BOSTON

THE REFLECTOR

ISSUE #6
JUNE 2020

ENTREPRENEURS' NETWORK WEBINAR MEETINGS

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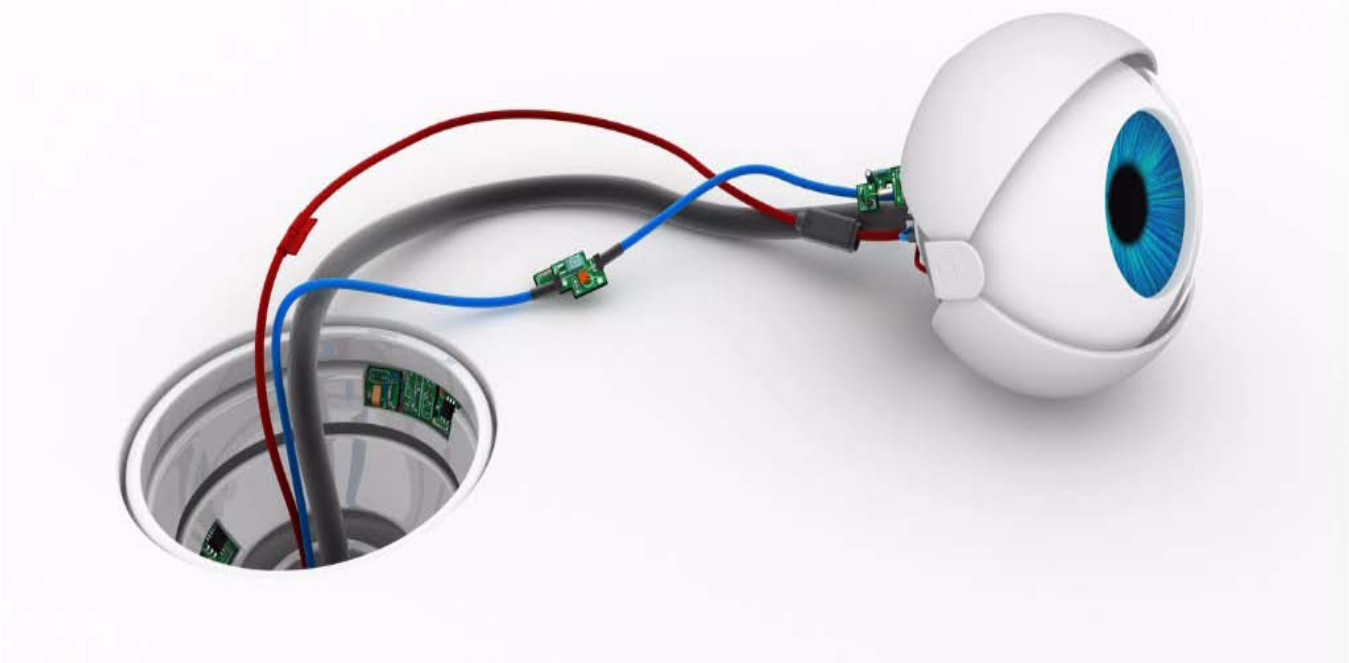

IEEE
Advancing Technology for Humanity

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Space Force or Space Farce?

by Kevin Flavin, Chair, Electronics Communications Team

By the time you read this, the United States will most likely have launched U.S. Astronauts on SpaceX rockets to the International Space Station, successfully. If you haven't heard, this is two significant achievements:

First, a return of launching astronauts from U.S. soil. Previously, our astronauts have been launching from Kazakhstan, among other foreign locations.

Second, this is the first time a private company is carrying an astronaut into at least near space.

This is part of the new Commercial Crew Program, and they will be lifted by SpaceX Crew Dragon spacecraft on a Falcon 9 rocket. The event will be livestreamed by NASA TV on May 27th at 4:33 pm. It is my experience that the times of launches may change, so check the listing on the NASA.gov website.

Meanwhile, Steve Carrell, a local Bostonian, is the lead character in a new show called Space Force. It's been explained to me as The Office, but for space. It's fun to get some entertainment about something that so many are on the periphery, observing and not fully understanding why we are going to space.

