

ELECTRO/93  
In New Jersey

The ELECTRO/93 Professional Program Committee has selected 29 sessions for presentation at the upcoming ELECTRO exhibition and conference, April 27-29, 1993. The ELECTRO exhibition will be held at the new Raritan Center in Edison, New Jersey, while conference sessions will be presented nearby at the Holiday Inn Raritan Center. Sessions will be divided into vertical subject tracks and will explore such areas as computer technology, communications technology, competitiveness, advanced technologies, and general interest topics.

For more information about ELECTRO/93, write to: ELECTRO/93, 8110 Airport Blvd., Los Angeles, CA 90045, or call (800)-877-2668, or FAX (310) 641-5117. ELECTRO is sponsored by Region 1, CNEC and METSAC, the Institute of Electrical and Electronics Engineers, and the New England and New York Chapters, Electronics Representatives Association. It is produced by Electronic Conventions Management, Los Angeles.

Professional  
Activities  
Committees for  
Engineers NEWS

By Richard F. Tax

This month we will hear from Frank Lord, Senior Editor of IEEE's "Vehicular Technology Society Quarterly." Frank has been a life-long active member of IEEE and we served together on the USAB Manpower Committee.

WHAT HAPPENS NOW?

The sorry state in which the engineering community finds itself at present has been developing for quite some time. The very beginning, the rise of the MBA schools, goes back 30 years. The main influence may be categorized as foreign competition, unfavorable climate, drop in demand and increased supply.

While the United States, through benign neglect, has been allowing an unfavorable climate to become established, other countries have been overtaking us economically, so that we must now overhaul our approach to competitiveness in world markets. The harmful notions that have hurt our position a great deal are the concentration on close horizons such as the next quarter's bottom line and the concept of amassing fortunes through manipulation.

A large factor in the drop in demand has been the cutback in defense spending which had been accounting for approximately 15% of the total demand. The impact of this drop was intensified by the fact that there was no transition plan to shift human resources to other programs such as space and civil works. At the September 1991 EMC Conference on Engineers in America's Future, a Defense Department representative revealed that DOD did not do any planning in the area of technical manpower, but just counted on obtaining such personnel from the existing vast pool whenever needed. There was no concern expressed about what happened to people when the process was reversed.

At the same time that demand is dropping, the Administration is encouraging young people to study science and mathematics so that they can be prepared to participate in our industrial society. No spokesman for the Administration dares go so far as to suggest that such study is a preparation for college work leading to a desirable career in engineering. In the same time frame, Congress further increased the potential supply of engineers by passing a new Immigration Law which provides a new category for technically trained people. There seemed to be no concern about the opportunities that would be lost by young people who are already here.

We see that the Federal government has a considerable role in all these areas that affect the engineering community. Since this level of government has not been too helpful to our profession, it is all the

more disconcerting to learn that in 1992 for the first time the number of people on government payrolls at all levels has exceeded the number of people working in manufacturing.

On the other hand, there are some hopeful signs of favorable things happening. For example, some business schools are re-examining the premise that the most important focus of business should be the next quarter's bottom line. In addition, successful prosecution of greedy manipulators who stepped outside the limits of law may put a damper on this type of activity.

Then there seems to be a realization that the country should be improving and modernizing its transportation and communications systems. Many societal needs could be met in part by improved or new physical systems and equipment. When members of the public look around and see the number of things that could be done to improve the quality of life for our citizens, they could easily imagine that there is no action because we don't have enough engineers. They do not realize that for anything to happen, needs have to be translated into funded programs and projects that can satisfy those needs.

The possibility now exists that the incoming Administration with the legislative branch being in the hands of the same party may be able to move more readily to take constructive action. To successfully compete globally a plan is needed. How can one country engage in commerce in competition with the other industrialized countries of the world without a comprehensive plan? However, that is what the United States has been doing. Although they have been concerned with trade relationships, the former Administration turned a deaf ear on any inputs regarding establishment of a technology/industrial policy for compatible internal direction of our resources.

IEEE-USA has been working for some time in areas that could produce improvement and has been presenting ideas to various entities of the Federal government. These activities have been reported through *Spectrum*, *Professional Perspectives*, *IMPACT* and *Hotlines*. Items from the latter two publications, which are not distributed to all members, are frequently republished in Section and Society Newsletters (Editor's Note: IEEE *USAB Hotlines* was published on the back cover of the *VTS Newsletter* for November 1992.)

Members can help make a favorable transition happen by encouraging appropriate action. Any activity that is intended to result in long term benefit to our citizens' well being is likely to involve engineering. Engineers do not create next quarter's profits this quarter; manipulators do that (hold back on investment and immediately gain larger profits). Engineers assure that there will be products and profits for the future. Any move that improves the investment environment is likely to improve opportunities for engineers. Interface with people that influence factors that affect you. Write or phone legislators when appropriate. You can check for current information including upcoming legislative activity by phone IEEE-USA recording on 202-785-2180. Touch base with your Section and/or Society PACE Chairman from time to time. A large number of people each contributing a relatively small well timed effort can have considerable impact. Watch for opportunities and act.

NY/LI PES & IAS  
Tour Of COGEN  
Technologies Plant

On Wednesday, March 24, 1993 at 2:00 PM, join us for a tour of the COGEN Technologies Plant in Linden, N.J.

Take this opportunity to see and learn about the largest non-utility cogeneration plant in the U.S. The tour is limited to 20 people so call early. **Advance reservations required.** Contact George Maroti at (212) 460-2123.



