. in Physics from Yale University.

More info, including registration will be posted shortly at: http://www.bostonphotonics.org/seminar.aspx?seminar=330

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

Power & Energy Society – 6:30PM, Tuesday, September 15

Probabilistic Evaluation of Electric Vehicles

Speaker: Gerhard Walker, PhD, Principal Engineer, Distribution Systems Planning, Eversource Energy

Location: Online only via MS Teams; no in-person gathering.

Electric vehicles posed challenges unlike any other distributed energy resource. Not only are they highly dependent on customer behavior, making their usage pattern difficult to forecast, they are also mobile, forcing electric distribution companies to account for them at more than one location. With a wide array of factors determining if, when, how, and how long the electric vehicle population charges, it is near impossible to determine a firm, and realistic, single case scenario. This presentation will explore the application of probabilistic planning methods in distribution planning on the example of electric vehicles to highlight how such methods can help to better understand system impacts of highly flexible customer assets. By looking at traveling patterns, vehicle types, charging options, and more, we will look at developing coincidence values for residential EV charging stations, key drivers on system impact, and possible, nontraditional, mitigation strategies.

Biography: Dr. Walker is currently a principle engineer for System Planning at Eversource. Prior to his engagement at Eversource he was the Director of Product Management at Opus One Solutions developing an enterprise planning platform for probabilistic system modelling, prior to which he was the Director of Grid Solutions at GE Current and a Project Manager at Netze BW, one of Germany's largest DSOs. He holds both a Masters and a PhD in Power Systems Engineering from the University of Stuttgart where his work focused on probabilistic system modelling.

Microsoft Teams details: Join Microsoft Teams Meeting +1 917-768-2821 United States, New York City (Toll) Conference ID: 865 558 871#

Free and Open to the Public; RSVP is appreciated Visit the IEEE PES Boston Chapter website for further details - http://www.ieeepesboston.org/

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

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

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

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

Entreprenurs' Network – 5:30PM, Tuesday, September 15

What is my Market, and How do I Address it?

Location: Webinar
Register: http://bit.ly/ENET3002 (Please note capacity is limited, so pre-registration is necessary)

The one thing that virtually all businesses have in common is a product or service that individuals or organizations (corporations, NGOs, government entities) will buy. The prospective buyers for an entrepreneurial offering constitute the market. Ultimately the size of the market, in combination with the competition selling into the same market, will be critical factors in determining the success of a new, entrepreneurial venture. Late-night infomercials notwithstanding, slick marketing and sales skills are not enough.

On the path, the business success, an entrepreneur with a great idea, or a company founder in need of a new idea (or pivot), must understand who the prospective buyers are and how to gain their attention. When developing an innovative tech or biotech business concept, understanding and addressing the market can be challenging.

We have assembled a panel of innovation industry veterans who have been there and who will share their thoughts and experience to shine a light on these and more topics.

Agenda:
5:30 – 6:45 PM – Open networking (Online)
7:00 - 7:10 PM - ENET Chairperson's announcements
7:15 - 7:25 PM – eMinute Pitch - Up to 2 Startup companies' presentations
7:25 - 8:25 PM - expert panelists, discussing on the night's topic
8:25 - 8:45 PM – Audience Q & A with the speakers
(all times are USA Eastern Daylight time)
A question and answer session will follow the panel discussion, and panelists will be available afterward for responses to individual questions.

Panel Members
David Spellmeyer, EIR, ShangPharma Innovation
David is a biotechnology executive with over 25 years of experience in the life sciences industry. He heads Interlaken Associates, where he advises entrepreneurs in early-stage and venture-backed companies on scientific and technical matters and corporate strategy. He brings broad business and technical expertise from companies large and small. David has participated in over 20 non-dilutive strategic corporate partnerships, four mergers and acquisitions, several rounds of venture financing, and two joint ventures. David received his Ph.D. in theoretical organic chemistry from UCLA. He completed his post-doctoral training in pharmaceutical chemistry at UCSF, where he remains an active Adjunct Associate Professor.
https://www.linkedin.com/in/davidspellmeyer/