But to many, this is a significant milestone and a display of the efforts that are happening 'behind-the-scenes'. For me, I've been following all our space and exploration activity from the periphery - and I'm still on the periphery - but news from NASA takes on a more personal tone now. After spending close to 30 years in software for financial services, I am back on the high-tech side of the world. I recently joined a small manufacturer in Cambridge, Massachusetts that provides technology for telescopes, communications, and even microscopy. I recently learned during our 21st founding anniversary that we draw our roots from the Small Business Innovation Research program through NASA. We had an idea in 1999 and made a pitch to NASA and received our 'seed funding'.

I am continually amazed by the big things that we can do, and how many little things and what seemed like insignificant decisions made years ago that continue to impact today and who knows how far into the future.

Will we continue to go where no man/one has gone before? Which brings me to the other thing working its way through my brain, which was first, the logo for the United States Space Force, or the Star Trek pin?

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June Chapter Meeting Summary

Entrepreneurs' Network – 7:00PM, Tuesday, June 2
M&A AND SUCCESSFUL EXITS

(Please note capacity is limited so pre-registration is necessary)
You are one of them...a dedicated entrepreneur, who has poured her heart and sweat into the venture. Does this single-minded dedication to launch and grow the business have to exclude thoughts of potential future exits? On the contrary, an exit strategy is an important element of the overall business strategy that describes the vision of how you will eventually capitalize on your investment. This is important because the decisions about how you structure and operate the business can have huge implications down the road. Let us hear from three deeply experienced panelists, all of who founders and entrepreneurs and two of whom are active early-stage investors, and all have participated in successful exits that have come in various sizes and forms. They will talk about exit strategy planning and, just as important, what exits look and feel like in real life to an entrepreneur, the founder CEO or CSO, and the investor.
Register: @ https://bit.ly/ENET2919w. Meeting Location: Webinar. See Page 6.

Entrepreneurs' Network – 7:00PM, Tuesday, June 16
How Does Covid-19 Impact the Life Science Start-Up?

It's no secret that the oncoing COVID-19 pandemic has created a massive disruption to society. Beyond the astonishing numbers of infected infdividuals and loss of life, the economy has undergone a tremendous freefall that is impacting virtually all business sectors. The life science R&D enterprise in Massachusetts has been deemed an essential business, as companies throughout the ecosystem are racing to find solutions to this crisis. Establisned corporations with established infrastructure and strong cash positions are leading the charge. How does the COVID-19 crisis impact early stage life science companies – emerging enterprises that are in company building mode in actively seeking financing? Please join us for an engaging discussion with entrepreneurial minded leaders who are finding their way through a very unusual, memorable 2020. Register: @ https://bit.ly/ENET2920o Meeting Location: Webinar Co-hosted with MDG. See Page 8.

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Location: Webinar

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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. As with every ENET meeting, you will also get the chance to network with the panelists and other meeting attendees, both before the start of the meeting and afterward.

Speakers:
Chad Jones, Serial Entrepreneur & Investor; Chief Strategy Officer & Board Adviser, Orb Health; CEO, Velox Medical; CEO, Plesso Ventures, WW Agent of Change, TEDx

As a socially conscious "agent of change", Chad Jones utilizes his skills as an entrepreneur, thought leader and venture investor to take unique ideas from inception through execution for startups and F50 companies alike. Guiding effective and profitable outcomes – including six exits to companies such as Microsoft, VMware and Intel – Chad continues to pursue his vision of achieving a better world through non-intuitive technology use and entrepreneurship. Chad splits his time as a board member, operational executive and mentor across a wide spectrum of companies. Before his current position of CEO at Plesso Ventures, Inc., he held positions of Chief Strategy Officer at Deep Information Systems, VP of Internet of Things Strategy at LogMeIn, Strategy and PM for DynamicOps (acquired by VMWare) and VP Product Management with Neocleus (acquired by Intel). Additionally, he was co-creator of Softricity app virtualization, acquired by Microsoft, which grew to revenues topping $6 billion. As an investor,

Chad Jones has chosen passions that are both close to his heart and that create better outcomes for the plan (effective alternative energy, wireless electricity, etc.). He also enjoys helping the next generation look differently at the world through guest lectures at Harvard, Boston College, Boston University, MIT and Carnegie Mellon. In his free time, he enjoys writing screenplays, playing beach volleyball, heli-skiing, playing guitar, collecting wine and, of course, finding the next great idea that will transform businesses and lives.
https://www.linkedin.com/in/chadericjones/

