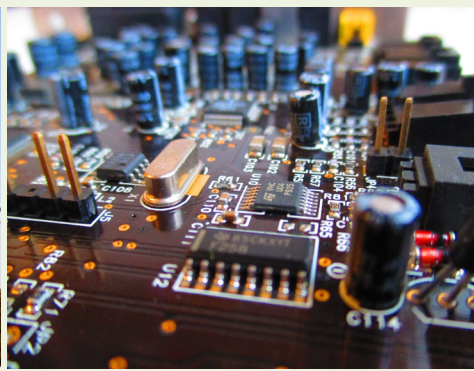




THE PULSE

OCTOBER 2020 | VOL. 67, NO .8

OF LONG ISLAND



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2020 OUTSTANDING MEMBERSHIP
RETENTION PERFORMANCE
LONG ISLAND SECTION



Now for some good news. Although IEEE membership is in decline generally, the Section did receive **recognition for membership retention** during the last three years, signified by the presentation of this virtual silver medal.

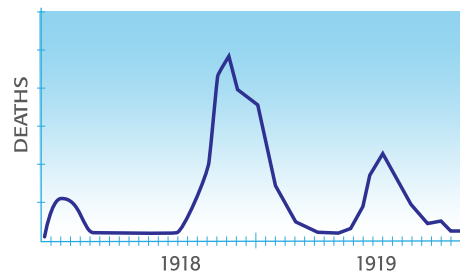
Congratulations are also in order for **James Colotti** and **Sai Padmanabhan** for earning funding awards, James for Circuits and Systems Society and Sai for Antenna and Propagation Society.



**2020
OUTSTANDING
MEMBERSHIP
RETENTION
PERFORMANCE
LONG ISLAND
SECTION**

Even with social distancing hampering our efforts at planning and holding events, the Section activities continue. These two are noteworthy: Planning for the **Inaugural 1010 Day** and **A Bit of Computing**, continues and we look forward to a very successful event on October 10 (10/10).

The winter months approach, and with them comes a heightened risk of infection with the Covid-19 virus as activities move indoors. Appropriate measures are necessary now more than ever. The 1919 flu pandemic lasted a year and a half and had three waves. The second wave started in the fall of 1919 and was responsible for the majority of the deaths.



There were 3 different waves of illness during the pandemic, starting in March 1918 and subsiding by summer of 1919. The pandemic peaked in the U.S. during the second wave, in the fall of 1918. This highly fatal second wave was responsible for most of the U.S. deaths attributed to the pandemic.

Source: <https://www.cdc.gov/flu/pandemic-resources/1918-commemoration/three-waves.htm>

The Section newsletter is now going to members and there is interest in spreading its circulation to the whole Region 1 membership. The **Awards Banquet** is now scheduled for **March 24, 2021**, but that date may yet change again to sometime in September.

Finally, we will be recognizing the value of internships in this and two following **Pulse** editions. Not only will we meet the interns, but we will learn of their experiences as they discover "the real world". The three accounts of internship experiences will begin with Sergey Madaminov's description of his work at VMware. We look forward to hearing from the two others, Mallika Rathore, and David Wan, in subsequent **Pulse** editions.

Stay healthy and be vigilant.

Regards,

Arnold Stillman
IEEE Long Island Section Chair, 2020

THE PULSE OF LONG ISLAND



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

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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
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chair@ieee.li

FIRST VICE CHAIR
RONALD PIRICH
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TREASURER
SANTO MAZZOLA
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SECRETARY
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AFFINITY GROUPS and COMMITTEES

EMPLOYMENT ASSISTANCE
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eac@ieee.li

EDUCATIONAL ACTIVITIES
MARJANEH ISSAPOUR
education@ieee.li

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CARL MESHENBERG
membership@ieee.li

YOUNG PROFESSIONALS
YASH CHOWDHURY
yp@ieee.li

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DON GRIECO
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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
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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

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

membership@ieee.li

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



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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.

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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.



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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.



THE PULSE

OF LONG ISLAND

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

DONALD
CHRISTIANSEN

NEED A KLUDGE?