Susan Hunt Stevens, Founder and CEO @WeSpire (www.wespire.com)
Susan is the employee engagement platform that helps forward-thinking global companies design, deliver and measure the benefits of positive impact programs like sustainability. Previously, Susan spent nine years at The New York Times Company, most recently as senior vice president, digital for Boston Globe Media, where she ran Boston.com, one of the largest news and information sites on the web. She has previous start-up experience as co-founder and president of venture-backed web business, Abridge Inc. Susan began her career as a management consultant. She also serves on the boards of the Center for Women & Enterprise and Xconomy.com. Ms. Stevens received her MBA from The Amos Tuck School of Business at Dartmouth College; a BA from Wesleyan University; and a graduate certificate in sustainable design from the Boston Architectural College. Susan is proud to be a Fortune "great green idea" of 2012, on the short-list for the Global CleanTech 100, a Wired top start-up of Boston and an EY Entrepreneur of the Year.
https://www.linkedin.com/in/huntstevens/

Russ Wilcox is a general partner at Pillar VC
Previously a serial deeptech entrepreneur. He was co-founder and CEO of E Ink, makers of electronic paper, which he grew to $200 million in profitable revenue. Russ has closed numerous financings and strategic alliances. Since selling E Ink

in 2010, he has focused on backing the next generation of local founders, primarily in areas where Boston is strong such as software, AI, hardware, synbio, Agtech, robotics, 3D, blockchain, fintech, and marketplaces.
https://www.linkedin.com/in/russ-wilcox-2005/

Organizer and Moderator

Roger Frechette, Ph.D., Founder and Principal, NEPAssociates –
My daily purpose is to exercise an innate drive to transform ideas and projects into life-changing commercial assets. In the life science business, this is the long game, requiring boundless energy and creativity, coupled with knowledge, experience, and patience.
In my consulting work, I leverage an extensive global network and insights derived from >20 years of experience in business development, calibrated with an extensive science background. My career has encompassed success as a business executive, project/alliance manager and entrepreneur, and also as a scientist, including leadership of discovery/preclinical development teams resulting in a new drug candidate – Paratek Pharmaceuticals NDA's for NUZYRA and SEYSARA NDA's were approved in 2018.
https://www.linkedin.com/in/rogerfrechette/

eMinute PITCH Presentations will be given at the start of each meeting. These 90-second elevator-style presentations enable early-stage start-up entrepreneurs to gain experience in presenting a summary of their business plans to expert panels and audiences

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

Protecting Trade Secrets When Working Remotely – Practical Considerations and "Reasonable Steps"

By Thomas McNulty and Peter Lando

The rate of remote work has been steadily increasing across many sectors of the economy. Recent events have made many of these arrangements a necessity, and several tech companies have even announced that most employees can work from home permanently. As technology has improved to the point that people can access their company's data from virtually anywhere in the world, businesses should be taking steps to ensure that their confidential and proprietary information, and trade secrets, are not stolen or inadvertently made public through a remote connection.

Trade secret law mandates that trade secret holders take reasonable measures to protect their confidential and proprietary information. The "reasonableness" of the steps taken is determined on a case-by-case basis and depends on the circumstances – for example, a large corporation with in-house legal and IT departments, would generally need to have taken more stringent measures to sufficiently protect confidential and proprietary information than smaller entities and start-ups. While companies may have implemented policies and procedures to protect confidential and proprietary information in the workplace, many have not given full consideration to the steps necessary to extend this protection to the remote workspace.

Protecting trade secrets where employees work remotely implicates at least three distinct issues: security and integrity of data networks and communications systems; security of employees' remote workplaces; and retrieving sensitive data and preventing its misappropriation when employment ends.

Data Network and Communication System Security

Companies should consider the employees' homes to be an extension of their data networks and communications systems when designing security procedures. If an employee can access a company's confidential and proprietary information, the security of that information is only as good as the security of the employee's computer and wireless network. Accordingly, companies should institute policies to secure the ways that employees handle information from their homes.

A first step is to provide company-owned computers to employees and require that they work exclusively on these computers. This allows for the installation of all virus protection software, firewalls, and the like deemed necessary by the company. Employees should be connecting through a secure, encrypted network, such as a VPN, to connect to the company's networks. This permits secure, encrypted connections and avoids connection from devices that are not under the company's direct control. All computers, and any other devices permitted to be used (smart phones, external hard drives and the like) should be password protected, and two-factor authentication should be considered, at least for access to particularly sensitive information. Access to information should be limited only to those who legitimately have need to use it during the period that they will be working remotely, and access logs should be established to document which employees have accessed which particular documents.