Jean Hammond, Angel Investor; General Partner @ LearnLaunch Accelerator,
LearnLaunch Accelerator provides the most promising edtech startups worldwide with seed funding, an unmatched team of mentors, intensive coaching and all the tools needed to grow a successful edtech startup. an Institute, Accelerator and Campus that together support the growth of

greater Boston's edtech cluster. www.learnlauch.com
Jean is an active angel investor focusing on early stage high tech start-ups. She was honored with the highest award for angels in the US, the Hans Severiens Award in 2014. She was a founder of the Boston branch of Golden Seeds (focused on investing in women-managed businesses) and a member of Launchpad Venture Group and Hub Angels. She is also the founder of JPH Associates and a serial entrepreneur with over 20 years' experience in the high-tech industry. Her entrepreneurial activities include co-founding and managing Quarry Technologies and AXON Networks and, following 3Com's acquisition of AXON, focusing 3Com's WAN strategy. She has played an active board level role with a number of her Boston area investments including Crimson Hexagon, Hire Reach, Home Portfolio, Instream Media, iTeam, Peach Underneath, Pixibility, Playrific, Ten Marks, ZipCar, and a number of others. Her activities with nonprofits include being a member of board of trustees of MIT, a board member of The Technology Capital Network and Mentor at MassChallenge and TechStars.

She earned a M.S. from the MIT Sloan School of Management and a BS in Biology from Boston University.
https://www.linkedin.com/in/jean-hammond-77b44b/

Juswinder Singh Ph.D., Scientist and Entrepreneur; Founder and Chief Scientific Officer @ Ankaa Therapeutics
Dr. Singh is a pioneer in the development of a new class of drugs called Targeted Covalent Inhibitors that have revolutionized the treatment of lung cancer and leukemia. His current company, Ankaa Therapeutics. Is a start-up company focused on the development of drugs to treat drug resistance. He was the founder and Chief Scientific Officer of Avila Therapeutics, a venture-backed company which in five years (2007-2012) went from startup (in his basement) to a world-class organization with collaborations with Novartis, Sanofi, the Leukemia and Lymphoma Society and Clovis Oncology to advance multiple drugs into clinical development. In 2012 Avila Therapeutics was acquired by Celgene. In 2013 his company Avila received the New England Venture Capital award for Exit of the Year. He was awarded the 2016 American Chemical Society George and Christine Sosnovsky award for outstanding contributions to cancer research. In 2016 he was awarded the Excellence in Innovation Award by the Chinese-American Biomedical Association. He has been a board member and advisor to Trek Therapeutics, Care4ward and TIE Boston.
https://www.linkedin.com/in/bmhron/

Co-Organizer and Moderator
Mai Zymaris, Associate @ Foley Hoag LLP and ENET volunteer.

Mai is a Boston-based corporate and IP transactional attorney, represents life sciences and high-tech companies at every step of their business: incorporation, licensing, collaboration & strategic agreements, exit strategies, and IPO. Mai received her JD from Boston College Law School and her LLM from Harvard Law School. Born and raised in Vietnam, Mai possesses local knowledge and market savviness in Asia. She has also built an extensive network there. In 2015, She founded VietChallenge, the most prestigious and largest startup competition for Vietnamese entrepreneurs as well as non-Vietnamese entrepreneurs with plans to expand into the Vietnamese market. Over the past five years, VietChallenge has helped elevate more than 800 startups, startups who have now raised more than $8 million from investors.
https://www.linkedin.com/in/mai-zymaris-70625530/