PUBLICATION OF THE NORTH JERSEY SECTION OF THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

No. NJ Consultants' Network:  
Challenges And  
Opportunities In  
The 1990's

The topic at the March 25, 1993 meeting of the Northern N.J. IEEE Consultants' Network will be "Challenges & Opportunities Of Consulting And Contracting In The 1990's." The speaker at this meeting will be Wendy Vandame, of the *Consultants' and Contractors' Newsletter*.

About The Talk

The talk will be geared toward technical professionals who are consulting either as employees or independent contractors, as well as those who are currently in-house employees contemplating joining them. Highlighted will be the challenges facing today's consultants and contractors, as well as the special opportunities of the coming decade.

Topics to be addressed include: Trends that accelerate market growth for computer-related consulting services; Trends that will make it harder to do well in consulting and contracting; Tax matters and the IRS; Maximizing your earnings; Avoiding losing propositions.

About The Speaker

Wendy Vandame has published *Consultants' & Contractors' Newsletter* and *JOB EXPRESS* for seven years. Articles authored by Ms. Vandame have also been published in *Quality Assurance Magazine* and *The AT&T Technical Journal*. She has over 8 years of experience as a Technical Consultant and Contractor for clients including AT&T, Bankers Trust, Bell Labs, Mobil Corporation, Perkin Elmer and Westinghouse

Cable. She holds degrees from the University of Bristol and the London School of Economics, both in the U.K.

About The Consultants' Network

The IEEE Consultants' Network of Northern NJ was founded in April 1992 to encourage and promote the use of independent technical consultants by business and industry. Meetings are held on the last Thursday of each month at GEC-Marconi.

Time: 7:30 PM, Thurs., March 25, 1993.

Place: GEC-Marconi Facility, 150 Parish Drive, Wayne, NJ. (Directions: From Intersection of Rte. 23 and Rte. 46, approx 1 mile east to Riverview Drive. North on Riverview for 1.5 miles to traffic light at golf course. Go straight on Valley Road to next light; turn left onto Parish Drive. Follow to "T"; left turn for 2 short blocks to Dey Rd. Left on Dey Rd. GEC entrance approx. 100 ft. on right side. Information: Jim Boyd (201) 584-0329.

Videoconference  
Calendar for 1993

The dates for the 1993 IEEE Seminars via Satellite Videoconferences have been announced. They are:

- May 20 - "Delivering Products for the Global Marketplace"
- June 17 - "Technical Currency of the Engineering Workforce"
- September 30 - "Product Engineering"
- October 28 - "2020 Vision: The Future of Engineering Technology"
- December 2 - "Monte Carlo Analysis"

Any questions should be directed to: Richard G. Estock (908) 388-5110.

North Jersey Section PACE:  
Financial Planning  
Workshop For  
Retirement

At the March 11, 1993, meeting of the North Jersey Section's Professional Activities Committee for Engineers the topic will be "Financial Planning For Retirement." The speaker will be Edward Landau.

About The Talk

A comfortable and secure retirement requires careful planning. This workshop will address the many decisions facing the engineer nearing, or already in, retirement. Topics to be covered include: IRA's and pension, rollovers vs. forward averaging, the change in the law affecting 401K rollovers, risk management, Medicare and other health insurance options, taxable vs. tax-exempt investment, Social Security (when to take it) and minimizing estate and inheritance taxes. The workshop will also examine how to anticipate retirement income needs and how to best hedge against inflation.

About The Speaker

Edward Landau is a Personal Financial Planner with IDS Financial Services, an American Express Company. As a financial planner he is licensed by the National Association of Securities Dealers in addition to holding NJ Insurance and Securities licenses. Before becoming a financial planner, Mr. Landau spent over twenty years as an RF Design Engineer, Consultant and Engineering Manager.

Time: 7:30 PM, Thursday, March 11, 1993.

Place: JCP&L Co., 300 Madison Ave., Morristown, N.J.

Further Information: Robert Sinusas (201) 228-3941.

## North Jersey Section Activities MARCH

### MARCH, 1993 Volume 39, Number 9

#### Publication No: USPS 580-500

The North Jersey Section's "The IEEE Newsletter" is published monthly except June by The Institute of Electrical and Electronics Engineers, Inc. Headquarters: 345 East 47th Street, New York, N.Y. 10017-2394. \$1.00 per member per year (included in annual dues) for each member of the North Jersey Section. Second-class postage paid at New York, N.Y. and at additional mailing offices. Postmaster send address changes to: "The IEEE Newsletter," 445 Hoes Lane, P.O. Box 1331, Piscataway, N.J. 08855-1331. USPS 580-500.

#### NEWSLETTER STAFF

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Business Manager ..... A.M. Beattie

**Deadline for receipt of material** is the 1st of the month preceding the month of publication. All communications concerning editorial and business matters, including advertising, should be addressed to: The Newsletter, c/o Girard Associates, Inc., 6 Robert Terrace, P.O. Box 455, Mt. Arlington, N.J. 07856 (201) 398-5524.

#### REPORT ADDRESS CHANGES TO:

IEEE Service Center  
445 Hoes Lane, P.O. Box 1331  
Piscataway, N.J. 08854-1331  
(908) 981-0060

It is not necessary to inform the North Jersey Section when you change your mailing address. The NEWSLETTER and other section mailings use a list provided by IEEE's national headquarters in New York. This means the Section has no need to maintain a mailing list or addressing plates. Section membership records are changed when Headquarters notifies us.