Security of Remote Workplaces

As employees' homes are effectively now an extension of many workplaces, companies should endeavor to ensure the secrecy of its information there as well as in the office. All devices that access a company network should be password protected, whether they are company devices or devices owned by the employee, and minimum antivirus and firewall protections should be required. Companies should require that employees password-protect their wireless connections, setting specific password requirements in terms of length and different character types. Additionally, restrictions should be placed on passwords. No use of family names, phone numbers, birthdays or other readily-obtainable information should be used – a surprising amount of this type of information can be easily obtained through Facebook accounts or the like. Wireless routers should be set to the most secure type of encryption, currently WPA2; routers capable of such encryption might be provided where employees do not have them. A regular schedule for changing passwords should be established, both for the router and for the computers or other devices that will access the company networks. Encourage password managers to allow for complex password usage.

The remote office should also be physically protected. Employees should be required to log out of the system and close out any open documents when not working, and computers should be set up to lock out users after a relatively short period of inactivity. All forms of sensitive information, paper or electronic, should be kept under lock and key to the fullest extent possible, to prevent access from family, roommates, visitors, cleaning people or others who may be on the property.

Meetings are now taking place via videoconference with greater frequency. Steps should be taken to ensure the security of these meetings. Access should be limited to invitees and restricted to those entering an access code and a password if possible. The particular platform for virtual meetings should be vetted to ensure that it meets minimal security standards, and the platform software should be upgraded regularly to ensure that the latest security features are installed. Virtual waiting rooms should be employed whereby people cannot access a meeting until the host specifically authorizes them.

When participants are on a videoconference, they should ensure that no confidential material is visible to the camera. Screen sharing should be limited, and those doing so should close out all applications other than the one in use, to avoid displaying incoming e-mails, unshared but visible tab headings and the like. Employees should find a private location from which to participate, where the conversation cannot be overheard, and should consider using headphones and personal microphones to avoid excessive volume. All electronic devices which might overhear or record the conversation, such as Siri or Alexa devices, baby monitors, and television remotes that include microphones, should be turned off. The ability to record these conferences should be disabled or limited to the discretion of the host (although if the host chooses to record, make sure that all participants are aware at the outset of the call).

Companies should educate employees on all such policies enacted, preferably with an acknowledgement in writing that the employee has been informed and understand their obligations. Reminders should be issued on a regular basis.

End of Employment

Trade secret misappropriation often occurs when current employees leave employment – whether terminated, laid-off, furloughed, or those who leave for new opportunities. In each of these situations, there is risk that the ex-employee will seek to copy sensitive information for use in his or her future employment, whether with a different company or in forming a new entity that will be competitive with the previous employer. Further, should a remote employee become ill or incapacitated, or should they pass away, you will want the ability to ensure that whatever data that employee had cannot be accessed by others.

Ideally, you will already have employment agreements that include confidentiality and non-disclosure provisions and (where appropriate) non-compete clauses, at least with key employees. As more employeeswork remotely, employment agreements with these provisions should be consideredfor all employees who have access to any sensitive, confidential, proprietary, or trade secret information from outside of the office, regardless of their particular role or seniority – ensure that agreements are in place from executives to assistants. To the extent that these clauses are not in place, employees can be presented with new agreements to impose these requirements. The legal requirements for new agreements of this type to be upheld are numerous and vary from state-to-state, particularly with respect to noncompetition clauses.

As mentioned above, remote employees will preferably be working exclusively on company computers and not on their personal computers. To protect against misappropriation, these company computers can be equipped with software that the company can use to remotely lock out users or delete information, without need for input or permission from the employee. At a minimum, computers should be set up to prevent off-loading of data, such as the disablement of USB ports. You should also be able to track the particular data that employees have accessed, and know whether any such information has been moved to a non-network location, such as memory sticks, external hard drives, or even the local drive of the employee's computer. While this may not prevent misappropriation, the evidence of access should serve as a deterrent to trade secret theft, as well as assist in dealing with misappropriation if and when it should occur.

Employees who leave employment should be notified promptly, in writing and in a fashion that confirms the receipt thereof, of their continued obligations of confidentiality and their need to return all company equipment and information. While in-person exit interviews may not be an option, a videoconference can be used in its place. It may be desirable to record these exit interviews, to serve as further evidence that the company took all reasonable steps to protect its confidential and proprietary information. If you choose to do so, however, note that many jurisdictions have laws that prevent recordings of electronic communications unless both parties to the conversation consent to the same. Further, where the employee is located in a different state than the company, questions of which jurisdiction's law will apply will arise.

