



Included in this issue:

• Chair's Corner.....	2
• Invitation to the Section Executive Committee Meeting and Dinner Social	3
• That's My DNA: Digital Signatures to Ensure Authenticity and Integrity of Synthetic DNA Molecules.....	3
• IEEE Education Society Pittsburgh Chapter established	5
• A Proposal from an IEEE Member.....	6
• Engineer's Week 2020 - Call for Volunteers	7
• Volunteer for the 2020 IndEEE 500 Robot Car Race.....	7

Editor: Philip Cox, p.e.cox@ieee.org; Contributors: Tm Dionise, Mark Lee, Balaji Palanisamy, and Dave Vaglia

All announcements for publication in a particular month's bulletin are due to the Editor by the 20th of the previous month. The accuracy of the published material is not guaranteed. If there is any error, please bring it to the Editor's attention. The Section's web site, <http://sites.ieee.org/pittsburgh>, has recent issues of the bulletin and lots of other useful information.

• *Chair's Corner*

IEEE members and Friends,

I want to thank all our Pittsburgh Section members for their support this past year. My time serving you as chair is nearly up. New volunteers will be leading the Pittsburgh Section into the new year.

Pittsburgh is a large IEEE Section with a diverse set of Chapters and Affinity groups. We have about 25 officially recognized sub-groups, and have just added an Education Society Chapter, thanks to the leadership of Mark Lee. As a member, please consider volunteering your time and knowledge to help hold events, presentations, tours, tutorials, etc. for your chapter, affinity group, or the section.

This December we are holding a social as part on our year end meeting. The meeting date is being changed to Saturday evening, December 14, with the intent that spouses or significant others will attend with their IEEE member partners. The meeting will be hosted by the IEEE, and my wife Angela and I at our house in Mt. Lebanon, PA. We hope to see new faces as well as familiar faces from our Pittsburgh Section general membership, along with our ExComm members. All are welcome! Please see inside for details and how to register.

Lastly, it is membership renewal time. Stay connected to continue developing your career, accessing networking opportunities, and rubbing elbows with your peers .

Have a great Holiday Season.

Dave Vaglia, P.E.

Section

Chair - Dave Vaglia, davevaglia@ieee.org

Vice Chair -- Ted Zyra, tzzyra@ieee.org

Treasurer – Evan Watson, c.evan.watson@ieee.org

Asst. Treasurer – Joe Schaad

Secretary - Haifeng Wang, haifeng.wang@ieee.org

Immediate Past Chair – Dan Wilson, Dwilson@ieee.org

Special Events Chair – Dr. Kal Sen, senkk@ieee.org

Webmaster – Gerry Kurnik, g.kurnik@computer.org

UpperMon Subsection

Chair: Dr. Gianfranco Doretto,
Gianfranco.Doretto@mail.wvu.edu

Chapters

Communications Society – Chair: Dr. Balaji Palanisamy,
bpalan@pitt.edu; Sec: Phil Cox, p.e.cox@ieee.org

Computer Society – Chair: Dr. Ralph Sprang,
rsprang@ieee.org

Education Society- Chair: Mark Lee, mjwlee@computer.org

Electronics Packaging/Electron Devices Societies – Chair:
John Mazurowski - jmazurowski@eoc.psu.edu

Engineering In Medicine & Biology Society
Chair: Steve Mozelewski, Steve.Mozelewski@gmail.com

Electromagnetic Compatibility Society - Chair: Michael J. Oliver, emi@majr.com (814) 763-3211

Magnetics Society – Chair: Vincent Sokalsky,
vsokalsk@andrew.cmu.edu

Nanotechnology Society: Guangyong Li - gul6@pitt.edu

Power Electronics Society – Chair Sid Pant -
siddharth.pant@ge.com

Power & Energy & Industry Applications Societies
Chair: Steve Dobos, dobos.s.p@ieee.org; Vice-Chair: Julie Clark; Treas.: Dave Vaglia, davevaglia@ieee.org

Robotics Society – Chair: Dr. Ralph Sprang

Signal Processing Society – Chair: Frank Plavec,
franjo.plavec@utoronto.ca

Society on Social Implications of Technology
Chair: Dr. Kal Sen, senkk@ieee.org; Vice Chair: Joe Kalasky, P.E., j.kalasky@ieee.org 724-244-1609

Council of Electronic Design Automation Chair: Baris Taskin,
taskin@coe.drexel.edu

Affinity Groups

Young Professionals (formerly GOLD) – Chair: Brent Baade,
baadeb4@gmail.com

Women In Engineering – Chair: Mey Sen, senmi@ieee.org

Life Members: Joe Kalasky, P.E., j.kalasky@ieee.org

Committees

Consultant network: George Crawford -
gwc2gwc2@gmail.com

Professional/Career Activities (PACE)
Chair: Joe Cioletti, P.E. jcioletti@ieee.org