#### SECTION OFFICERS

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**The North Jersey Section Executive Committee usually meets the first Wednesday (except holidays and December) of each month at 7 PM. These meetings are open to all members. Information on meeting agenda is available from Art Greenberg, Section Secretary at 785-7547.**

**Elected Section Officers are listed above.**

**March 1, 1993**--"Orthopaedic Prostheses 1993: Biomechanical Principles For Design Of Implants"--Metro EMBS & NY Academy of Medicine, 7:30 PM, NY Academy of Medicine 5th Ave. at 103rd St., NYC. Joel Levitt (718) 891-6460.

**Mar. 3**--"North Jersey Section Executive Committee Meeting"--7:00 PM, Plant 11, GEC-Marconi, 164 Totowa Rd., Totowa, N.J. Al Connelly (201) 616-0755.

**Mar. 10**--"Optoelectronics Industry Show & '93 Optoelectronic Seminar II—Optics In Computing"--NJIT, Center for Microwave and Lightwave Engineering, North Jersey Section IEEE & NJIT Graduate Student Assoc., 3:00-5:00 PM, NJIT, Alumni Center, Newark N.J. Dr. Whitman (201) 596-5709/3232.

**Mar. 11**--"Financial Planning workshop For Retirement"--North Jersey Section PACE, 7:30 PM, JCP&L Co., 300 Madison Ave., Morristown, N.J. Robert Sinusas (201) 228-3941.

**Mar. 17**--"Harmonics Solutions"--NY/LI PES & IAS, 5:30-7:30 PM, Gibbs & Hill, 11 Penn Plaza, 5th Floor, NYC. Hazem Huss (201) 822-1016.

**Mar. 17**--"Future Trends—Internetworks"--NY Consultants' Network, 6:00 PM, Con Edison Co., 16th Floor Press Room, 14th St. & Irving Pl., NYC. For information call Jim Wetterau (212) 321-1999.

**Mar. 24**--"1993 Control Systems Seminar Series—Session I & Industry Show"--NJIT, North Jersey Section IEEE, 3:00 - 6:00 PM, Guttenburg ITC-1400, Newark, NJ. Prof. Tim Chang (201) 596-3519.

**Mar. 24**--"Tour Of COGEN Technologies Plant"--Advance reservations required. For details call George Maroti (212) 460-2123.

**Mar. 25**--"Videoconference—Chaos, Fractals And Non-Linear Dynamics"--North Jersey Section, 12 noon-3:00 PM, Edward Williams College Lecture Hall, (FDU Hackensack Campus), 150 Kotte Pl. Hackensack, N.J. For playback location see article. Richard Estock (908) 388-5110.

**March 25**--"Challenges And Opportunities In The 1990s"--Northern N.J. IEEE Consultants' Network, 7:30 PM, GEC-Marconi Facility 150 Parish Dr., Wayne, N.J. Jim Boyd (201) 584-0329.

**Mar. 31**--"1993 Control Systems Seminar Series—II & Industry Show"--NJIT, North Jersey Section IEEE, 3:00 - 6:00 PM, Guttenburg ITC-1400, Newark, NJ. Prof. Tim Chang (201) 596-3519.

**Mar. 31**--"Improvements In Distribution Feeder Protective Relaying"--North Jersey Section PES/IAS Society Chapters, 7:30 PM, JCP&L, Punch Bowl Rm., 300 Madison Avenue, Morristown, N.J. Ken Oexle (201) 455-8481.

#### Upcoming Meetings

**Apr. 7**--"North Jersey Section Executive Committee Meeting"--7:00 PM, Plant 11, GEC-Marconi, 164 Totowa Rd., Totowa, N.J. Al Connelly (201) 616-0755.

**Apr. 7**--"1993 Control Systems Seminar Series—III & Industry Show"--NJIT, North Jersey Section IEEE, 4:00 - 6:00 PM, Guttenburg ITC-1400, Newark, NJ. Prof. Tim Chang (201) 596-3519.

**Apr. 21**--"Computer Technology Court Wars"--NJ/NY Chapter of the Engineering Management Society, 7:00 PM (location to be announced later).

**Apr. 21**--"Imaging Systems—1993 Optoelectronic Seminar III"--NJIT, Center for Microwave and Lightwave Engineering, North Jersey Section IEEE & NJIT Graduate Student Assoc., 3:00-5:00 PM, NJIT, Alumni Center, Newark, N.J. Dr. Whitman (201) 596-5709/3232.

**Apr. 22**--"Videoconference—POSIX: Delivering Open Systems Portability"--North Jersey Section, 12 noon-3:00 PM, Lecture Hall, Edward Williams College Lecture Hall, (FDU Hackensack Campus), 150 Kotte Pl. Hackensack, N.J. For playback location see article. Richard Estock (908) 388-5110.

**Apr. 27-29**--"ELECTRO/93"--Raritan Center, Edison, N.J. (800) 877-2668 or FAX (310) 641-5117.

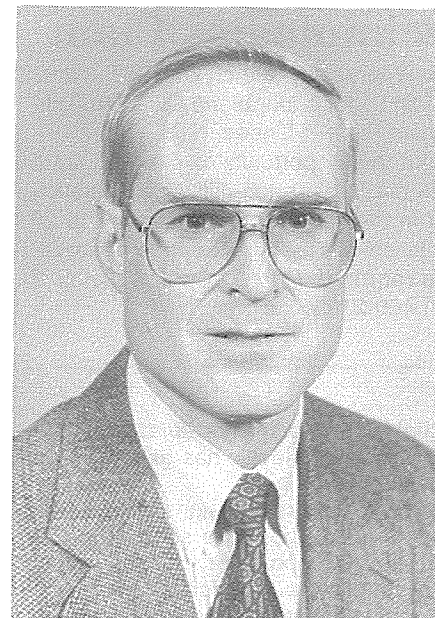
**May 14**--"Spring '93 Get-Together"--NY/LI PES & IAS, Chapter Related Activities Committee, Meadowlands Racetrack, Pegasus East Buffet. For information: Wm. Coyne, c/o Con Ed Energy Serv., 708 First Ave., Rm. 515, NY., NY 10017

**May 18**--"The VISION Project—Automated Mapping and Facilities Management"--PES/IAS NY/LI Chapter, 5:30-7:30 PM, Con Edison Bldg., 19th Floor Auditorium, 14th St & Irving Place, NYC. (This meeting postponed from March 16th.) For information: Ray Amara (212) 576-2941.