There is much to consider in view of the recent growth and acceptance of remote work environments. Dispersed employees create multiple offices to manage and provide multiple contacts for third parties to access and misappropriate confidential and proprietary information of the company. In this challenging environment, a renewed focus on the required "reasonable steps" by trade secret owners has become necessary to protect and potentially enforce these rights against misappropriation.

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

Peter Lando is a partner at Lando & Anastasi, LLP. He can be reached at PLando@LALaw.com or 617-395-7002.

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Deadline Sept 6
Notification Sept 13

SUBMIT: bit.ly/3fDGuVx

MORE INFO: bit.ly/2ZBsczb

- Undergraduate students from across the globe present and research advancing technology
- Conference includes renowned speakers, technical sessions, lightning research talks, virtual research paper and poster exhibits, networking, and social activities
- Interact with leading industry experts
- Those accepted to URTC 2020 will be invited to present at MIT during URTC 2021
- URTC 2019 had 325 attendees from across the US and around the world, with a technical paper acceptance rate of 54%

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, k.safina@ieee.org.

Dennis Shapiro, Chair, IEEE Boston Consumer Technology Chapter

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

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.

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

The IEEE High Performance Extreme Computing Conference (HPEC 2020) will be held in the Greater Boston Area, Massachusetts, USA on 22 – 24 September 2020. IEEE HPEC will have virtual conference options that allow safe participation and full publication in the IEEE Digital Xplore Library!

Presentations that describe advances in high performance extreme computing technologies will be presented at this conference which is to be the premier conference in the world on the confluence of HPC and Embedded Computing.

Confirmed Distinguished Speakers include:

- Dr. Yudong Cao (Zapata Computing) - *Advances in Algorithms for Near-Term Quantum Computer*
- Dr. Jeffrey Chou and Dr. Suraj Bramhavar (Sync Computing) - *The Need for Hardware-Accelerated Combinatorial Optimization*
- Dr. John Feo (PNNL) - *The Need for Integrated Analytic Platforms and Multithreaded Runtime Systems*
- Prof. Sigal Gottlieb (UMass Dartmouth Mathematics) - *High Order Efficient Methods for Black Hole Simulations*
- *More to come!*

Challenges such as YOHO, MNIST, HPC Challenge, ImageNet, and VAST have played important roles in driving progress in fields as diverse as machine learning, high performance computing, and visual analytics.

GraphChallenge encourages community approaches to developing new solutions for analyzing graphs and sparse data derived from social media, sensor feeds, and scientific data to enable relationships between events to be discovered as they unfold in the field.

IEEE-HPEC.ORG

Software Development for Medical Device Manufacturers

Web-based Course with live Instructor!

(12.5 hours of instruction!)

Times & Dates: 1:00 - 4:PM EDT; October 19, 20, 21, 22

Speaker: Steve Rakitin

This course will be presented with a live instructor using web-meeting software. The course content will be covered in 4 sessions presented over four days.

COURSE SUMMARY

Developing software in compliance with the FDA Design Control regulation, changing FDA guidance documents and latest international standards is challenging. This intensive course provides practical solutions and suggestions for developing software in a manner that meets applicable FDA regulations, guidance documents and international standards, such as IEC-62304:2015. The focus is on interpreting Design Controls for software. Each section of the Design Controls regulation (820.30) is discussed from the perspective of software development. Discussions on key topics such as Software Requirements, Traceability, Design Reviews, Software Verification & Validation and Risk Management (including recently updated standards ISO-14971:2019 and EN-14971:2019) are included. Also discussed are FDA requirements for validation of software development tools and software used in Manufacturing and Quality Systems. Also discussed are recent FDA Guidance Documents on Cybersecurity, Mobile Apps, and Usability.

THIS COURSE IS INTENDED FOR…

Software engineers, project managers, quality managers, software quality professionals, RA/QA staff, and anyone who needs to develop cost-effective processes and procedures that will enable their organizations to deliver high quality software-based medical devices that comply with FDA regulations and international standards. This course is also appropriate for people who are new to the medical device industry.

COURSE MATERIAL

Course notes, access to an extensive collection of reference documents and a training certificate will be provided.

COURSE OUTLINE

This course will be presented with a live instructor using web-meeting software. The course content will be covered in 4 sessions as described below. Please note that duration of each session may slightly change depending on the number of questions posed to the instructor.