Co-Organizers
Robert A. Adelson, Principal, Business and Tax attorney, Adelson & Associates, LLC. Chair Emeritus, Boston Entrepreneurs' Network (ENET).
Rob has been an attorney for over 30 years specialized in business, tax, stock and options, employment, contracts, financing, trademarks and intellectual property. Rob began as an associate at major New York City law firms before returning home to Boston in 1985 where he has since been a partner in small and medium sized firms before joining Engel & Schultz LLP where he was a partner from 2004 to 2019. When the senior partners retired, he moved his law practice to his own firm. Rob represents entrepreneurs, start-ups and small companies, independent contractors and employees and executives. Rob is a frequent speaker on business law topics and author of numerous articles published in Boston Business Journal, Mass High Tech and other publications, plus more than twenty articles since 2016 on executive employment topics published by CEOWorld magazine. He has been named among the "Top 20 Boston Startup Lawyers" by ChubbyBrain.com, a website that provides tools for entrepreneurs. Rob

has been on the ENET Board since 2002, was Vice Chair 2005-2009, and ENET Chairman 2009-2019. He was also a Co-Founder and Board member of the 128 Innovation Capital Group (2004 -2015). In 2016, he received the IEEE USA Professional Achievement award for "extreme dedication to the entrepreneurship community." He holds degrees from Boston University, B.A., summa cum laude, Northwestern University (Chicago), J.D., Law Review, and New York University, LL.M. in Taxation.
https://www.linkedin.com/in/robert-adelson-b8a1557/

Anthony Corsino
Merill Lynch, Pierce, Fenner & Smith
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.

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Register: @ https://bit.ly/ENET2920o

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Please join us for an engaging discussion with entrepreneurial minded leaders who are finding their way through a very unusual, memorable 2020.

Agenda:
7:00 - 7:10 PM - ENET Chairperson's announcements
7:10 - 7:15 PM – MDG President's announcements
7:15 - 7:25 PM – eMinute Pitch - Up to 2 Startup companies' presentations
7:25 - 8:25 PM - 4 expert speakers on the night's topic
8:25 - 8:45 PM – Audience Q & A with the speakers
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A question and answer session will follow the panel discussion, and panelists will be available afterward for responses to individual questions. As with every ENET meeting, you will also get the chance to network with the panelists and other meeting attendees, both before the start of the meeting and afterward.

Panel

Dan Mandell – CEO/Founder, GRO Biosciences
Dan received his Bachelors degree from Stanford University in 2002 and a Master's degree in Artificial Intelligence from the University of Edinburgh in 2003. His Ph.D. work at UCSF coupled inverse kinematics techniques from robotics with protein modeling and design to allow prediction of flexible protein structures to atomic accuracy, earning him the Julius R. Krevans Award for Most Outstanding Dissertation in 2010. As a HHMI Postdoctoral Fellow of the LSRF in George Church's lab at Harvard, Dan combined computational protein design with genome-wide codon reassignment to engineer essential enzymes that require synthetic amino acids to function, producing the first organisms that require a synthetic amino acids for survival. As CEO of GRO Biosciences, Dan leads an effort to apply computational protein design with nonstandard amino acids in organisms with expanded genetic codes

to produce a new class of protein therapeutics.
https://www.linkedin.com/in/dan-mandell-9962456/

Alif Saleh – CEO, Scipher Medicine
A global business leader and entrepreneur at heart, Alif draws from his scientific background in systems biology, network theory, and engineering at Scipher. Alif has successfully led cross-disciplinary teams in technology and business across Asia, Europe and the Americas – raising over $225 million in venture and private equity capital. Previously with BCI (acquired 2000), Alfa Laval (IPO 2002), and Myriant (acquired 2014), Alif received his MSc degree in Chemical and Genetic Engineering from Lund Institute of Technology, Sweden.
https://www.linkedin.com/in/alif-saleh-753a061/

Ramani Varanasi, Co-Founder/President/CEO of X-Biotix Therapeutics
Ms. Varanasi is a co-founder, President and CEO of X-Biotix. She is an accomplished business executive, with over 20 years of biopharmaceutical industry experience and a distinguished track record in structuring, negotiating and executing successful strategic alliances, licensing agreements and M&A transactions as well as providing business development, management and strategic leadership to organizations. She has held Research and senior level positions in Business & Corporate Development including at Merck, Millennium (now Takeda), Momenta, and Checkmate Pharmaceuticals, to name a few.

Over the course of her career, Ramani has been involved in the formation of strategic partnerships with companies and research organizations globally, including in emerging markets such as Asia - and continues to have a keen interest in bridging the research and business gap and fostering collaboration between enterprises in this global marketplace. Her broad experience in the areas of early stage company formation and financing, including dilutive and non-diluting funding initiatives, has enabled her to execute deals with total value in excess of several billion dollars.

