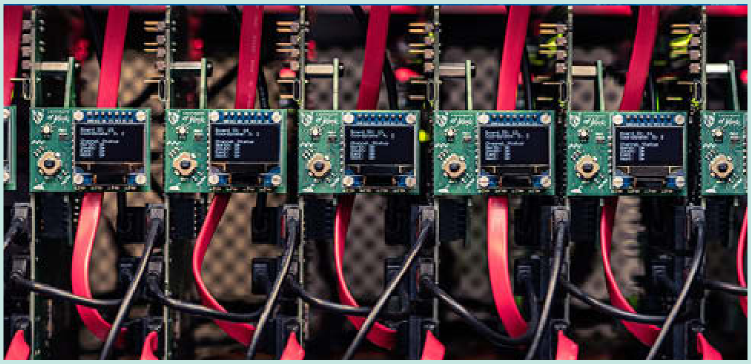
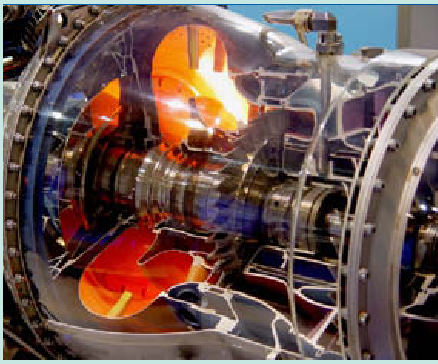
PRODUCED BY THE LONG ISLAND SECTION OF THE INSTITUTE OF ELECTRICAL & ELECTRONICS ENGINEERS

IEEE | LONG ISLAND SECTION

THE PULSE OF LONG ISLAND

JANUARY 2021 | VOL. 68, NO. 1





INSIDE THIS ISSUE

IEEE

2020 OUTSTANDING MEMBERSHIP RETENTION PERFORMANCE
LONG ISLAND SECTION

Happy New Year to all. I hope it was a healthy and somewhat joyful one, given the pandemic. My son's friend had this to say about New Year's Eve, "Hindsight is 2020!" Let's all bid good riddance to a year we will remember as one of life's worst. However, 2021 does bring with it new plans for the Section and a return to the old ways, although somewhat later than usual.

It bears repeating that the **Microwave** and **Power Electronics** Symposia will be on the calendar again and the **Awards Banquet** will host the recipients of awards for 2019 and 2020, so it should be a memorable evening. There are new plans afoot as well. As usual, increasing membership in the section is the primary goal of the Executive Committee and to that end, under James Colotti's leadership, the Circuits and Systems Chapter will be kicking off a student design competition. Winners will receive a plaque at the Awards Banquet. In addition to this effort, Bill Wilkes has organized sessions of Raspberry Pi programming. We look forward to more of these and a greater outreach among the membership to take part.

With many of us telecommuting, the line between working at home and indulging in extracurricular projects becomes blurry. I would like to initiate an effort to involve teams of members in some design challenges that can be both rewarding and challenging. An example of such might be any challenge put forth on ***Kaggle***. Many problems in machine learning are tractable on *google's collaboration site*. I suggest that if members have a problem that needs solving or an idea that needs implementing, they form a team and tackle it as a group. I will be making a more formal call for teams and tasks in the near future.

There is also in this issue a technical article that I have submitted. To make the ***Pulse*** more than just a monthly letter from the chair and a mass of advertising, it is necessary to make it more utilitarian. I am asking members to submit articles on topics that are useful to working engineers, be they hints or techniques you find useful or any similar subjects. I have started with the first submission, as editor, I have accepted it ;). I have at least one or two more in stages of completion. We do need more, however.

Lastly, the ***Pulse*** is still in need of an editor. I have been editing pro tem, but I would like someone else to take over. Please contact me if you are interested. Stay safe and healthy everyone,

Regards,

Arnold Stillman
IEEE Long Island Section Chair, 2020

THE PULSE OF LONG ISLAND

IEEE LONG ISLAND SECTION

The Pulse of Long Island is produced by the **Long Island Section** of the **Institute of Electrical & Electronics Engineers**. It is published monthly except during July & August.

Arnold Stillman, *Editor*
pulse@ieee.li

Anthony Giresi, *Graphic Designer*
pulse@ieee.li

The opinions expressed in this newsletter are those of the authors, and no endorsement by IEEE, its officials, or its members is implied. IEEE prohibits discrimination, harassment, and bullying. For more information on IEEE policies, please visit **www.ieee.org**.

IEEE Long Island Section reserves the right to decide whether or not to publish any content in our sole discretion. Any contributed content may be edited before publishing.