Student Activities – Drew Lowery, dlowery@ieee.org; student
reps: Chair:, Sam Talkington, sat0001@mix.wvu.edu;
Regional Student Rep: Will
Howard, yvhoward@mix.wvu.edu

Membership Development – Steve Mozelewski,
Steve.Mozelewski@gmail.com

Publicity – Chair: Thomas Dionise, P.E.
ThomasJDionise@eaton.com (724) 779-5864

- ***Invitation to the Section Executive Committee Meeting and Dinner Social***

Looking back over this year, our section has held several social activities that our spouses participated in. However, one of our traditional activities, the History and Awards Dinner, was cancelled due to not meeting the minimum numbers required by the restaurant. This was a disappointment to many of us. In contrast, in past years the December Executive Committee (ExComm) meetings have been the best attended meetings of the year. The December meeting is normally held in a restaurant that is a step up or two from our normal venue, which has been mainly Panera Bread locations around the city. Like any Section Meeting, the ExComm Monthly meetings are open to all of our members. This year we are doing something different for the December meeting. The meeting date is being changed to Saturday evening, December 14, with the intent that spouses or significant others will attend with their IEEE member partners. The meeting will be hosted by the IEEE, and my wife Angela and I, at our house in Mt. Lebanon, PA. We hope to see new faces as well as familiar faces from our Pittsburgh Section general membership, along with our ExComm members. All are welcome! Please register yourself and partner if you are going to attend at:

<https://events.vtools.ieee.org/m/208697>

- ***That's My DNA: Digital Signatures to Ensure Authenticity and Integrity of Synthetic DNA Molecules***

Speaker: Dr. Indrajit Ray, Professor of Computer Science at Colorado State University & currently a Program Director at the National Science Foundation

Date: Dec 6, 2019

Time: 3:00 pm - 4 pm

Place: 3rd floor theater, IS Building at Pitt
(135 N Bellefield Ave, Pittsburgh, 15260).

Sponsor: Communications Society. For information, contact Balaji Palanisamy: bpalan@pitt.edu

Abstract: DNA synthesis has become increasingly common, and many synthetic DNA molecules are licensed as intellectual property (IP). DNA samples are shared between academic labs, ordered from DNA synthesis companies and manipulated for a variety of different purposes, mostly to study their properties and improve upon them. However, it is not uncommon for a sample to change hands many times with very little accompanying information and no proof of origin. This poses significant challenges to the original inventor of a DNA molecule, trying to protect her IP rights. More importantly, following the anthrax attacks of 2001, there is an increased urgency to employ microbial forensic technologies to trace and track agent inventories. However, attribution of physical samples is next to impossible with existing technologies. We try to bring in advances in the digital domain to solve this problem. In this talk, we discuss our efforts to physically embed digital signatures in DNA molecules synthesized in the laboratory. We encounter several challenges that we do not face in the digital world that makes this problem interesting. These challenges arise primarily from the fact that changes to a

physical DNA molecule can affect its properties, random mutations can accumulate in DNA samples over time, DNA sequencers can sequence (read) DNA erroneously and DNA sequencing is still relatively expensive which means that laboratories would prefer not to read and re-read their DNA samples to get error-free sequences. Moreover, unlike in the digital world where an erroneously received message can be re-sent with little additional cost, it is expensive to re-send an erroneously received sample since the physical sample needs to be created once more. It makes more sense to determine if the erroneously received sequence can still be used.

Bio: Dr. Indrajit Ray is a Professor of Computer Science at Colorado State University. He joined CSU in 2001 moving from the University of Michigan-Dearborn where he worked as an Assistant Professor from August 1997 – July 2001. Dr. Ray obtained his Ph.D. in Information Technology from George Mason University in August 1997. Indrajit’s primary research is in computer security and privacy. His major contributions have been in security risk modeling and security protocol design using applied cryptographic techniques. Other areas in which he has made valuable contributions are trust models for security and micro-data disclosure control. He has published more than 150 technical papers. His research has been well funded through various federal agencies. He has advised several Ph.D. students many of whom hold tenured positions in academia. He has also played leadership roles in the academic community by serving as program chairs in various conferences. In 2015 he served as General Chair of the 2015 ACM CCS conference which is the flagship conference of ACM SIGSAC, and in 2017 as the General Chair of the 2017 IEEE CNS conference. He was the founder of the IFIP TC 11, WG 11.9 on Digital Forensics and its first Chair. Recently, Indrajit has helped establish the CSU site of the NSF funded I/UCRC Center for Configuration Analytics and Automation, where he is Co-Director. This multi-university research center that includes fee-paying members from the industry and FFRDCs works with enterprises and government entities to improve service assurability, security and resiliency of enterprise IT systems, cloud/SDN data centers, and cyber-physical systems by applying innovative analytics and automation. Currently, he is serving as a Program Director at the National Science Foundation, where is responsible for the Secure and Trustworthy Cyberspace program.