Ramani holds a B.Sc. and a M.Sc. from McGill University in Microbiology & Immunology and Biochemistry, respectfully, and an MBA in General Strategy from Northeastern University. She is a Member of the Board of Directors of the Antimicrobials Working Group, an organization that promotes the vision of utilizing collective power to improve the regulatory, investment, and commercial environment for emerging infectious disease companies. Ramani also volunteers as a mentor to start-up companies in the biopharma area and also has an avid interest in the area of international healthcare, a sector in which she has been involved as a board member for two non-profit organizations.
https://www.linkedin.com/in/ramani-varanasi-8300401/

Chris Vincent, Head of Healthcare Sector, PDD Innovation
Chris is heading the PDD Healthcare Sector. PDD is a design and innovation consultancy with offices in Boston, London, Shanghai and Hong Kong. Chris has experience across healthcare, defense and aerospace. He has spent a lot of time working with medical technology companies, consultancies, early stage life science companies and academics to understand their approach to innovation. He has supported strategy reviews and road mapping process across a variety of physical and digital systems and reviewed for the NSF. He has experience of regulatory aspects and risk management process including test, evaluation and trials. He has managed many formative and summative usability evaluations on a diverse range of medical devices from consumables through to complex dialysis equipment in the UK, US and China. He formed part of the ventilator challenge – a UK based response to COVID-19. Prior to joining PDD, Chris worked on the CHI+MED project at the UCL Interaction Centre (UCLIC), publishing commentaries around need to innovate flexibly and efficiently e.g. Can Standards and Regulations Keep Up With Health Technology? He has guest lectured for the UCL Patient Safety and Clinical Risk Module, as well as a series of short courses relating to the design of healthcare apps.

Moderator, Co-Organizers
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 exten-

sive 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/

Peter N. Madras, M.D., Lecturer, Institute for Medical Eng and Science, MIT, President, Medical Development Group of Boston (MDG)
Dr. Madras, a graduate of McGill Medical School is a retired transplant and vascular surgeon and Associate Prof. at Harvard Medical School, a founder of two companies and board member of number of start-ups. He is currently lecturer in the Institute for Medical Engineering and Science at MIT and President of the Medical Development Group (MDG). During his practice, Dr. Madras was member and Chairman of the Massachusetts Board of Registration in Medicine. He served for ten years as Medical Director for Grace Biomedical in the development of a liver support system and an artificial pancreas. He has authored 80 papers and holds 3 patents. Prior to his surgical career, Peter was Director of the Medical Group at Avco Everett Research laboratory which brought to market the first mechanical cardiac assist device, the intra-aortic balloon. This group was spun off to form five different medical companies, the largest of which is Abiomed.
pmadras@gmail.com

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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.

Are You Prepared to Adapt? - Innovations in Licensing and Related Transactions

By Greg K. Gerstenzang

The maturation and growing market acceptance of technologies such as blockchain and artificial intelligence have many businesses experiencing an increasing need to adapt as they recognize the many applications of these innovations. As smart contracts, artificial intelligence, and blockchain become more commonplace across industries, those involved in negotiating licensing agreements and specifically technology transactions will need to understand how these innovations can be a resource to consider.

Blockchain technology is most well known as the backbone supporting cryptocurrencies such as Bitcoin. Blockchain technology, however, supports much more than cryptocurrency trading. For example, software programs known as "smart contracts" may be recorded, executed, and maintained on a blockchain. A smart contract differs from a traditional contract most notably in that it is self-executing. Completion of obligations under the contract by one party will automatically trigger performance of the obligations of the co-party to the smart contract. A party would utilize a web browser to access a program designed to support transactions associated with the smart contract. A smart contract may include a simple agreement to purchase a set of goods, for example – the payment and delivery terms and conditions for which are specified within the contract. The agreement to enter into the contract is recorded, in an unalterable record, on the blockchain. Performance – or lack thereof – of a party with respect to the conditions of the smart contract is also unalterably recorded on the blockchain.

