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The IEEE

Newsletter

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

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

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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.

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the meeting, **reservations required** (RSVP below).

Time: 6:00 PM, Monday, March 13, 1989.
Place: Bellcore, 6 Corporate Place, Piscataway, N.J. (Lobby Area: Bldg.-A; map available on request).
Further Information/Dinner Reservations: Dr. Michael Liechenstein, Chairman SMC Society-NJ, (201) 471-0721.

PACE Meeting: PROFESSIONAL ACTIVITIES PLANNING MEETING

The North Jersey Section's Professional Activities Committee for Engineers will meet on Thursday, March 9, 1989. The purpose of the meeting is to provide Section members with an opportunity to meet with North Jersey Section and PACE officers to suggest and plan future meetings. A primary goal is to select topics of interest to our members, set a meeting date for each subject and select a speaker or expert to address the issues.

Obviously, if our meetings are to be of service to our members we need their input. This is a perfect opportunity to utilize IEEE funds and resources to better serve our members needs. We are open to suggestions and would like your participation.

All IEEE members and guests are encouraged to attend. Refreshments will be served

Time: 7:30 PM, Thursday, March 9, 1989.
Place: ITT Auditorium (next to the Tower), use rear door, 500 Washington Ave., Nutley, N.J.
Further Information: Richard Tax (201) 664-0803.

CHAIRMAN'S CORNER

Well, from the size of our Newsletters you can see that we have gotten off to a fast start this year. I'll try to inform you of some of the activities that go on behind the scenes.

First, attended a Region 1 meeting with Bob Sinusas and Richard Tax on January 21st at the Royce Hotel near La Guardia Air Port. Region 1 consists of 22 Sections in the Northeastern part of the U.S. I was pleased to learn that the Region 1 awards committee had selected two of our hardworking officers, Dr. Robert Sinusas, Junior Past Chairman, and George Graul, Vice Chairman 2, for recognition of their IEEE contributions with Region 1 awards. Both awards are very well deserved and will be presented formally at our Annual Awards Banquet.

While I'm on the banquet, I am also very pleased to announce thirteen of our Section members have been elected IEEE Fellows this past year. This is a tremendous accomplishment, not only by the elected recipients, but also by our volunteer awards committee and the other nominators that took the time to complete the extensive Fellow Award nomination process. Many thanks to the Awards Committee and other nominators. As usual, all of the newly elected Fellows will be our invited guests to the Annual Banquet for recognition of their respective contributions.

Thanks to Tom DeNigris, Student Activities Chairman, we helped sponsor two Student Professional Awareness Conferences (SPAC's) recently. The first, held at Fairleigh Dickinson University on January 31st, featured three speakers from FDU, AT&T, and Bell Labs respectively and had about 40 students in attendance. The second, held at NJIT on February 2nd, also featured three speakers and had about 80 students in attendance. Eugene Niemiec, one of the NJIT speakers, talking on "Engineering to Management" is one of our former Section Chairmen. Many thanks to Gene, Tom, the student chapters, and the student faculty advisors who made these SPAC's a big success!

On February 9th, Merrill Buckley, a petition candidate for President-Elect of the IEEE spoke to a small but very interested group of members at a PACE meeting set up by Richard Tax. Merrill Buckley stated his position on a number of issues including portable pensions, salary compression, and retraining. He also stated that, in his opinion, the approval voting method adopted by the IEEE board of directors was unfair. Merrill Buckley, who needs to get 2400 validated signatures on his petition for his name to be placed on the ballot, would make an excellent IEEE President that would be very forceful in those areas that would help the professional working engineer. I strongly urge your support to place Merrill Buckley's name on the ballot by the May 24th petition filing deadline. For petitions, contact me or Richard Tax.

The ELECTRO Show, April 11-13, will require some volunteer efforts from our Section to support the registration, transportation and other committees. Since we derive most of our Section funding from ELECTRO surplus, it is very much in our interest to see that ELECTRO is a big success. The Section will reimburse volunteers for most of their travel expenses. To volunteer, call George Graul at 798-4403 or our North Jersey ELECTRO Director, Frank Relotto, at 278-7759 (H) or 634-3460 (W).