AGENDA

SESSION 1 – Regulatory Context
Duration ~3 hours with one 15 min break
This session will cover key regulatory requirements for medical device software in the US and EU.

Regulations and Guidance:
• FDA Medical Device Regulation (21 CFR Part 820 – specifically, design controls)
• EU Medical Device Regulation
• FDA Guidance Documents:
o Guidance for Content of Pre-market Submissions for Medical Devices Containing Software
o Off-the-Shelf Software Use in Medical Devices
o General Principles of Software Validation
o Content of Premarket Submissions for Management of Cybersecurity in Medical Devices
o Policy for Software Device Functions and Mobile Medical Applications
o Applying Human Factors and Usability Engineering to Medical Devices
• International Standards:
o ISO 13485:2016 Medical Devices – Quality Management Systems

o IEC 62304: 2015 Medical Device Software – Software Lifecycle Processes
o ISO 14971: 2019 Application of Risk Management to Medical Devices
o EN 14971: 2019 Application of Risk Management to Medical Devices
• Off-the-Shelf (OTS) Software and Open Source software (SOUP)
• Discussion: All Software Is Defective…

SESSION 2 – FDA Design Controls and IEC 62304 – Part 1 Duration ~2.5 hours with one 15 min break

This session will cover FDA Design Controls and IEC 62304 requirements for medical device software.
• Design and Development Planning
o How does Agile Development fit?
o Medical Device Software Lifecycle Processes
• Risk Management
o FDA Levels of Concern
o IEC 62304 Software Safety Classification
• Software Requirements
o Techniques for Removing Ambiguity from Requirements
• Software Architecture and Design
• Software Design Changes

SESSION 3 – FDA Design Controls and IEC 62304 – Part 2 Duration ~2.5 hours with one 15 min break

This session will cover Software Verification and Validation requirements.
• Software Implementation
• Software Verification
o Technical Reviews
o Static Analysis
o Unit and Integration Testing
• System Testing
• Software Validation Testing

SESSION 4 – Software Tool Validation and Risk Management Duration ~2.5 hours with one 15 min break

This session will cover Software Tool Validation and Risk Management requirements.
• Software Tool Validation
o Deciding which tools need to be validated
o Validation approach for software tools
• Validation of Manufacturing Software and Quality System Software
• Risk Management Using Fault Tree Analysis (FTA)
o Review of ISO/EN 14971:2019 Requirements
o Example of Fault Tree Analysis and Failure Modes Effect Criticality Analysis (FMECA)

Course Cancellation and Refund Policy: Requests for online course cancellations must be received 3 business days prior to the course date for a full refund. Once course materials have been shared with a participant, a cancellation request cannot be accommodated.

About the instructor…

Steven R. Rakitin has over 40 years experience as a software engineer and software quality manager. He helped write the first IEEE Software Engineering Standard (IEEE-STD-730 Standard for Software Quality Assurance Plans) and worked on revisions to both IEEE Standard 1012-2012 (Software Verification & Validation) and IEEE 730-2014 (Software Quality Assurance). He has written several papers on software quality as well as a book titled: Software Verification & Validation for Practitioners and Managers. He received a BSEE from Northeastern University and an MSCS from Rensselaer Polytechnic Institute. He earned certifications from the American Society for Quality (ASQ) as a Software Quality Engineer (CSQE) and Quality Auditor (CQA). He is a Senior Life Member of the IEEE. As President of Software Quality Consulting, he helps medical device companies comply with FDA regulations, guidance documents, and international standards in an efficient and cost-effective manner.

Decision (Run/Cancel) Date for this Course is Monday, October 12, 2020

IEEE Members	**$285**
Non-members	**$345**

http://ieeeboston.org/event/live-course-software-development-for-medical-device-manufacturers/?instance_id=2862

Latest Insights in RF Amplifier Design from World's Leading Experts – Fundamentals and Applications

(10 hours of instruction!)

Time & Date: **6 – 8PM EDT, Tuesdays, September 29, October 6, 13, 20, 27, November 3**

Live Interactive Webinar!

Course summary/overview:

This six week lecture series is intended to give a broad overview of state-of-the-art RF PA techniques with practical aspects for working professionals together with students for future RF PA designers, from fundamentals to applications. It begins with a review of RF power amplifier concepts then teaches handset PA design techniques, issues and solutions faced with designing RF PAs for mobile applications. It also discusses high efficiency amplifier structures with different classes of operation, and other architectures. A high linearity techniques lecture with behavioral modelling will follow. GaAs/GaN MMIC level millimeter-wave amplifier design tutorials and techniques will be lectured including foundry/technology selection, loadpull, loadline analysis and simulations with EDA tools. Lastly, digital perspective transmitters will be presented using GaN technology together with FPGA and ASICs.