- ***IEEE Education Society Pittsburgh Chapter established***

Dear colleagues,

I am pleased to inform you that our petition to form a Chapter of the IEEE Education Society (EdSoc) within the Pittsburgh Section was approved by IEEE Member and Geographic Activities on October 24, 2019.

Our great city of Pittsburgh is a powerhouse of innovation in both education and technology. Indeed, with education and technology being major pillars of our local and regional economy, the newly formed Chapter has the potential to play an important role at the intersection of these two areas by organizing events, building community, and providing a forum of knowledge sharing and the exchange of ideas. A large segment of the Pittsburgh Section's nearly 2,000 members are based at one of its 30+ universities and colleges, and many others have a strong interest and/or involvement in education and training in K-12, workplace, medical/healthcare, and community learning settings.

There will be no shortage of topics and speakers for the Chapter's events. Numerous seminars, workshops, and other events take place on a regular basis at each of our local universities—albeit in a siloed fashion, with participation in each event largely being limited to a single institution. It is hoped that the Chapter will serve as a platform and vehicle for bringing together more people from across institutions and organizations who share an interest in educational technology and/or technology education. Additionally, through its own programming as well as joint activities with other IEEE Chapters and with other professional and scholarly associations, the Chapter will raise awareness of IEEE and of EdSoc, encouraging cross-pollination among the various communities.

Our goals for the first six months are to:

1. form a Chapter Executive (Chair, Vice-Chair, Secretary/Treasurer); and
2. organize or co-organize at least two events under the auspices of the Chapter.

I have already had the pleasure of speaking and/or corresponding with many existing EdSoc members in the Pittsburgh Section over the past couple of months, but if you are an existing member and have yet to get in touch, please do so that I may buy you a coffee and get to know you! For those who are not yet a part of the IEEE Education Society, I urge you to consider joining. Annual membership fees for this Society are quite affordable: \$22.00 for IEEE members and \$10.00 for IEEE Student Members.

Finally, if you are an EdSoc member or prospective member and are potentially interested in a role on the Chapter Executive, and/or if you have ideas for events, please don't hesitate to reach out.

Thank you and I look forward to meeting you in due course, at our first Chapter meeting (details forthcoming), if not before!

Warm regards,

Mark J. W. Lee
Editor-in-Chief, IEEE Transactions on Learning Technologies
Associate Editor, IEEE Transactions on Education
Member-at-Large Elect, IEEE Education Society Board of Governors
Founding Chair, IEEE Education Society New South Wales Chapter
Steering Committee Chair, IEEE TALE (EdSoc conference series on Engineering, Technology, & Education)
Chair, IEEE ICICLE XR for Learning and Performance Augmentation SIG
Email: mjwlee@computer.org

- ***A Proposal from an IEEE Member***

Following is a petition to the IEEE Board from a Region 2 Chair. This is provided for informational purposes, without any implied endorsement from Pittsburgh Section officers. – Ed.

I, Robert Lesniewski, an IEEE member, wish to formally submit a referendum petition for the 2020 election. Said petition should read as follows:

IEEE dues for members, senior members and fellow members shall be set at the price of \$100 per annum for all 10 Regions. IEEE dues for student members and graduate student members shall be set at the price of \$10 per annum for all 10 Regions. IEEE Special Circumstance dues shall be set at the price of \$50 for all 10 Regions. The effective date of implementation shall be Jan 1, 2021 but no later than October 1, 2021.

The IEEE Board may not raise dues for 4 years after the effective data of implementation. Dues after this period may be raised by the IEEE Board by no more than 5% per annum there after.

Other IEEE dues such as Society member , Affiliate member and Electronic member dues are not affected by this referendum.

These dues are being reset in recognition of significant value that our volunteers provide to IEEE. As a volunteer-led, volunteer-driver organization, IEEE, a non profit corporation, would not be the great international financial success and world leader it is today without its volunteers. It is conservatively estimated that approximately 250,000 members contribute at least 5 hours a month to the operation of IEEE's many important functions. Independentsector.org conservatively estimates the value of a volunteer hour in 2019 is \$25.43/hr. Therefore, IEEE members will contribute \$31,787,500 in unpaid services to IEEE.

This referendum is hereby submitted to the IEEE Executive Director (s.p.welby@ieee.org) on November 20, 2019.

Note: John Vig, IEEE President, used the estimate of 250,000 volunteers in his presentation to the IEEE Board in 2008.