IEEE
INSTITUTE OF ELECTRICAL & ELECTRONICS ENGINEERS
445 Hoes Lane, Piscataway, NJ 08855-1331

Phone (USA & Canada): 1-800-678-4333
Phone (Worldwide): 1-732-981-0060
Website: www.ieee.org
E-mail: contactcenter@ieee.org

IEEE LONG ISLAND SECTION OFFICERS

Chair
ARNOLD STILLMAN
chair@ieee.li

First Vice Chair
RONALD PIRICH
vc@ieee.li

Treasurer
SANTO MAZZOLA
treasurer@ieee.li

Secretary
RHONDA GREEN
secretary@ieee.li

Junior Past Chair
LOU D'ONOFRIO

Senior Past Chair
MARJANEH ISSAPOUR

AFFINITY GROUPS and COMMITTEES

Employment Assistance
CHARLES PLECKAITIS
eac@ieee.li

Educational Activities
MARJANEH ISSAPOUR
education@ieee.li

Entrepreneur Network
BILL WILKES SR.

Membership Development
CARL MESHENBERG
membership@ieee.li

Young Professionals
YASH CHOWDHURY
yp@ieee.li

Life Members
DON GRIECO
life@ieee.li

Student Development Activities
GLENN LUCHEN
student@ieee.li

Women in Engineering (WIE)
MIHAELA RADU
wie@ieee.li

Awards Committee
NIKOLAOS GOLAS
awards@ieee.li

Professional Activities
NIKOLAOS GOLAS
pace@ieee.li

Legal Affairs
JOHN VODOPIA
legal@ieee.li

www.ieee.li

THE IEEE LONG ISLAND SECTION WEBSITE

The IEEE LI Section website is regularly updated to reflect recent section activity and upcoming events. Each Society and Affinity Group has a dedicated page that describes their function and includes contact information.

www.licn.org

CONSULTANT'S NETWORK OF LONG ISLAND

The Consultant's Network of Long Island maintains a referral service of engineering, computer, managerial and technical professionals.

membership@ieee.li

MEMBERSHIP DEVELOPMENT

For more information on membership with the LI Section of the IEEE, e-mail Carl Meshenberg at: **membership@ieee.li**

AEROSPACE & ELECTRONIC SYSTEMS SOCIETY (AES)
Chair: **Dave Mesecher**
Vice Chair: **Vacant**
Email: aes@ieee.li

ANTENNAS AND PROPAGATION SOCIETY (APS)
Chair: **Bryan Tropper**
Vice Chair: **Sai Padmanabhan**
Email: ap@ieee.li

CIRCUITS AND SYSTEMS SOCIETY (CAS)
Chair: **James Colotti**
Vice Chair: **Supriya Karmakar**
Email: cas@ieee.li

COMMUNICATIONS SOCIETY (COMSOC)
Chair: **Howard Hausman**
Vice Chair: **Tony Bowden**
Email: communications@ieee.li

COMPUTER SOCIETY (CS)
Chair: **Barbara Porter**
Vice Chair: **Brian Quinn**
Email: computer@ieee.li

ELECTROMAGNETIC COMPATIBILITY SOCIETY (EMCS)
Chair: **James Colotti**
Vice Chair: **Vacant**
Email: emc@ieee.li

ENGINEERING IN MEDICINE & BIOLOGY SOCIETY (EMBS)
Chair: **John Vodopia**
Vice Chair: **Vacant**
Email: emb@ieee.li

INSTRUMENTATION AND MEASUREMENT SOCIETY (IMS)
Chair: **Joe Jordan**
Vice Chair: **Ephraim Adeola**
Email: im@ieee.li

MICROWAVE THEORY AND TECHNIQUES SOCIETY (MTT)
Chair: **Saikumar Padmanabhan**
Vice Chair: **Eric Darvin**
Email: mtt@ieee.li

NUCLEAR AND PLASMA SCIENCES SOCIETY (NPS)
Chair: **Shaorui Li**
Vice Chair: **Graham Smith**
Email: nps@ieee.li

PHOTONICS SOCIETY (IPS)
Chair: **Adam A. Filos**
Vice Chair: **M. Nazrul Islam**
Email: photonics@ieee.li

POWER & ENERGY/INDUSTRY APPLICATIONS SOCIETY (PES & IAS)
Chair: **Marjaneh Issapour**
Vice Chair: **Lou D'Onofrio**
Email: power@ieee.li

POWER ELECTRONICS SOCIETY (PELS)
Chair: **Ronald DeLuca**
Vice Chair: **Predrag Hadzibabic**
Email: pels@ieee.li

PRODUCT SAFETY ENGINEERING SOCIETY (PSES)
Chair: **Tom Lanzisero**
Vice Chair: **Vacant**
Email: safety@ieee.li

SIGNAL PROCESSING SOCIETY (SPS)
Chair: **Jessica Donaldson**
Vice Chair: **Dave Mesecher**
Email: signal@ieee.li

SOCIAL IMPLICATIONS OF TECHNOLOGY SOCIETY (SSIT)
Chair: **Howard Edelman**
Vice Chair: **John Vodopia**
Email: social@ieee.li

The Long Island Section of IEEE has 18 Chapters. Each Chapter is a technical subunit of the Long Island Section, associated with an IEEE Society. The Chapters, as well as the Section, are always welcoming volunteers. If you would like to help with any of the Long Island Chapter's steering groups, please do contact the relevant Chapter Chair, Vice Chair, or one of the Section officers.