Backscatter Article Reprinted from IEEE USA Insight, August 13, 2020

I have been unable to locate any formal courses in how to design a kluge. Among the many definitions of a kluge is “a quick and dirty solution that is clumsy, inelegant, inefficient, difficult to extend and hard to maintain.” Another: “an ill-assorted collection of poorly matching parts, forming a distressing whole.” Note: I have used the spelling “kluge” (pronounced klooge) in this article, although its alternative, “kludge,” appears in some reference material.

Author Samuel Arbesman, in his book *Overcomplicated: Technology at the Limits of Comprehension*, is a bit kinder, defining kluge as a cobbled together, inelegant, and sometimes needlessly complicated solution to a problem.

Among the reasons that kluges exist and are proliferating is the embedment of obsolete technology in existing systems. Abandoning such systems and starting from scratch is beyond consideration. In some cases, Arbesman notes, two independently designed systems are suddenly required to operate together. To do so, they must be kluged. An example might be NASA’s Skylab. Its two major components (the Saturn Workshop and the Apollo Telescope Mount) had themselves been kluged. They were later to become part of the Apollo Application Program, where the plans were to launch each separately, then dock them in orbit. But when the decision was later made to launch them together, even more kluging was required.

With the increasing embedment of technology in all aspects of society, the term “kluging” may be phasing out in favor of “system integration.” In engineering applications this could refer to

merging the component subsystems into one system so the resultant can deliver an overarched functionality.

System integration engineers are in increasing demand as more systems are designed to connect within a system under construction, as well as to already deployed systems. Organizations contemplating system integration may be reluctant to share data with other companies, as well as to outsource its operations to third parties. To overcome such concerns the experts advise clear communications & simplified information exchange.

The negative aspects of kluging has prompted their humorous exploitation. A parody, *How to Design a Kluge*, was published in DATAMATION in 1962. In it a fictitious executive of Fink and Wiggles Publishing Company explains that “the essence of proper kluge building is the designer who is so clever that he outwits himself. The method lies as much in misshapen softwaresville as in techniques of solder and scope. The proper approach lies in producing a machine with maximum unforgivability.”

Famed cartoonist Rube Goldberg was profiting from his spoofing of technology even before the concept of kluges arrived. He earned his engineering degree from the University of California, Berkeley, in 1904. He worked only briefly as an engineer before becoming a newspaper cartoonist. The strip for which he is best known is *The Inventions of Professor*

Lucifer Gorgonzola Butts, which he drew from 1914 to 1964. In 1966, “Rube Goldberg” was defined in the Random House Dictionary of the English Language as “deviously complex and impractical,” and the term “Goldbergian” was used to describe complex machinery. In 1995, the U.S. postal service issued the stamp shown above, depicting Goldberg’s cartoon, the “Self-Operating Napkin.”

I could go on, but I think it is safe to wager that, with the increasing complexity of systems, even more kluges, by whatever name, will be required, and their accompanying humorous put-downs will continue.

RESOURCES

Arbesman, S., *Overcomplicated: Technology at the Limits of Comprehension*, Current, an imprint of Random House, 2016

Perrow, C., *Normal Accidents: Living with High-Risk Technologies*, Princeton University Press, 1999

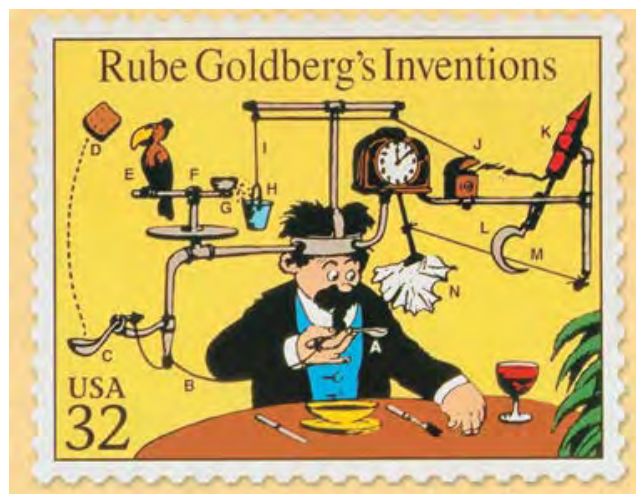
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Smithsonian’s Archives of American Art: Oral History Interview with Rube Goldberg

Marks, B., “Joking Aside, Rube Goldberg Got Tech Right” <https://www.collectorsweekly.com/articles/rube-goldberg-got-tech-right/>, retrieved Aug 1, 2000



Rube Goldberg’s “Self-Operating Napkin”
1995 postage stamp.