**May 18-20**--"1993 Vehicular Technology Conference"--Vehicular Technology Society, Meadowlands Hilton, Secaucus, N.J. Melvin Lewis (914) 968-2500.

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## 1993 Fellow Award Citations



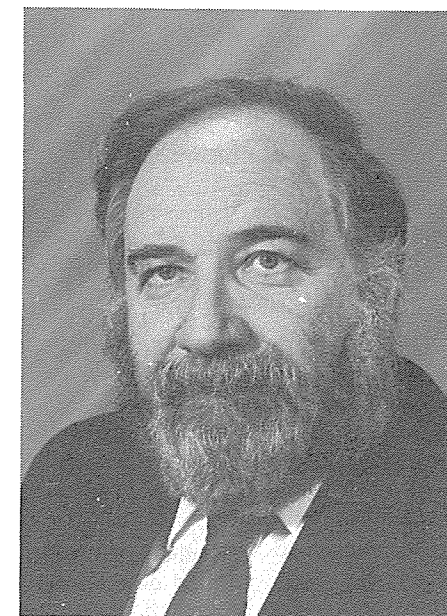
**Wilbur Dexter Johnston, Jr.**  
AT&T Bell Labs

*"For contributions to optoelectronic materials and device technology"*

W. Dexter Johnston, Jr. is Technology Manager, Semiconductor Laser Research at AT&T Bell Laboratories, Murray Hill, New Jersey.

He joined Bell Laboratories in 1966 as a Member of Technical Staff in the Electronics Research Laboratory at Crawford Hill and later Holmdel, New Jersey where his research included gas, liquid, crystal and semiconductor lasers and non-linear optics. In 1980 he moved to Murray Hill where he has been responsible for the development and introduction to manufacture of hydride and metallorganic CVD crystal growth technologies for InGaAsP semiconductor lasers used in AT&T lightwave systems.

Dr. Johnston received the BS degree in physics from Yale University in 1961 and the PhD, also in physics, from MIT in 1966. He has served as Publications Chairman and ADCOM member of the IEEE Electron Devices Society and is presently Vice President of EDS. In addition to the IEEE he is a member of the Electrochemical Society, the American Association for the Advancement of Science, Sigma Xi - Research Society of America, and Phi Beta Kappa.



**Israel H. Kalish**  
David Sarnoff Research Center

*"For the development of the first commercial process for the manufacture of complementary metal oxide semiconductor (CMOS) integrated circuits"*

Israel H. Kalish is Head of the VLSI Design Group of the Integrated Circuit Research Laboratory at the David Sarnoff Research Center where he is responsible for the development of VLSI circuit designs and the technology architectures needed to implement them.

In 1964, as Manager of the integrated circuit design effort in RCA's Special Electronic Components Division, Mr. Kalish was responsible for the development of the first commercial process for the fabrication of CMOS integrated circuits. From 1970 to 1980 he was Manager of Advanced Semiconductor Design and Technology at the RCA Technology Center where he was responsible for the development of the first commercial CMOS microprocessor as well as key components for RCA's implementation of the first all electronic TV tuning system.

Mr. Kalish was 1988 Program Chairman and 1989 Conference Chairman of the International Conference on Consumer Electronics (ICCE). He has been cited by *Electronic Engineering Times* as a significant contributor, "Thirty Who Made a Difference," to the development of Integrated Circuits and by the Smithsonian Institution for the successful development of the first CMOS Microprocessor.

Kalish received the BSEE degree from Cooper Union in 1953 and the MSEE degree from Columbia University in 1956. He has been Adjunct Professor at The Cooper Union School of Engineering and is author of "Microminiature Microelectronics."



**Robert L. Martin**  
Bell Communications Research, Inc.

*"For technical leadership as an architect and implementor of telecommunications operations systems"*

Robert L. Martin is Vice President - Software Technology & Systems and is responsible for software systems development in Bell Communications Research, Inc. (Bellcore). He received his Bachelor of science in Electrical Engineering from Brown University in 1964, and his Master of Science and Doctor of Philosophy degrees in Electrical Engineering and Computer Science from the Massachusetts Institute of Technology in 1965 and 1967, respectively. In 1985, he attended the MIT Alfred P. Sloan School Program for Senior Executives. Martin is chair of IEEE's Software Industrial Advisory Board and is currently a member of the National Research Council Board on Computer Science and Telecommunications. He is also a member of the Advisory Boards for both Carnegie Mellon University and Polytechnic University.

Robert Martin began his career with Bell Laboratories where he developed system software for the Safeguard Antimissile System, managed the development of several Telecommunications Operations Support Systems, and was responsible for UNIX® systems development. Before joining Bellcore, he was Product Management Vice President - Operations Systems for AT&T Technologies.



Letter To Tax

Dear Richard:  
I am writing in response to your PACE NEWS on Page 7 of the February, 1993, IEEE NEWSLETTER.