SYSTEMS COUNCIL (SYSC)
Chair: **Stephanie White**
Vice Chair: **Vacant**
Email: systems@ieee.li

TECHNOLOGY & ENGINEERING MANAGEMENT SOCIETY (TEMS)
Chair: **Brian Quinn**
Vice Chair: **Barbara Porter**
Email: tmc@ieee.li

LET YOUR VOICE BE HEARD

WRITE TO **THE PULSE**

The Pulse of Long Island is a newsletter for the members of the IEEE Long Island Section. You can let your voice heard by writing to the Editor. How to bring more value to our members? Interesting new technology, or a project? An issue of interest to members of the IEEE Long Island, Long Island engineers and computer professionals, or Long Island technical community at large? Write to the ***Pulse***. Let your letter be read, and your voice heard.

HOW CAN I CONTRIBUTE TO THE PULSE?

Send your letters or articles via email to **pulse@ieee.li**. If selected for publication, the letter or article will be edited before being published.

ADVERTISERS:

Please contact us at **pulse@ieee.li** for advertising rates.

CONTRIBUTION DEADLINE:

20th of a month for the next month edition.

CONTRIBUTIONS FROM LONG ISLAND TECHNICAL & ENGINEERING COMPANIES:

Publish your technology-related press release (up to one page) at no cost. Please send the press release as a PDF file attached to email to **pulse@ieee.li**, addressed to the Editor, with a Subject line *"Pulse -PR"* followed by your company name, and the responsible contact person's name, email and phone number in the email body.

IEEE LONG ISLAND SECTION

THE **PULSE** OF LONG ISLAND

CONTRIBUTE TO THE PULSE – LET YOUR LETTER BE READ and LET YOUR YOUR VOICE BE HEARD

details

ARNOLD STILLMAN,
CHAIR, IEEE LONG ISLAND SECTION

INTRODUCTION

A few years ago, I had the opportunity to settle a disagreement over the nature of mechanical analogs of circuit elements. I did not volunteer to settle the question, but the situation reminded me of the importance of correctly applying these analogs. Since the two systems represent measurable behaviors, they both should obey the same differential equations. Physical laws constrain the measurable variables in the systems, but there are two types of variables that, when mixed, lead to non-physical implications and thus, disagreements. Clearly, Kirchhoff's voltage and current laws must simultaneously be true, but a misapplication of mechanical analogies can hide some nonphysical behavior. This leads to a mechanical model that disagrees with the behavior of its electrical analog. Choosing your analogies with care eliminates the confusion.

ACROSS AND THROUGH, OR THE DUAL NATURE OF CIRCUITS

Without a loss of generality, consider two circuits, a parallel RLC circuit with a voltage source and a series RLC circuit with a current source, as in **Figure 1**. The defining equations for the two circuits are, respectively:

$$
\begin{aligned}
i_R(t) &= \frac{1}{R}v(t) & \quad v_R(t) &= Ri(t)\\
i_C(t) &= C\frac{dv(t)}{dt} & \quad v_C(t) &= \frac{1}{C}\int i(t)dt\\
i_L(t) &= \frac{1}{L}\int v(t)dt & \quad v_L(t) &= L\frac{di(t)}{dt}.
\end{aligned}
$$

We can instantly notice that the proportional circuit equation in both systems is simple Ohm's Law, $v(t) = Ri(t)$. However, the integral and derivative equations switch roles; the voltage across the series capacitor, for instance, is the integral equation in the series system, whereas the current through the inductor is the integral equation in the parallel system. **Table 1** indicates the two

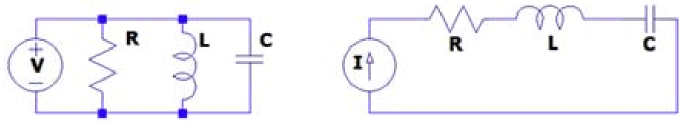


Figure 1: Dual RLC Circuits

Independent Variable	Proportional	Integral	Derivative
Current	1/R	1/L	C
Voltage	R	1/C	L

TABLE 1: Proportional Integral Derivative Assignments

PPID assignments. Instantly, we see that there is not a simple translation from series to parallel topologies with regard to the physical circuit elements. The inductance and capacitance seem to change roles when we go from one topology to the other. This is an indication that something deeper is at work in the relationship between these circuit elements. More on this later, but suffice it to say that ideal capacitances and inductances are not dissipative elements, they store energy in electric fields and magnetic fields, respectively. Resistors are dissipative and do not store energy