Smart contracts may also be designed and programmed to include more complex transactions such as patent and technology licensing agreements and related transactions. A patent licensing smart contract may specify which patent or patents are being licensed. The smart contract may also specify any restrictions on the use of the patents such as field of use, territory, sub-licensing, improvements, or time-based restrictions. Conditions for payment for practicing the technology, such as an upfront payment and/or a running royalty, may also be specified within the smart contract. In some instances, a smart contract may be programmed to present a potential licensee with options regarding obligations, restrictions, and payment methods, which can essentially provide the licensee with a customized license.

Intellectual property licensing smart contracts may provide benefits to both licensors and licensees. With the implementation of a smart contract, a licensor may be able to more easily monetize their intellectual property and work with, potentially, multiple licensees. Unlike a traditional contract, the smart contract also provides licensees direct access to pay for licenses, or royalties related to such licenses – all of which is recorded in an unalterable record on the blockchain. Potential licensees are incentivized to use the licensing blockchain solution to easily enter into license agreements.

Although a smart contract offers advantages and convenience, there are potential pitfalls. A smart contract may be inflexible. If improperly programmed, it may not perform according to the expectations or desires of the parties; therefore, the creator or manager of a licensing blockchain should provide for an off-line arbitration system in which parties may settle disagreements. In addition to an understanding of licensing agreements, a smart contract will also require the creator of the contract to have an ability to execute the computer programming.

Those involved in licensing should learn how to prepare license agreements in the form of smart contracts and enlist computer programmers to assist creating them. Multiple varieties of smart contracts can be developed for licenses of the same patent or patents, or any other intellectual property rights, with differing terms such as the granting of different scopes of rights, payment options, audits, methods of verifying adherence to the terms of the license, or methods of verifying reported activity and associated royalty payments. A potential licensee may electronically review each of the different contract options and select the license that best aligns with their goals.

Industries such as wireless communications and many forms of internet commerce are constrained by what are commonly referred to as “Standard Essential Patents (SEPs)” – unavoidable patent requirements for implementing standardized technology within a given industry. Such patents may be well suited to licensing via smart contracts with standardized terms.

University licensing may also be well suited for the use of blockchain-based smart contracts. Many universities have technology licensing offices that work with potential licensees. The terms of university licensing agreements are in many instances fixed, leaving little, if any, opportunity for negotiation. Transactions of such standardized licenses could be streamlined via execution of smart contracts.

Industries involving emerging technologies may not have established licensing standards and so may make available only a portion, or portions, of their patented technology for a licensor or licensee. There may thus still be a need for negotiation of traditional license agreements and/or separate license and appended terms under special circumstances.

A licensee wishing to determine if a particular patent or other form of intellectual property is available for licensing via a smart contract could perform a standard internet search to determine if the technology is available for licensing and how to access an interface for entering into a license agreement. In some instances, university technology licensing offices may maintain their own blockchains for licensing of university technology. Likewise, companies may maintain similar blockchains for available technologies. Additionally, third party suppliers, including law firms, could maintain technology licensing blockchains for individuals or organizations not desiring to maintain such solutions themselves.

As technology continues to advance, intellectual property licensing, especially for standardized licenses, will likely include greater use of smart contracts that are executed and recorded in blockchain environments.

Greg K. Gerstenzang is a partner at intellectual property law firm, Lando & Anastasi, LLP located in Boston, MA. He can be reached at GGerstenzang@LALaw.com or 617-395-7048.

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.

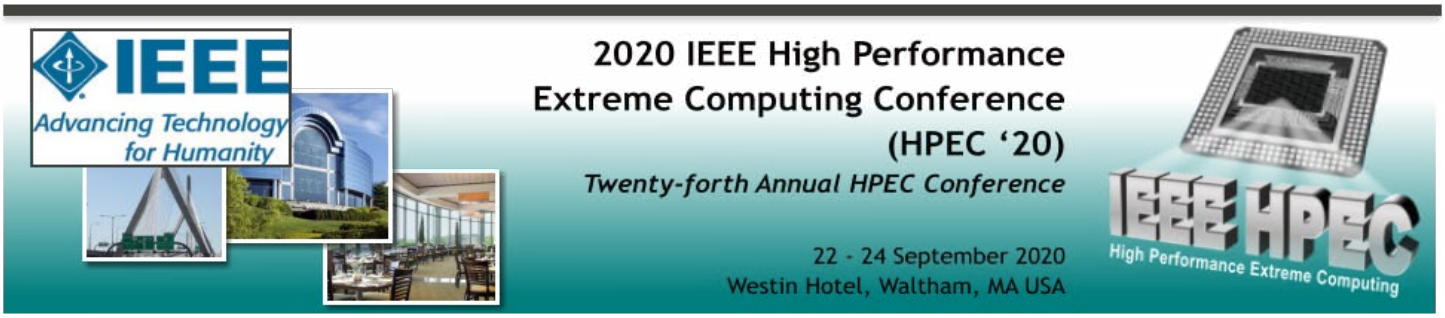
Professional development or general interest articles should have broad applicability to the engineering community and should not explicitly promote services for which a fee or payment is required. A maximum length of two to three pages would be best.