It's about time Congress did something to protect the engineers in the United States from the onslaught of foreign engineers entering the US. Please see to it that I get a AEA Petition to sign relative to the Immigration Bill. Too many of my engineering acquaintances have been faced, or are being faced with the prospect of possible unemployment, and 1992 was the worst year I have experienced financially as a consultant since 1961. How can many of our IEEE members find positions if foreign engineers are willing to enter the US and take said positions at salaries far below normal levels.

The need to reform the USAB is long overdue, and I for one, have been very critical of their administrative policies for several years. Withholding funds seemed to work in the case of the United Way. Maybe Region I should consider the same.

But let's look at a few reasons behind the loss of membership in Region I, and other regions of the IEEE. North Jersey has been severely hit by a loss of engineering positions due to industry cut-backs, industries moving out of state, and the fact that a lot of unemployed engineers can't afford to maintain their annual dues. Although the IEEE has a policy of allowing payment of 50% of the annual dues if unemployed, when it comes to paying for food or dues, there is no contest. Even the 50% dues option can create a hardship on some of our members.

I have been seeking to give up independent consulting for several months, as the economy in New Jersey, New York, and Pennsylvania is totally stagnant, with no recovery prospects on the immediate horizon. As such, not only are positions not available for Senior Members, those positions that do crop up from time to time are far below the salary levels for experienced engineers. Industry throughout New Jersey is taking advantage of their buyer's market, and would rather employ a junior engineer with little experience solely on a price basis.

Several months ago I traveled to Europe, and although their overall economies are as bad as ours, they have the foresight to hold on to their senior engineers at all costs, and Germany, Russia, France, Spain, and England would "hock the farm" to obtain an experienced American engineer. Even though these countries have experienced engineers, they are not US trained, knowledgeable in the latest state of the art technology. In Germany and Russia it used to be the athletes who were treated like kings. Now it is the US

trained engineer. China openly recruits Electrical and Mechanical Engineers by offering salaries and living conditions far in excess of what they could obtain in the US. What they want is the US engineering technology.

If New Jersey and its surrounding states don't wise up, Region I will continue to lose experienced engineers to other states which offer a more progressive economy and living conditions which are affordable. I for one feel that New Jersey is taxing its residents right out of existence, and due to its regulations pertaining to engineers, drives them away in droves. If there is a bright side to the issue, New Jersey's posture is such that engineers from outside the state would have serious reservations about working here. But that certainly doesn't resolve the problems for those of us who are here, and wish to remain here.

I have lived in New Jersey since 1981, and at no time during my residence here have I known of so many engineers, Electrical and otherwise, who are unemployed. And the future projection is for the situation to get worse, not better.

In closing let me just add that I personally have a friend about 48 years of age who is a research engineer with a Ph.D. After two and a half years of not being able to find employment, and having had only six interviews in that time, he finally was offered a teaching position with a local school district at a salary far below his level. In order to provide for his family, he accepted it. Isn't it just wonderful, when someone who should be developing new 21st century technology is teaching high school physics just so he can live. Have the engineering opportunities in New Jersey sunk to such a level that experienced engineering minds go untapped and unused?

Is New Jersey fast becoming an engineering dinosaur?

If you would like additional input as to the existing engineering nightmare in New Jersey, please let me know. If it weren't for engineering horror stories, I wouldn't have any at all.

Dr. Willard R. Kleckner

Position Wanted

Seasoned Project Administrator and Sales professional with proven track record. Outstanding project management and communications skills. Diplomatic negotiator. Accustomed to fast pace. BSEE, MBA. Call for resume. Merrill Rutman (201) 447-6041.

North Jersey PES/IAS: Improvements In Distribution Feeder Protective Relaying

On March 31, 1993 the North Jersey Power Engineering/Industry Applications Society Chapters will present a talk on "Improvements In Distribution Feeder Protective Relaying." The speaker will be Jay Gosalia of GEC ALSTHOM T&D Inc.

About The Talk

Historically, electromechanical disk type overcurrent relays have been the pre-dominant type of relay used for protection for feeder faults. These relays have provided adequate and reliable protection at a low cost and with low maintenance requirements. The need to replace or supplement these relays has recently begun to be considered due to many advanced features available with micro-processor-based technology.

This talk describes the features of the new microprocessor-based distribution relays and discusses some of the improvements in protection, operation and maintenance that may result from their use. Increased flexibility due to modular design allow uses ranging from stand-alone devices to completely integrated protection and control systems.

The discussion will also cover additional capabilities within the relay such as breaker failure, bus protection and "smart" load shedding. Advanced communication facilities provided in the relay allow a number of remote access options.

About The Speaker

Jay Gosalia is Manager of Commercial Operations for the Protection and Control Division of GEC ALSTHOM, T&D Inc. Prior to GEC ALSTHOM, he worked as a Project Engineer for Asea, Brown Boveri. He received a BS in EE from M.S. University, India in 1974, and received his Masters degree in Computer Science from Manhattan College in 1984.

All Welcome

Free Pre-Meeting Buffet

Members and guests interested in the meeting topic are invited. Reservations are required for the complimentary pre-meeting buffet which starts at 6:00 PM followed by the meeting at 7:30 PM.

Time: 7:30 PM, Wednesday, March 31, 1993.  
Place: JCP&L, Punch Bowl Room, 300 Madison Ave., Morristown, N.J.  
Reservations/Information: Ken Oexle (JCP&L) (201) 455-8481; R.V. Rebbapragada (Ebasco) (212) 839-1473 or (201) 804-2011.

North Jersey Section: Chaos And Fractals Videoconference

The first North Jersey Section sponsored videoconference of 1993 is being held on March 25th. The topic is "Chaos, Fractals And Non-Linear Dynamics" and the presenter will be Dr. Robert L. Devaney, Professor of Mathematics, Boston University.