Although the two circuit topologies have similar defining equations, their independent variables have quite different mathematical properties. In the parallel configuration, we consider the voltage ***across*** the circuit elements. In the series configuration, we consider the current ***through*** the circuit elements. Across variables and through variable are mathematical duals and carry with them a precise relationship; every current has a dual voltage and vice versa. In engineering, that relationship is one of impedance. An across variable measures some difference created between two ends of an impedance by the flow of a through variable. Conversely, the through variable measures the flow caused by an across value. Some common dual pairs are voltage and current, force and velocity, and torque and angular velocity.

CONTINUED ON PAGE 7

CONTINUED FROM PAGE 6

Since impedance is a property of the physical circuit elements, be they electrical or mechanical, it exists whether the currents, voltages, velocities or forces are in effect. However, impedance is often the very cause of the confusion between mechanical and electrical analogs. Let's look at two mechanical systems to see how the choice of electrical analogies affects the physical predictions. The first system is from a set of *Dartmouth College notes.*[1] Take the mechanical configuration of **Figure 2** for instance.

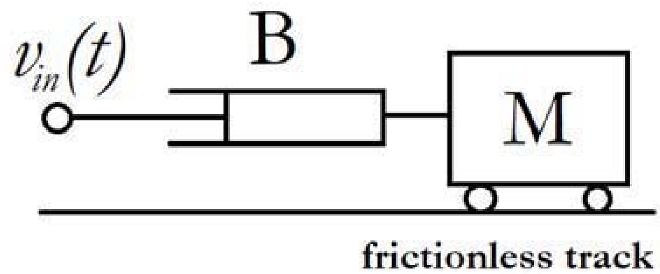


FIGURE 2: A Coupled Cart and Engine

An engine pushes the car via an intervening dashpot. Ignoring dashpot dissipation, the force pushing the car is the force applied by the dashpot. In the frame of reference of the car, the connection between car and dashpot is not moving, so the forces are equal and opposite. Thus,

$$v(t)B + M\dot{v}(t),$$

or,

$$\dot{v}(t) = -\frac{B}{M}v(t) \Longrightarrow v(t) = V_0 e^{-\frac{B}{M}t}.$$

If we were to model this system in the same topology, i.e. as a series collection of circuit elements, we would choose a current source in series with a resistor and inductor, relying on the association of inductance with the mass and resistance with the dashpot. As the notes point out, however, this model is nonphysical. For a step function current source, the model predicts an infinite voltage on the inductor. Since voltage corresponds to force and current to velocity, the model does not allow for a start from a standing stop. This behavior is also apparent in a parallel circuit with a voltage source, although with an infinite current. What these models lack is the limiting dissipative element that all real systems contain. For the example, it is a resistor in series with the current source. In the parallel (dual!) case, the resistor is in parallel with the voltage source. From **Table1**, we see that the dissipative elements are all first order, i.e. proportional. There are system analogs that do not require dissipative elements, however. An interesting aside is that they contain only second order terms, implying ideal solutions that do not decay in time.

Let's consider a vertical spring with a weight at the bottom and fixed at the top, as in **Figure 3**. In equilibrium, the weight is motionless and the spring stretches to a length given by Hooke's Law, $kL = Mg$. Pulling the mass sets the system in motion and the forces are;

$$k(x - L) + Mg = kx = M\frac{d^2x}{dt^2},$$

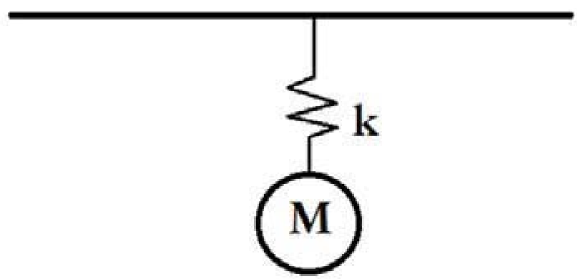


FIGURE 3: A Vertical Pendulum

since $Mg = kL$. This is a simple harmonic oscillator equation where the frequency of oscillation is $\omega = k/M$. Were it an electrical circuit, would correspond to L and M to C in a series arrangement, mimicking the mechanical arrangement. So now, for the two different mechanical models, we have the electrical analogs:

Car	B	M
Electrical Analogy	R	L
Spring	k	M
Electrical Analogy	L	C

TABLE 2: Car and Spring Electrical Analogs

In general, for circuits consisting of sources and lumped passive elements, the principle of superposition allows modeling, respectively, any mixture of parallel and series topologies. A handy table listing the associations and analogies for various mechanical properties is in the Dartmouth notes. Below is a simplified version of that table. The entry for thermal stored energy is not analogous to mechanical systems, but is in the table for completeness. Most of the variables have their usual meaning; *B* represents the coefficient of friction for translations or rotation, *J* is a moment of inertia (strictly a tensor, but here a scalar) and *K* is a mechanical spring constant.