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 PAPERS



www.ieee-hpec.org

A note from the HPEC Committee:

We all hope that by Fall of 2020 normal conference participation will have resumed. If that is not the case, IEEE HPEC will have virtual conference options that will allow safe participation and full publication in IEEE Xplore.

The IEEE High Performance Extreme Computing Conference (HPEC '20) will be held in the Greater Boston Area, Massachusetts, USA on 22 – 24 September 2020. 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
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- Computing Technologies for Challenging Form Factors
- ASIC & FPGA Advances
- Quantum and Non-Deterministic Computing
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- 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: **Jun 19, 2020** Notification of Acceptance: **Aug 1, 2020** Camera Ready Deadline: **Aug 31, 2020**

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

DSP for Software Radio

(This course consists of 10, 1.5 hour sessions)

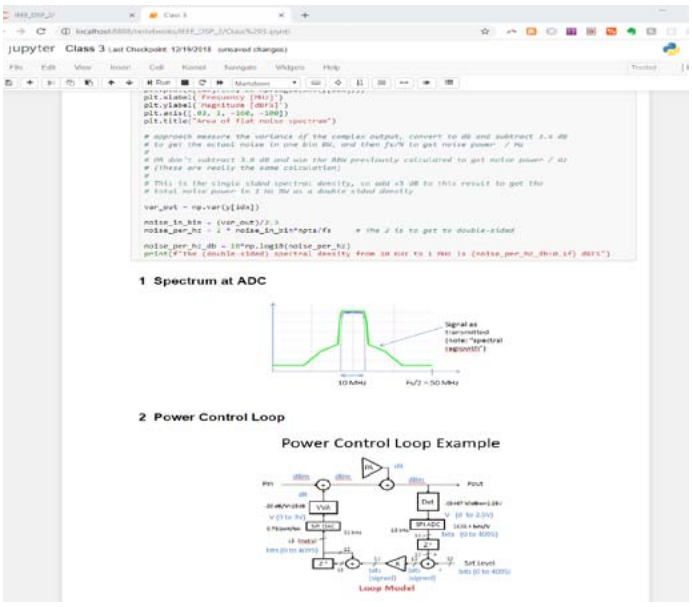
Time & Date: 6:30 - 8PM, Tuesdays: July 28, August 4, 11, 18, 25
6:30 - 8PM, Thursdays: July 30, August 6, 13, 20, 27

Location: Live, Interactive Webinar

Speaker: Dan Boschen

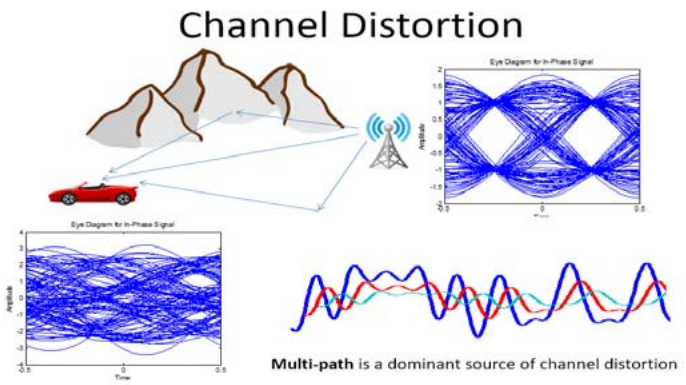
Course Summary

This course builds on the IEEE course "DSP for Wireless Communications" also taught by Dan Boschen, further detailing digital signal processing most applicable to practical real-world problems and applications in radio communication systems. Students need not have taken the prior course if they are familiar with fundamental DSP concepts such as the Laplace and Z transform and basic digital filter design principles. The course title has been changed with some minor additions but this is the same course that was previously taught titled "More DSP for Wireless Communications", with the addition of Python demonstrations using Jupyter Notebooks.