Donald Christiansen is the former editor and publisher of *IEEE Spectrum* and an independent publishing consultant. He is a Fellow of the IEEE and a Long Island Section member. He received the Section’s Lifetime Achievement Award in 2016.



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**.



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 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.

STUDENT INTERNSHIP SUMMARIES

For the next three months, the Educational Activities Committee, under the direction of our member Lon Chu, will have the pleasure of presenting summaries of student internship experiences that some of our Long Island students have experienced. We welcome their accounts and look forward to more of these.

SERGEY MADAMINOV, VMware, Inc. Intern

NAME: Madaminov, Sergey

SCHOOL ATTENDING: Stony Brook University

COLLEGE/DEPARTMENT: Computer Science

INTENDED DEGREE: PhD., Computer Science

INTENDED GRADUATION YEAR: Summer 2022

INTERNSHIP TITLE: Intern– Software Engineer

COMPANY NAME: VMware, Inc

SEMESTER/YEAR OF INTERNSHIP: Summer 2020

SUPERVISOR NAME: Dr. Cheng-Chun William Tu



PhD. Student, Stony Brook University



This Summer I did a software engineering internship at VMware working under the supervision of Dr. William Tu. From the very beginning of the project, we had set up clear targets that we aimed to achieve and scheduled periodic meetings so I could share my findings and report progress. However, our communication was not limited only to those meetings and we often had discussions on Slack and through emails on various issues and ways to approach them. That was a tremendous help and saved me many hours of work! Especially given the nature of the project – I was working on exploring Open vSwitch hardware offloading under various scenarios. My project spanned multiple layers of the systems stack: from the network interface card all the way up through the virtual machines and ultimately to user-level networking technologies such as DPDK, Data Plane Development Kit. Thus, being able to get help from Dr. William Tu helped me to succeed in my work. I believe the performance measurements and gathered knowledge about the current state of hardware offloading along with technical instructions on how to execute various scenarios is valuable information that will help VMware reason about this line of work and related technologies.

I strongly recommend jumping on an internship opportunity should one arise, especially for students in doctorate programs who spend most of their time in an academic setting. You will establish connections with many people who are experts in their respective fields and gain invaluable experience. You will get an exposure to the way industry operates and what it values while you sharpen your technical skills. I want to conclude with unsolicited advice: don't be afraid to ask questions and reach out to people who interest you, be kind and proactive, and maintain a positive attitude during inevitable downs as there are ups just right around the corner!

DID YOU FIND YOUR SCHOOLING AT STONY BROOK PREPARED YOU FOR THIS INTERNSHIP?

Yes, my undergraduate degree was in pure Mathematics, so in most of the courses I took at Stony Brook University I've learned quite a lot.