	Electrical	Translational	Rotational	Thermal	Fluidic
Through variable	i (current)	v (velocity)	ω (angular velocity)	ϕ (heat flux)	q (flow)
Across variable	v (voltage)	f (force)	τ (torque)	T (temperature)	p (pressure)
Dissipative Relation	$v = iR$	$f = vB$	$\tau = \omega B$	$\theta = \phi R$	$p = qR$
Dissipation	$i^2R = v^2/R$	$v^2B = F^2/B$	$\omega^2 B = \tau^2/B$	N/A	$q^2R = p^2/R$
Through Definitions					
Energy Storage Element Definition	$v = L\frac{di}{dt}$	$f = m\frac{dv}{dt}$	$\tau = J\frac{d\omega}{dt}$	N/A	$p = I\frac{dq}{dt}$
Reactive Impedance	$V(s) = sLI(s)$	$F(s) = sMV(s)$	$T(s) = sJ\Omega(s)$		$P(s) = sIQ(s)$
Stored Energy	$E = {}^1\!/\!_2 Li^2$	$E = {}^1\!/\!_2 Mv^2$	$E = {}^1\!/\!_2 J\omega^2$		$E = {}^1\!/\!_2 Iq^2$
Across Definitions					
Energy Storage Element Definition	$i = C\frac{dv}{dt}$	$v = \frac{1}{K}\frac{df}{dt}$	$\omega = \frac{1}{K}\frac{d\tau}{dt}$	$\phi = C\frac{d\theta}{dt}$	$q = C\frac{dp}{dt}$
Reactive Impedance	$V(s) = \frac{1}{sC}I(s)$	$F(s) = \frac{K}{s}V(s)$	$T(s) = \frac{K}{s}\Omega(s)$	$\Theta(s) = \frac{1}{sC}\Phi(s)$	$P(s) = \frac{1}{sC}Q(s)$
Stored Energy	$E = {}^1\!/\!_2 Cv^2$	$E = \frac{1}{2}\frac{1}{K}f^2$	$E = \frac{1}{2}\frac{1}{K}\tau^2$	$E = CT$	$E = {}^1\!/\!_2 Cp^2$

TABLE 3: Across/Through Analogs

[1]*Class notes by Charles Sullivan*

POWER ELECTRONICS SYMPOSIUM 2021

The IEEE LI Power Electronics Symposium that was scheduled for this November was cancelled due to the Coronavirus pandemic.

However, mark your calendars – our next Symposium is scheduled for **November 4, 2021.**

IEEE

LOOKING FOR AN UPDATE ON SECTION EVENTS?

FOR UPDATES ON ALL LONG ISLAND SECTION EVENTS, CHECK OUT THE IEEE LONG ISLAND SECTION WEBSITE:
www.ieee.li

IEEE LONG ISLAND SECTION

IEEE computer society

Share Your Experience

PRESENT YOUR WORK TO THE IEEE

**Working on an interesting project? Or have an interesting topic to talk about?
A startup ready to spread a word, or in need of beta testers with computer knowledge?**

Computer Society Chapter invites you to present your project or your experience. For one of the upcoming meetings, we'd like to mash technical and social, and have several presenters presenting interesting computer-related topics in a shorter timeframe, fostering conversation. This is an opportunity to meet each other, learn about our work and possibly identify opportunities for collaboration.

Contact IEEE Computer Society Chapter at **computer@ieee.li** with your suggested topic.

IEEE MEMBERSHIP and MEMBER BENEFITS

IEEE membership offers access to technical innovation, cutting-edge information, networking opportunities, and exclusive member benefits. Members support IEEE's mission to advance technology for humanity and the profession, while memberships build a platform to introduce careers in technology to students around the world.

JOIN IEEE OR RENEW YOUR MEMBERSHIP

Reach your full potential as part of the world's largest technology community. Join professionals, experts, and advisors who can help shape your career, offer resources to acquire new skills, and advance your professional development.

MEMBER BENEFITS

As an IEEE member, you'll be presented with new resources, valuable opportunities, and many discounts that will help you advance your career in the right direction. You can find colleagues who share your vision and commitment—those who are moving technology forward today.

ENHANCE YOUR MEMBERSHIP-JOIN AN IEEE SOCIETY

IEEE Societies provide members with opportunities to connect with experts and network with colleagues locally and abroad—all while staying up-to-date on technology and trends in their industry.

GIFT OF MEMBERSHIP

IEEE membership delivers access to the industry's most essential technical information and provides networking opportunities both locally and globally. Members have the ability to stay current in their chosen profession, connect with peers, and invest in their future.