Chaotic dynamical systems and fractal geometry are revolutionary new mathematical concepts that are having wide impact in all areas of science and engineering. These concepts provide major new tools for understanding and modeling natural phenomena.

The goal of this program is to introduce these new ideas in a manner that will allow scientists and engineers to use them in their own applications. The mathematical ideas will be described using a combination of computer experiments and video displays. Topics to be covered include: iteration; the transition to chaos; Feigenbaum's universality; fractals; and the Mandelbrot and Julia sets.

From this videoconference, attendees should learn how chaos and fractals have significantly changed science and engineering; how to recognize and understand chaotic behavior in the lab and in mathematical models; the new mathematics behind chaos and fractals; and how to use chaos and fractals for virtually any engineering application including computing, power distribution, signals and systems, communications, aerospace, weather forecasting, broadcast technology and many more.

A course prerequisite is either a Bachelor's degree or advanced undergraduate courses in engineering.

Admission FREE to IEEE Members

Admission is free to IEEE members; others may attend by completing an application form for membership with payment of 1993 dues—\$95 for regular members, \$23 for students. Mail check payable to "IEEE North Jersey Section" to Richard G. Estock, c/o EDP Consultants Inc., 77 Meredith Rd., Colonia, NJ 07067-3198. Include your name, address and telephone number.

A set of course notes and copies of the viewgraphs will be available for a \$10 fee if requested and paid for ten (10) days in advance. These course notes are strongly recommended for those desiring to derive maximum benefit from the presentation. To reserve a set of notes, mail check payable to "IEEE North Jersey Section" to Richard G. Estock, c/o EDP Consultants Inc., 77 Meredith Road, Colonia, NJ 07067-3198. Be sure to include your name, address and telephone number.

Videoconference Playback

Playback of taped "Chaos, Fractals and Non-Linear Dynamics" videocon-

ference for those unable to attend the live, interactive session will take place the same day at 6:00 - 9:00 PM, Room M-207, Muscarelle Bldg., Fairleigh Dickinson Univ., Teaneck. For a copy of conference notes, follow instructions above.

Time: 12 noon - 3:00 PM, Thursday, March 25, 1993. (Playback 6-9 PM at location shown above.)  
Place: Edward Williams College Lecture Hall (FDU Hackensack Campus), 150 Kotte Place, Hackensack, N.J.  
Directions: Route 4 to Hackensack Ave. south, then 1st left onto Kotte Place.  
Information: Richard G. Estock (908) 388-5110.

NY/LI PES & IAS Harmonics Solutions

The Power Engineering Society and Industry Applications Society NY/LI Chapter will meet on March 17, 1993 to hear a talk entitled "Harmonics Produced By Variable Frequency Drives (VFDs) And The Active Harmonic Filter Solution." The speaker, Mr. Jim Johnson, Industry Sales Manager - HVAC/Municipal Markets at Emerson Industrial Controls in Grand Island, N.Y., will present a discussion on everything you ever wanted to know about the harmonics produced by VFDs but were afraid to ask. The discussion will cover the various solutions and the problems of implementation for each. Additionally, a discussion of the active harmonic filter and the simplicity of the harmonics solution when using active harmonic filters will be highlighted.

The meeting will take place 5:30-7:30 PM at Gibbs & Hill, 11 Penn Plaza, 5th floor, NYC. Refreshments provided. For information: Hazem Huss (201) 822-1016.

NY/LI PES & IAS Spring '93 Get-Together

The Chapter Related Activities Committee announces that the Spring Get-Together will be held on Friday evening May 14, 1993 at the Meadowlands Racetrack, Pegasus East Buffet.

The cost will be \$34.95 per person. For information on this social event please contact William N. Coyne, c/o Con Edison Energy Services, 708 First Avenue, Room 515, New York, NY 10017.

For Sale

Books and Instruments of recently deceased North Jersey Life Member. For information write or call Alvin Levy, 1822 Benton Avenue, Apt. 105, Phila., PA 19152 (215) 725-5298. Many computer books.

NY/North Jersey-EMS:

Computer Technology Court Wars

On April 21, 1993 the Engineering Management Society will present a seminar on "The Computer Technology War In The Courts: The Impact Of Intellectual Property Protection On Technology." The speaker will be Joel Miller, of West Orange, New Jersey, an attorney specializing in patent, trademark, copyright, trade secret, and unfair competition law. The location of this seminar will be announced at a later date.

About The Topic

Lately, it seems as if virtually every electronics and software firm is going to court to sort out its rights over technology. Apple v. Microsoft, Atari v. Nintendo, Intel v. Advanced Micro Devices, Lotus v. Paperback, and Sega v. Accolade are but a few of the more recent disputes. These matters have concerned hardware, software, the look and feel of programs and user interfaces, and reverse engineering.

Why is this of importance to you - the engineering professional? Come to this meeting of the EMS and find out: How such matters affect the design, manufacturing, marketing, and sales process; How to protect your creative output; How to avoid invading someone else's turf. Mr. Miller will provide handouts during the meeting.

About The Speaker

Joel Miller was formerly a patent examiner in the U.S. Patent and Trademark Office, patent counsel for the Kearfott Division of the former Singer Company, and an attorney with the New York-based law firm of Weil, Gotshal & Manges. He is the author of the *IEEE Spectrum* Legal Aspects column.