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

Dan builds an intuitive understanding of the underlying mathematics through the use of graphics, visual demonstrations, and real-world applications



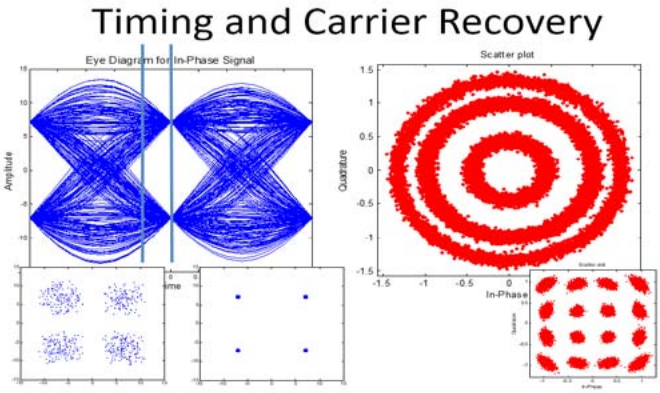
for mixed signal (analog/digital) modern transceivers. This course is applicable to DSP algorithm development with a focus on meeting practical hardware development challenges, rather than a tutorial on implementations with DSP processors.

Now with Jupyter Notebooks!

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

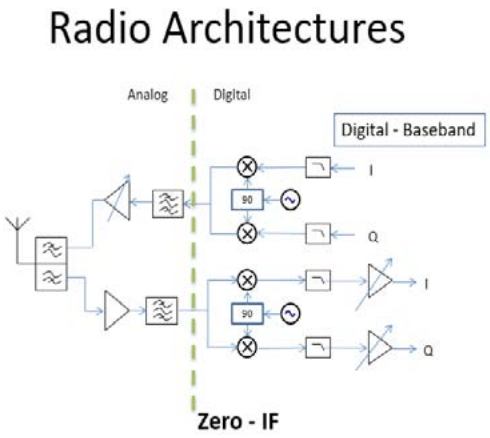
This course will not be teaching Python, but using it for demonstration. A more detailed course on Python itself is covered in a separate IEEE Course "Python Applications for Digital Design and Signal Processing".

Students will be encouraged but not required to install the Anaconda Python distribution. All set-up information for installation will be provided prior to the start of the course.



Target Audience:

All engineers involved in or interested in signal processing for wireless communications. Students should have either taken the earlier course "DSP for Wireless Communications" or have been sufficiently exposed to basic signal processing concepts such as Fourier, Laplace, and Z-transforms, Digital filter (FIR/IIR) structures, and representation of complex digital and analog signals in the time and frequency domains. Please contact Dan at boschen@loglin.com if you are uncertain about your background or if you would like more information on the course.



Benefits of Attending/ Goals of Course:

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

Topics / Schedule:

Sessions 1A&1B: DSP Review, Radio Architectures, Digital Mapping, Pulse Shaping, Eye Diagrams

Sessions 2A&2B: ADC Receiver, CORDIC Rotator, Digital Down Converters, Numerically Controlled Oscillators

Sessions 3A&3B: Digital Control Loops; Output Power Control, Automatic Gain Control

Sessions 4A&4B: Digital Control Loops; Carrier and Timing Recovery, Sigma Delta Converters

Sessions 5A&5B: RF Signal Impairments, Equalization and Compensation, Linear Feedback Shift Registers

Speaker's Bio:

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

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

http://ieeeboston.org/digital-signal-processing-dsp-wireless-communications-radio/

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

(12 hours of instruction!)

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

Location: **MIT Lincoln Laboratory, 3 Forbes Road, Lexington, MA**

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.

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

Payment received by Sept. 15	
IEEE Members	**$195**
Non-members	**$235**
Full Time Students	**$75**
Payment received after Sept. 15	
IEEE Members	**$235**
Non-members	**$255**
Full Time Students	**$100**

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

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