MEMBER-GET-A-MEMBER

Consider sharing your IEEE membership experience and get rewarded for doing so. Through the Member-Get-a-Member (MGM) program, IEEE rewards your efforts in recruiting new members. Your local IEEE Section can also benefit.

IEEE.tv

Made possible by IEEE members, IEEE.tv is an award-winning, Internet-based television network, producing special-interest programming about technology and engineering for IEEE members and the general public.

There is no better time to discover all that IEEE membership has to offer. Join now and your membership is through 2020.

WHEN YOU JOIN IEEE, YOU:

- Join a community of over 425,000 technology and engineering professionals united by a common desire to continuously learn, interact, collaborate, and innovate
- Get the resources and opportunities you need to keep on top of changes in technology
- Get involved in standards development
- Network with other professionals in your local area or within a specific technical interest
- Mentor the next generation of engineers and technologists and so much more.

IEEE members can access information on local events and activities by signing in to myIEEE, the members' personalized gateway to IEEE membership. In addition, members can also:

- Access individual Society memberships and subscriptions
- Connect with local IEEE Sections and volunteer leadership
- Find upcoming conferences

  Learn more about individual benefits
- Read the latest news from IEEE, IEEE Spectrum, IEEE Standards News, and The Institute

You've Always Set Yourself Apart. Now it's Time to make it Official. Nominate Yourself to become a...

IEEE SENIOR MEMBER

Being elevated to senior member recognizes people who have moved beyond entry-level work in their careers. It also encourages them to engage more broadly with engineers and other technical professionals in companies and universities outside their own. To be eligible for senior member status, members must have worked in a professional capacity in a technical field for at least 10 years. Educational experience is partially credited toward that time. Nominees must also have professional references from three IEEE senior members, Fellows, or honorary members. If you're interested in elevation, you don't have to wait to be nominated—you can nominate yourself.

>> *APPLY FOR* ***SENIOR MEMBER GRADE***

IEEE LIFE MEMBERS, *WRITE FOR THE* ***PULSE!***

The **IEEE Long Island Section** has held meetings with many of our Life Members and Senior Engineers, in recent months. Your stories and histories in engineering are interesting, inspiring and should be recorded for future generations. You have served your profession for many years, many have served our country in the military, many as engineers fighting the Cold War. The many contributions are the legacy to this new digital age, space age, environmental age and beyond.

The Section is inviting you to record your stories and histories in our monthly publication, the *Long Island Pulse*. An article of approximately 300 – 350 words is recommended.

LET US HEAR FROM YOU.

Send your article to: **pulse@ieee.li**

Life Member Chair: **life@ieee.li**

WANTED: IEEE LIFE MEMBER NEEDED TO VOLUNTEER TO SUBMIT A MONTHLY HISTORY ARTICLE FOR THE *PULSE*

The **PULSE** is seeking a IEEE LI Life Member to write the *Long Island Electrical & Electronic History* monthly article for the ***Pulse***. If interested contact **pulse@ieee.li**

WE WANT YOUR STORIES

IEEE
IEEE CONSULTANTS NETWORK OF LONG ISLAND

THE IEEE CONSULTANTS NETWORK OF LONG ISLAND (LICN)

is a nonprofit professional organization affiliated with the Institute of Electrical and Electronics Engineers. Our members include dozens of electrical, electronic, mechanical and software engineers with expertise in over 65 categories of technology and business. All are members of the IEEE and adhere to the IEEE professional codes of ethics.

MEMBER
IEEE L.I. CONSULTANTS NETWORK

PETER BUITENKANT
CONSULTANT

MICROPROCESSOR HARDWARE / SOFTWARE DESIGNS
DIGITAL CIRCUIT DESIGN • TRAINING COURSES

WEBSITE: www.peterbui-consult.com

24 Thorngrove Lane
Dix Hills, NY 11746

VOICE: (631) 491-3414
EMAIL: peterbui@optonline.net

---

(516) 378-0979 ambertec@ieee.org

Ambertec, P.E., P.C.

John Dunn – MSEE, PE

Member IEEE Consultants Network of Long Island

www.licn.org/Profile/JDunn

181 Marion Avenue Merrick, NY 11566

Real Time Embedded - Financial Services - Transit
Architecture - Object Oriented Design - Java - C/C++
Full Stack - Internet of Things - Mobile Applications
Unix/Linux - Windows - Compilers - Communications

Early Electronics

EARLY ELECTRONICS
Hardware / Software Consulting Services

Chris Early, BSEE, MSCS, PE
154 Hempstead Avenue
Rockville Centre, NY 11570

unixdev@ix.netcom.com
Voice: (516) 764-1067
Fax: (516) 764-1124

SIGNALS IN MOTION

Len Anderson
President

Product Development
Software Development
Rapid Prototypes
Data Acquisition
Modeling
Simulations