Over the years, Mr. Miller has secured patents and trademarks, negotiated intellectual property licenses, and participated in litigation concerning semiconductors, disk drives, and computer software. He has worked in a variety of technologies including communications, broadcasting, semiconductors, avionics, and computer hardware and software. He is a member of the American Bar Association, the American Intellectual Property Law Association, the Computer Law Association, the New Jersey State Bar Association, the IEEE, and the American Radio Relay League.

There will be a \$20 charge for attending the seminar. Hors d'oeuvres will be provided.

Time: 7:00 PM, Wednesday, April 21, 1993.  
Place: Location to be announced.  
Information/Reservations: Al Connelly, 49 Channing Drive, Ringwood, NJ 07456.

1993 Vehicular Technology Conference  
May 18-20, 1993

The North Jersey Section of the IEEE is hosting this year's Vehicular Technology Conference, which has as its theme "Personal Communication—Freedom Through Wireless Technology."

Nearly 300 technical papers will be presented covering topics such as: Modulation; Propagation; Channel Processing; Cellular System Planning; Receiver Processing; Base Stations/Microcells; Intelligent Vehicle Highway Systems; and much more. This conference brings together the leading researchers and designers, from near and far, in the field of land, airborne, and maritime mobile systems, portable and citizens communications equipment, and vehicular electrotechnology (electric vehicles). It promises to be an excellent opportunity to learn of the dramatic improvements coming out of the R&D labs worldwide.

The conference will be held at the Meadowlands Hilton, Secaucus, N.J. For information, contact Melvin Lewis, Loral Electronic Systems (914) 968-2500 or Frank Schink, P.O. Box 326, Garwood, NJ 07027.

New Jersey Institute of Technology  
1993 Optoelectronics Seminar Series  
and Industry Show

sponsored by  
The Center for Microwave and Lightwave Engineering  
North Jersey Section IEEE & NJIT Graduate Student Association

**Planning Committee:** M. Ettenberg, DSRC; E. Gordon, NJIT; H. Grebel, NJIT; W. Kosonocky, NJIT; R. Leheny, Bellcore; T. Li, AT&T; Richard Linke, NEC-Res. Inst.; S. Nagel, AT&T; E. Niver, NJIT; I. Reingold, Geo-Centers; G. Whitman, NJIT; J. Yardley, Allied Signal.

II. OPTICS IN COMPUTING

March 10, 1993, Wednesday, 3:00-5:00 PM, Alumni Center

Smart Pixels for Optical Interconnections and Processors

Stephen R. Forrest, Dept. of Elec. Engrg., Princeton University.

Optoelectronic Technology for Computer Interconnections

Donald J. Chanin, David Sarnoff Research Center

Optoelectronics Industry Show  
2:00-6:00 PM, Alumni Center

III. IMAGING SYSTEMS

April 21, 1993, Wednesday, 3:00-5:00 PM, Alumni Center

From Telephone to Tele-Presence

Kicha Ganapathy, AT&T Bell Laboratories

High Definition Display Systems

M. Robert Miller, U.S. Army Electronics Technology and Devices Laboratory

Registration:

By mail, telephone or in person. Those who register in advance will be sent a map. There is no registration fee. Refreshments will be served.

Directions:

Garden State Parkway to Exit 145, Route 280 East; take King Blvd. Exit 14A and turn right at the traffic light. Continue straight and after three traffic lights, turn right onto Central Avenue. Take the first left, Summit Street, into campus. Proceed to the guardhouse, the attendant will direct you to reserved parking.

From Route 280 West; take the King Blvd. exit, make a left at the foot of the ramp, go one block and make a left at the stop sign onto King Blvd. After four traffic lights, turn right onto Central Avenue. Follow directions above.

**For Information:** Contact Dr. Gerald Whitman (201) 596-5709/3232.

1993 Optoelectronics  
Seminar II, March 10  
"OPTICS IN COMPUTING"

Smart Pixels for Optical  
Interconnections and Processors

Stephen K. Forrest  
Dept. of E.E., Princeton University

**Abstract:** A common problem confronting the realization of optoelectronic interconnection processors is the ability to both perform logical operations and rapidly and dynamically reconfigure the processor in a compact and simple manner. For example, while several "optical computers" have been demonstrated, they have suffered from a lack of reconfigurability and speed, thus limiting their ability to solve a wide range of computational problems. On the other hand, dynamic interconnections which have been proposed generally lack computational power. In our laboratory, we have recently demonstrated a fully integrated, optically powered, optoelectronic "smart pixel." This circuit has the ability to operate variously as an optoelectronic amplifier, bistable switch, inverter and latch. Due to the use of optical powering of the individual pixels, circuit layout complexity and reactive cross-talk between pixels are greatly reduced, thereby enhancing overall system performance. By making minor variations of that first circuit, we can employ it in a novel and very simple optoelectronic processor, which has the ability to both perform logic and dynamically route large 2D arrays of data. In this talk, we discuss both devices and architectures employing 2D arrays of smart pixels which can solve a wide range of computational and interconnection problems at very high rates.

Optoelectronic Technology for  
Computer Interconnections

Donald J. Channin  
David Sarnoff Research Center

**Abstract:** The evolution of computing technology in the second half of the century dwarfs the progress in any other major technology within our lifetime. Since 1950, the amount of computing power one could buy for a constant dollar has increased by six orders of magnitude. Optics promises to be the next technology to drive this growth. How, why and when this will take place will be discussed. In this presentation we will consider the role of optics as an interconnect technology within computing systems. The role of silicon as the basis for logic and fast memory is likely to be unchallenged for a decade at least. However, the progress in faster processors and larger memories calls for corresponding increases in interconnect capability. This interconnect capability includes device packaging, signal transmission, communication protocol and overall interconnect architecture. As for silicon logic and memory, performance and cost together determine the capability of the interconnects to support the growth of the overall computer capability.