The platforms currently being considered for the course are MS Teams and Zoom and attendees should be prepared to access the course by both platforms.

Benefits of attending:

This course will give a broad overview of state-of-the-art RF PA techniques with practical aspects to help sharpen current skill sets as well as initiate the RF PA design with better confidence.

Target Audience/who should attend:

RF engineer professionals and prospective RF amplifiers / RFIC design students

Outline

RF Amplifier Basics – (9/29/2020)
by Dr. Nestor Lopez at MIT Lincoln Laboratory
RF Power Amplifier Design for Mobile Applications – (10/06/2020) - by Dr. Douglas Teeter at Qorvo

Digital Transmitter – (10/13/2020)
by Dr. Rui Ma at Mitsubishi Electric Research Labs

High-Efficiency RF Power Amplifiers Architecture – (10/20/2020)
by Dr. Nestor Lopez at MIT Lincoln Laboratory

High Frequency RF Amplifiers MMIC Design with GaAs/GaN pHEMT with EDA tools - (10/27/2020)
by Dr. Youngho Suh at MIT Lincoln Laboratory

Behavioral Modeling and Linearization of RF Power Amplifiers – (11/03/2020)
by Dr. Kevin Chuang at NanoSemi, Inc.

Decision (Run/Cancel) Date for this Courses is Monday, September 21

IEEE Members	**$195**
Non-members	**$235**
Full Time Students (members)	**$75**
Full Time Students (non- members)	**$95**

http://ieeeboston.org/event/latest-insights-in-rf-amplifier-design/?instance_id=2845

Python Applications for Digital Design and Signal Processing

(12 hours of instruction!)

Time & Dates: Thursdays – Oct. 1, 8, 15, 22 and Tuesdays, Oct. 6, 13, 20, 27 – 6:30PM – 8:00PM ET

Location: **Live, Interactive, Webinar**

Speaker: **Dan Boschen**

Course Summary: This is a hands-on course in the popular and powerful open source Python programming language.

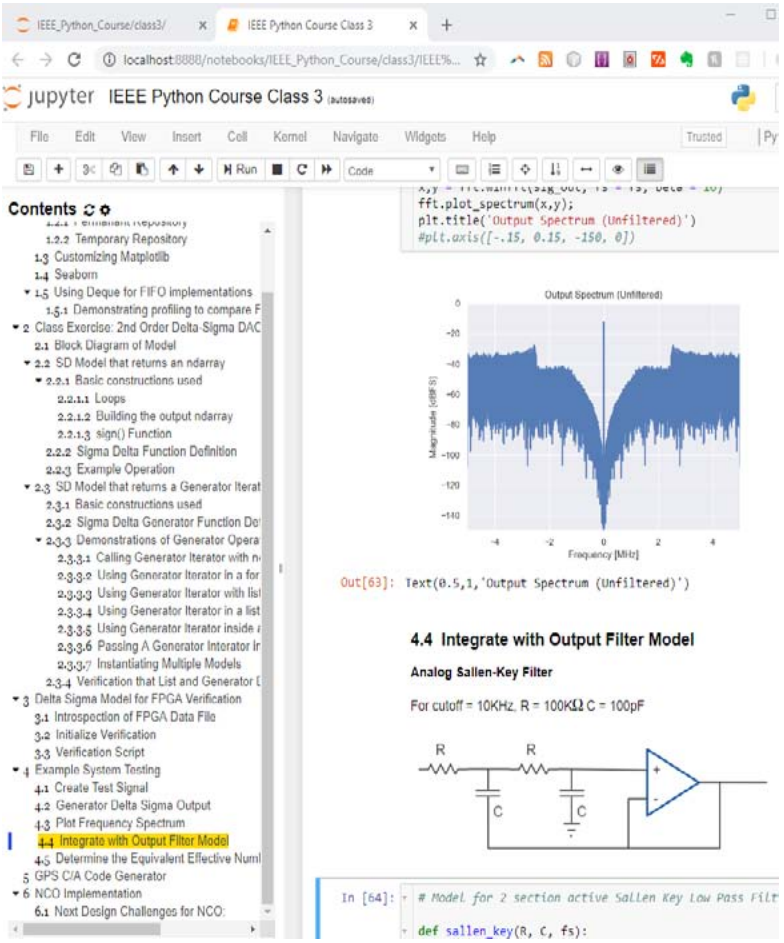
Dan provides simple, straight-forward navigation through the multiple configurations and options, providing a best-practices approach for quickly getting up to speed using Python for solving signal processing challenges. Students will be using the Anaconda distribution, which combines Python with the most popular data science applications, and the 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.