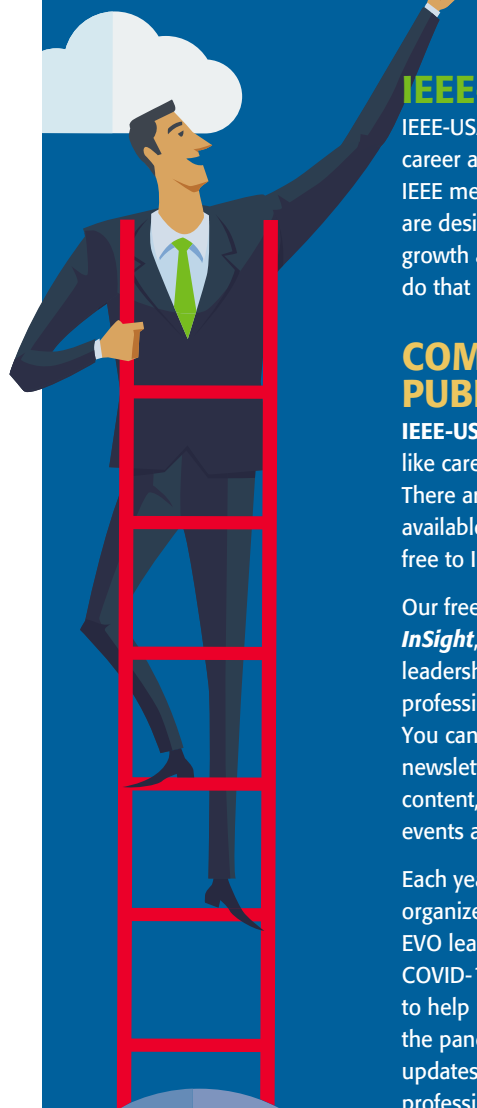
HAVE YOU DECIDED TO MAKE ANY CHANGES IN YOUR SCHOOLING BECAUSE OF YOUR INTERNSHIP?

I'm a doctorate student and I have finished required courses so internship does not affect courses.

HAS YOUR INTERNSHIP HELPED DEFINE YOUR CAREER OBJECTIVES?

The internship gave me new perspectives on possible future career opportunities. I used to think that work in industry is not very flexible in terms of working hours compared to academic jobs and that the work itself is further away from the research state-of-the-art. However, I saw that it is not fully true. In a way, now I'm considering broader career opportunities.

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IEEE-USA

IEEE-USA is your resource to support the career and public policy interests of U.S. IEEE members. Our products and services are designed to enhance your professional growth and career advancement. And we do that in three key ways:

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IEEE-USA publishes e-books on topics like careers, skill development and more. There are currently more than 150 titles available, plus new ones every month, all free to IEEE members.

Our free flagship publication, *IEEE-USA InSight*, offers new articles every week on leadership, innovation, STEM education, professional development and more. You can sign up for the monthly InSight newsletter to stay abreast of the latest content, news, products, services, events and more.

Each year, we sponsor conferences and organize events, like last year's popular EVO leadership conference. In response to COVID-19, we quickly set up a resource page to help members who may be impacted by the pandemic. This page, with regular updates, offers news and information, professional resources, career tools, ways to unwind, and even some stuff for kids.

GOVERNMENT RELATIONS

IEEE-USA is your eyes, ears and voice in Washington, D.C. and state capitals. Our dedicated volunteers and experienced staff work directly with our nation's leaders to craft solutions to the challenges facing the country and technology professionals.

This includes advocating for basic and applied research funding, advancing ethical AI implementation, protecting intellectual property rights for small and independent inventors, and more. For all the latest, check out Russ Harrison's live bi-weekly Washington Update webinar on Facebook or YouTube.

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>> APPLY FOR SENIOR MEMBER GRADE

IEEE LIFE MEMBERS, WRITE FOR THE PULSE!



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

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.

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



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Len Anderson
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FAX: 509-471-6496

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John F. Vodopia, Esq.

Intellectual Property Law Firm

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

jvodopia@gmail.com
jvodopia@ieee.org





FARMINGDALE STATE COLLEGE

SECURITY SYSTEMS AND LAW ENFORCEMENT TECHNOLOGY

ASSISTANT PROFESSOR (2 Positions)

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. Applicant should possess excellent communication, interpersonal skills and 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.

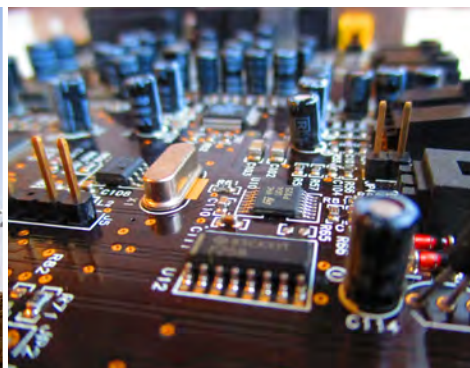
APPLICATION INSTRUCTIONS:

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



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