PHONE: 718-279-3953
FAX: 509-471-6496
E-MAIL: LenAnder@SignalsInMotion.com
WEBSITE: www.SignalsInMotion.com

BODNER & O'ROURKE, LLP
PATENTS, TRADEMARKS, COPYRIGHTS AND RELATED MATTERS

GERALD T. BODNER
PATENT ATTORNEY

425 BROADHOLLOW ROAD, SUITE 120
MELVILLE, NY 11747
TEL: (631) 249-7500
FAX: (631) 249-4508
gbodner@bodnerorourke.com

ADVANCE IN TECHNOLOGY, INC.
Electronic Design — Analog, Digital, RF and Systems

JOHN LIGUORI
CEO, MSEE
631-865-2423

82 Westwood Avenue, Deer Park, NY 11729
www.advance-in-technology.com
JLiguori@advance-in-technology.com

Broad Shoulder Consulting LLC
Electronics, Mechanics, Optics, Software
www.broshoco.com

Special Expertise in Medical Imaging
System Design, Prototyping and Productization
Serving Start-ups and Technology Investors

Dmitriy Yavid
Founder
631-706-4696
dy@broshoco.com

Broad Shoulder Consulting, LLC
Long Island High Tech Incubator
25 Health Science Drive
Mail Box 320
Stony Brook, NY 11790-3350

Fred Katz Consulting, Inc.
93 Steven Place West Hauppauge, NY 11788

Proposals, Contracts & Specification Development
Innovative Creation, Electro-Mechanical
Analog & Digital Circuit/System Design
Wireless, Motion, Occupancy Sensors
System Analysis/Documentation
Commercial/Military Product Design
Sonar Systems and Acoustic Signal Processing
Security, Marine & Energy Saving, ROHS, UL Testing
Clever Inventions, Algorithm, IP & Patent Development

fred@fredkatzconsulting.com www.fredkatzconsulting.com

Fred Katz
President
(631) 724-7702
Electronics Consultant

Memberships: IEEE Senior Life Member, IEEE LI Consultants Network, LI Metal Workers, Mensa Society, NYS Professional Inventors, Suffolk County Inventors

---

EXPERT WITNESS TECHNICAL INVESTIGATOR

MARTIN KANNER AE, EE, MEE

PRODUCT LIABILITY
MACHINE INJURY

FIRE DAMAGE INJURY
LIGHTNING DAMAGE

KEMCo

sixxpoppy@juno.com
(516) 681-4346

POWER –CONTROLS DIV.
42 Glenwood Road
Plainview, NY 11803

EEDEngineering - Quality Software/Testing Solutions

Andrew Franklin Baxt
Managing Director of Engineering

Phone: 516-678-6563
Mobile: 561-558-3499
Oceanside, New York 11572
Andrew.Baxt@EEDEngineering.com
www.EEDEngineering.com

Carl Meshenberg

Technology Consulting Services

Electronic Product Development
Project Management
Marketing Strategies
Contract Development & Oversight

Mobile: 516 383-2595
carl.jmesh@gmail.com

PROGRAMMING PLUS®

2503 AVENUE X
BROOKLYN, NY 11235

HARDWARE & SOFTWARE CONSULTING

- ADMINISTRATION • DATABASES • UNIX
- DEVELOPMENT • NETWORKS • LINUX
- ENGINEERING • INTERNET • VMS
- INTEGRATION • SECURITY • WINDOWS

For expert assistance, contact *Robert Weiner*, EE, PE, at:
Tel: (718) 648-6902 Email: info@progplus.com
Fax: (718) 648-7449 Web: www.progplus.com

IEEE Consultants Network of Long Island
PO Box 411, Malverne NY 11565-0411
www.licn.org
(516) 379-1678

Affiliated with the Institute of Electrical and Electronics Engineers, Inc.

IEEE

Be sure to visit our web Blog at:
licn.typepad.com/my_weblog

Intellectual Property Law Firm

133C New York Avenue
Huntington, NY 11743

631-673-7555 ext: 5
631-327-6197 (Mobile)
631-425-7030 (Fax)

John F. Vodopia, Esq.

jvodopia@gmail.com
jvodopia@ieee.org

FARMINGDALE STATE COLLEGE

SECURITY SYSTEMS AND LAW ENFORCEMENT TECHNOLOGY

ASSISTANT PROFESSOR (2 Postions)