North Jersey Section:  
POSIX: Delivering  
Open Systems  
Portability



POSIX is the topic of the second of seven 1993 IEEE videoconferences being offered by the North Jersey Section. This live and interactive event will occur Thursday, April 22, 1993. Attendance is limited to IEEE members only.

POSIX is an evolving and emerging set of software standards for open computer systems that is supported by the U.S. Government, the European Commission and a wide range of private corporations. It is the cornerstone of future use of information systems. Consequently, this videoconference should be of great interest to computer scientists, data processing and technical managers, software engineers and software developers.

Topics include: the business value of the POSIX standards to both user application developers and system providers; how to apply the POSIX standards within the context of other standards to accomplish specific functional objectives; the role of validation in obtaining the benefits expected of open systems; and how the capabilities and availability of the POSIX standards can be applied to achieve application portability among different hardware platforms.

The agenda for the videoconference includes: a panel discussion on the importance of open system concepts in the industry; the expectations and current status of open systems; how to apply these concepts in the real world; and the essential role of conformance testing.

Sponsored by Digital Equipment Corporation, the lead presenter will be Jim Isaak, POSIX Strategy Director for DEC. Other presenters will be Roger J. Martin, Manager of the Software Engineering Group of the National Institute of Standards & Technology (NIST), and Karen Sheaffer, Member of the Technical Staff at Sandia National Laboratories.

A set of conference notes and copies of the viewgraphs will be available for \$10 to those who order and pay for them ten (10) days in advance. For those desiring to obtain maximum benefit from this videoconference, these notes are highly recommended. To reserve a set of notes, **mail a check** for \$10 payable to "IEEE North Jersey Section" to Richard G. Estock, c/o EDP Consultants Inc., 77 Meredith Road, Colonia, NJ 07067-3198. Be sure to include your name, address and telephone number.

Admission FREE to IEEE Members

Admission is free to IEEE members; others may attend by completing an application form for membership with payment of 1993 dues—\$95 for regular

THE NEW JERSEY INSTITUTE OF TECHNOLOGY  
1993 CONTROL SYSTEMS SEMINAR SERIES

Sponsored by  
The North Jersey Section IEEE  
The Cullimore Lecture Series  
The Department of Electrical & Computer Engineering



Location: Guttenburg Information Technology Center ITC-1400

I MARCH 24, 1993, WEDNESDAY, 4:00PM – 6:00PM,

- **Studies Relating Control Theory to Biomedical or Rehabilitation Engineering**  
Dr. D. W. Repperger, Armstrong Laboratory, Wright-Patterson Air Force Base.
- **The Hummingbird Minipositioner – Providing Three-axis Motion at 50G's with Low Reactions**  
Dr. J. P. Karidis and Dr. L.C. Zai, IBM Watson Research Center.

Industry Show: 3-6 PM

II MARCH 31, 1993, WEDNESDAY, 4:00PM – 6:00PM,

- **Real-time Models for Discrete Event Systems**  
Professor P.J. Ramadge, Department of Electrical Engineering, Princeton University.
- **Nonlinear Control of Advanced Fighter Aircrafts**  
Dr. G. Knowles, Corporate Research Center, Grumman Corp.

Industry Show: 3-6 PM

III APRIL 7, 1993, WEDNESDAY, 4:00PM – 6:00PM,

- **Performance Limitation of Nonminimum Phase Systems**  
Professor E.J. Davison, Department of Electrical Engineering, University of Toronto.
- **Control Research at GE**  
Dr. T. L. Johnson, GE Corporate Research & Development Center.

Industry Show: 3-6 PM

For further information on:

- Seminar and travel directions: Prof. Tim Chang at NJIT, (201)596-3519 or by email: tnc0766@tesla.njit.edu.
- Advertising: Mr. Dave Haessig Jr. at GEC Marconi, (201)305-2766.

members, \$23 for students. **Mail check** payable to "IEEE North Jersey Section" to Richard G. Estock, c/o EDP Consultants Inc., 77 Meredith Rd., Colonia, NJ 07067-3198. Include your name, address and telephone number.

Videoconference Playback

Playback of taped "POSIX" videoconference for those unable to attend the live, interactive session will take place the same day at 6:00 - 9:00 PM, Room M-207, Muscarelle Bldg., Fairleigh Dickinson University, Teaneck. For a copy of conference notes, follow instructions above.

**Time:** 12 noon - 3:00 PM, Thursday, April 22, 1993. (Playback 6-9 PM at location shown above.)

**Place:** Edward Williams College, Lecture Hall (FDU Hackensack Campus), 150 Kotte Place, Hackensack, N.J.  
**Directions:** Route 4 to Hackensack Ave. south, then 1st left onto Kotte Place.  
**Information:** Richard G. Estock (908) 388-5110.

NY-Consultants' Network:  
Future Trends—  
Internetworks

On March 17, 1993 the IEEE NY Consultants' Network will meet 6:00 PM at the Con Edison Company, 16th Floor Press Room, 14th Street and Irving Place, NYC. (On street parking after 6:00 PM.) The talk will be on "Future Trends In Managing Modern Internetworks." The speaker will be Mr. Chuck Wade, Director of Systems Architecture at Bolt, Beranek and Newman.

This presentation will cover the managing of the modern internetwork with its rapidly growing size and components from many different vendors. This has implications and presents opportunities for consultants.

Other future Spring meeting dates: April 15; May 17; and June 15, 1993.

For information call Jim Wetterau (212) 321-1999 or Hulan Jack (212) 206-3049.