Once a basic working knowledge of the language is established, 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.

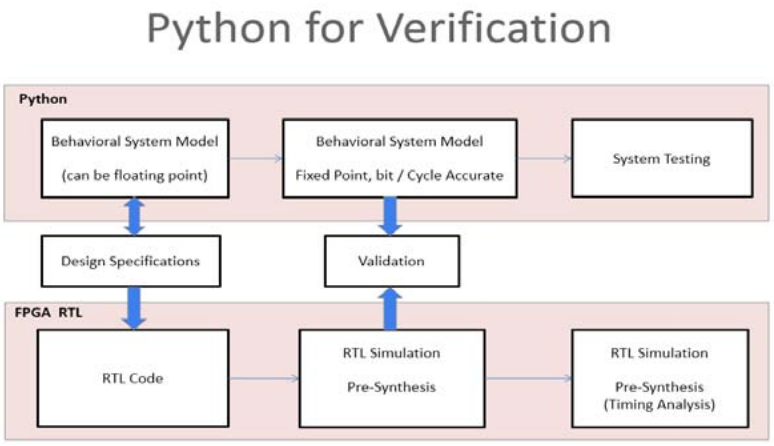
Target Audience: This course is targeted toward users with little to no prior experience in Python, however familiarity with other modern programming languages and an exposure to object-oriented constructs is very helpful. Students should be comfortable with basic signal processing concepts in the frequency and time domain. Familiarity in 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 and related tools specific to modeling and simulation for signal processing analysis and design.

A laptop (Mac or PC) preconfigured with Anaconda is required; the specific installation instructions will be emailed to students prior to the start of class.

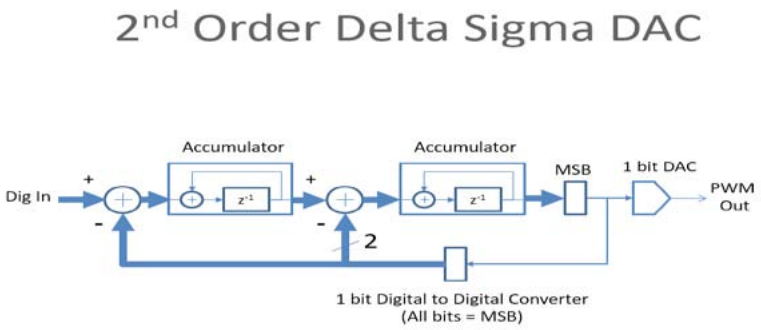
Biography: Dan Boschen has a MS in Communications and Signal Processing from Northeastern University, with over 25 years of experience in system and hardware design for radio transceivers and modems. He has held various positions at Signal Technologies, MITRE, Airvana and Hittite Microwave designing and developing transceiver hardware from baseband to antenna for wireless communications systems. Dan 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/danboschen

All Classes 6:30pm-8:00pm Eastern Time on the dates listed below

Thursday, October 1 and Tuesday, October 6
Topic 1: Intro to Jupyter Notebooks, the Spyder IDE and the course design examples including Delta Sigma Converters, GPS Code Generators, and Numerically Controlled Oscillators. Core Python constructs.



Thursday, October 8 and Tuesday, October 13
Topic 2: Core Python constructs, functions, reading writing data files.

Thursday, October 15 and Tuesday, October 20
Topic 3: Signal processing simulation with popular packages including NumPy, SciPy, and Matplotlib.

Thursday, October 22 and Tuesday, October 27
Topic 4: Bit/cycle accurate modelling and analysis using the design examples and simulation packages

Decision (Run/Cancel) Date for this Course is Monday, Septmebr 28, 2020

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

http://ieeeboston.org/%20python-for-signal-processing/

Every Tuesday in October 2020

October 6: 5G/IoT/Automotive

October 13: PCB/ Interconnect Design

October 20: Signal Integrity/Power Integrity

October 27: Radar/Antenna

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