JOB DESCRIPTION:
The Department of Security Systems and Law Enforcement Technology at Farmingdale State College (SUNY) invites applications for two tenure-track positions at the rank of Assistant Professor beginning in the Fall of 2020. The successful candidate will teach a variety of undergraduate courses in Computer Security and Software Technology, including information security, cryptography, cyber security, computer forensics, database security, physical security, artificial intelligence, software development, and machine learning. Other responsibilities include student advisement and curriculum development. Candidates must engage in grant development work and research leading to publications in refereed academic journals. All faculty members at Farmingdale State College have three workload components: teaching, research and scholarly activity, and service. The successful candidate will demonstrate an interest and high level of competence in teaching. Candidates should have a research agenda that complements their area of academic specialty resulting in peer-reviewed publications and presentation, both of which are necessary for promotion and tenure at Farmingdale State College. The service component of the workload includes student advisement as well as active participation on departmental, school and college-wide committees. The faculty member may be expected to teach in multiple formats including hybrid, online and traditional face-to-face classes. The college particularly welcomes candidates with knowledge, skills and abilities that include: Commitment to diversity and university initiatives supportive of diversity and inclusion. Interest in participating in student-centered service activities. Desire to apply expertise in promoting civic engagement with the College's many community partners.

REQUIRED QUALIFICATIONS:
An earned doctorate in Computer Science, Computer Security, Cybersecurity, Computer Engineering, or a closely related field. Highly qualified ABD's may be considered if completion of the Ph.D. will occur by the Spring 2021 semester.A proven-track of records programming with C, C++, Java, Python, and/or other programming languages beyond school level, and familiarity with Windows, Linux and Mac OS. The candidate must be a permanent resident or a US citizen because Farmingdale State College does not offer any kind of visa sponsorship.

PREFERRED QUALIFICATIONS:
The candidate should have earned a Bachelor's degree in Computer Security, Computer Science, Computer Engineering, or a closely related field. He/she should possess expertise or interest in the areas of Computer security, cyber security, homeland security, physical security, artificial intelligence and/or machine learning. pplicant should possess excellent communication, interpersonal skills a& have previous college level teaching experience. Evidence of prior teaching experience, scholarly publications and any industry experience is preferred.

ADDITIONAL INFORMATION:
This is a full-time, 10 month faculty position. For the first 10 working days, beginning Friday, October 25, 2019 and ending Thursday November 7, 2019, applications will be limited to UUP Farmingdale. CLOSING DATE FOR RECEIPT OF APPLICATIONS: Sunday, December 8, 2019. Salary: $70,000/year, may increase commensurate with experience. ANTICIPATED START DATE: Tuesday, September 1, 2020. SUNY offers excellent fringe benefits including health insurance options and retirement plans. VISA SPONSORSHIP IS NOT AVAILABLE FOR THIS POSITION.

APPLICATION INSTRUCTIONS:
To apply, submit a letter of application(that includes a statement on teaching philosophy and methodology), c.v., copies of teaching evaluations, unofficial copy of graduate transcripts (showing highest degree awarded/or currently in process), names and contact information of three references. Only applications made through Farmingdale's electronic application system will be accepted. Candidates invited for interviews will be asked to make a presentation on their research/creative activities as well as a separate teaching demonstration.

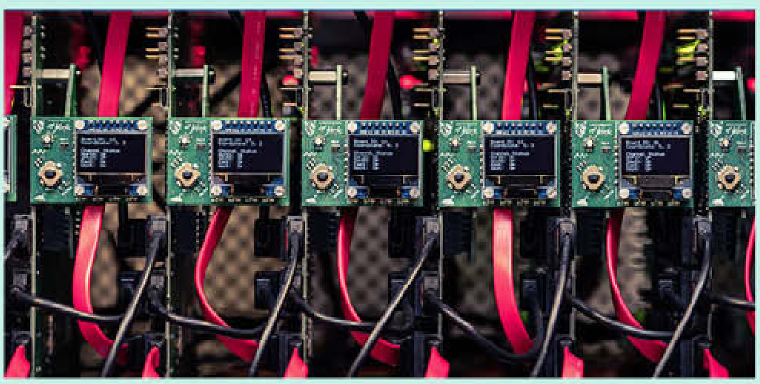
TO APPLY GO TO:
www.farmingdale.edu/employment

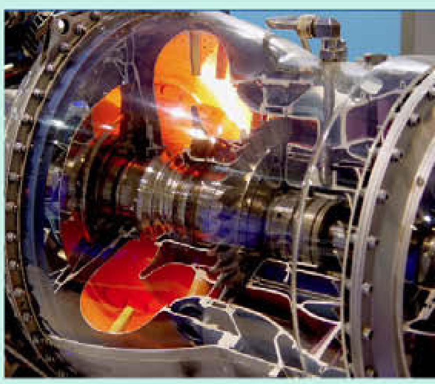
Farmingdale State College
STATE UNIVERSITY OF NEW YORK

PRODUCED BY THE LONG ISLAND SECTION OF THE INSTITUTE OF ELECTRICAL & ELECTRONICS ENGINEERS

IEEE

LONG ISLAND SECTION





THE PULSE OF LONG ISLAND