- **Engineer's Week 2020 - Call for Volunteers**

Working with children, sharing your profession and explaining electrical concepts – if these capture your interest, then consider volunteering for Engineer's Week. Once again the IEEE will have a demonstration table for Engineer's Week 2020 at the Carnegie Science Center on Saturday, February 22. The event table is a fun and effective way for the IEEE to communicate to our youth that electrical engineering can be both enjoyable and challenging. Volunteers are needed to take a turn at the table for about 1 hour each. If you are interested, please reply with the time slot you would like by February 8. The 1-hour slots will begin with the first at 10 AM and the last at 2 PM. The volunteers get an E-Week T-shirt, free admission, free parking, and \$2 off coupon for family members. See more details in the February IEEE Bulletin.

To volunteer to help with the IEEE table for 2020 Engineer's Week, just email tom.dionise@ieee.org, and you will be given more details and included in future mailings.

- **Volunteer for the 2020 IndEEE 500 Robot Car Race**

It's time once again to plan for the annual Robotic Car Race IndEEE 500cm at Carnegie Science Center on Sat. Feb. 22, 2020. The Pittsburgh section of IEEE sponsors this event as a part of the annual National Engineers Week celebration at Carnegie Science Center and has been doing this successfully for last 26 years. Each year, this event has attracted over 30 volunteers, about 10-12 teams, a few hundred visitors and a couple of media representatives. Additionally, Carnegie Science Center is packed with exhibits on this day and you can find more information at <http://www.carnegiesciencecenter.org/educators/themed-field-trips-engineer-the-future/>

NXT kits by Lego Mindstorms will be provided to competing teams for building and programming the autonomous robotic cars. The NXT provides new capabilities and with that we will provide new challenges to the students. We are seeking your enthusiasm and creativity, to help 8th grade students in building and programming the Lego cars and racing them on the 500cm tracks.

Working together with students, teachers and engineers from Pittsburgh is a wonderful opportunity for fun, networking, and giving back to the community. The program starts at noon and is over by 4:30 PM. Plan to arrive around 10:00 AM to get setup. Other minor perks include: free admission to Carnegie Science Center, t-shirt, food coupons, etc.

We will hold workshops in January and February to prepare for the race. See the January Bulletin for details about the workshop. Please let us know if you or anyone in your network would like to volunteer for the 2020 IndEEE 500 Robot Car Race. ***Also, please let us know if your local school would like to participate.*** To volunteer or register your local school, just email tom.dionise@ieee.org, and you will be given more details and included in future mailings.

2019 Calendar – Meetings of IEEE Pittsburgh Section

	Jan	Feb	Mar	Apr	May	June	July	August	Sept	Oct	Nov	Dec
<u>Executive Committee (AdCom)</u>	17 Galleria Mt. Lebanon	21 Panera Robinson	21 Panera McCandless	18 Panera Galleria/Mt. Lebanon	16 Panera Robinson	20 Panera Penn Center	18 Panera Galleria/Mt. Lebanon	15 Panera Robinson	19 Panera Wexford	17 WVU TBD	21 Panera Robinson	14 Dave Vaglia's Home
<u>Section</u>				11 Health Care	10 History Dinner (Cancelled)					24 Senior Members		
<u>Communications</u>				1 Broadcast Ind.							18 Access control sys.	6 Digital Signatures
<u>Computer</u>									26 Cyber Sec			
<u>EMBS</u>			25 Linear Accel.	9 Sig. Proc. & AI					10 Comp. Glut.		20 Brain computer Int.	
<u>EMCS</u>			26 Product Design									
<u>Power Electronics</u>	24 BPS			25 Solar Power	14 Substation	28 Tesla						
<u>PES/IAS</u>	24 BPS		26 Product Design	25 Solar Power	14 Substation	28 Tesla	24 Grid Rel.					
<u>Magnetics</u>												
<u>Robotics</u>												
<u>Sig. Processing</u>									10 Comp. Glut.		20 Brain computer Int.	
<u>CPMT/ED</u>		27 Foam					31 Bird acoustics					
<u>Social Impl Technology</u>				23 Dynamics				23 Baseball	12 Russ Harrison		9 Touchstone Tour	
<u>Upper Mon</u>		11 Control & Opt.								16 BlockChain 17 Telescope	4 Utility Data	
<u>Women in Eng'ing</u>				23 Dynamics			24 Grid Rel.	23 Baseball			9 Touchstone Tour	
<u>Young Pros</u>								18 Picnic				
<u>Life Members</u>						14 Plant Tour					12 Port Authority tour	
<u>PACE</u>						14 Plant Tour			12 Russ Harrison		12 Port Authority tour	
<u>Student Act</u>												

* Meeting was not announced in the Bulletin