Was informed by two of our standing committee chairmen that their phone numbers were incorrect in the last issue of the Newsletter. The correct numbers are:

PACE	Richard Tax	664-6954
Young Engineers	Sam Benzacar	881-1200

We also have nine hard working Chapter Chairmen who are listed below. If you have program suggestions or would like to serve on their committees, please contact them.

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Systems, Man, & Cybernetics	Dr. Michael Liechenstein	471-0721

HOWARD LEACH, Chairman

Ultrasonic Imaging Of Soft Tissues

On March 8, 1989, the Metropolitan Chapter of the Engineering in Medicine and Biology Society meeting will feature "An Overview Of Ultrasonic Imaging And Tissue Characterization." The speaker will be Dr. Steven Finette, Research Assistant Professor at the Department of Biomedical Engineering, Rutgers University, Piscataway, N.J.

About The Talk

Ultrasonic Imaging has the potential to measure several acoustically sensitive parameters of biological interest. A number of diseases alter the density, compressibility and attenuative properties of normal soft tissue, and ultrasonic waves propagating through the tissue contain a signature of these acoustical changes. In theory, deviations from normal tissue architecture can be detected in a non-invasive fashion, and a number of interesting approaches have been suggested to extract this information.

Dr. Finette will introduce the field of medical ultrasonic imaging and tissue characterization, and will outline several techniques that have been proposed to address the problem of extracting useful diagnostic information from these signals.

About The Speaker

Dr. Steven Finette (M'83) received the BS degree in physics from the State University of New York, Oneonta, in 1970, the MS degree in physics from the State University of New York, Binghamton in 1973 and the PhD degree in biophysics in 1979 from Syracuse University, Syracuse, N.Y.

From 1979 to 1980 he was a Senior Analyst at PAR Technology Corporation, Rome, N.Y. He joined the Department of Radiology at the University of Arizona, Tucson, in 1980 as a Research Associate, where his work involved applications of statistical pattern recognition to ultrasonic breast tumor classification. In 1982 he joined the Faculty of Biomedical Engineering at Rutgers University as an Assistant Professor, where his research interests have centered around bio-simulation.

Dr. Finette is a member of the American Association for the Advancement of Science.

Optional Pre-Lecture Get Together

There will be an informal pre-lecture get together 6:30 PM in the Tower cafeteria.

Time: 7:30 PM, Wednesday, March 8, 1989 (informal get together (optional) 6:30 in Tower cafeteria). Place: Rockefeller University, York Ave. at 66th St., Room 305, NYC. Further Information: Ben Caref (718) 270-1568; Vijay Kowtha (201) 932-4803; Joe Bogovic (212) 241-8032; Edna Feher (212) 757-0610.

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Neural Networks In Robotic Application

The first of a series of symposiums organized by the Long Island IEEE Artificial Intelligence and Intelligent Robotics Technical Committees will take place on April 21, 1989 featuring one of the most popular topics in recent months, "Neural Networks And Applications To Intelligent Robots." The first symposium will consist of six speakers from State University of New York, Stony Brook. The speakers will present their research work for advancing the state-of-the-art in neural network architecture (electronic and optical), computer vision, and self-replicating robotics for colonization of the Moon. This is of considerable interest to NASA. Specifically the papers are:

Neural network computer vision; Optical RCE neural networks; Gnat size neural network robots; Robot assembly by drive and reinforcement; Neural network robot miners; Manufacturing plan optimization for Lunar factory.

The symposium is free.

Time: 6:00-8:30 PM, Friday, April 21, 1989.

Place: Harry J. Schure Hall, NYInstitute of Technology, Old Westbury, LI.

Information: Robert Hong (516) 575-3634.

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Intersociety News

by
Dave Perry

CAREER MANAGEMENT FOR THE MATURE ENGINEER

This is the title for a one-day seminar being planned for the Spring of 1990. The conference is being sponsored by United Societies of Engineering and Science, Inc. of New Jersey (USES-NJ), a new umbrella society established to provide services to sections and chapters of professional societies in New Jersey with support from institutional and corporate members. The North Jersey Section is a member of USES-NJ.

The seminar is being planned to cover the career management area from the standpoint of the engineer/scientist as well as from the standpoint of the user of engineering/scientific manpower with a commitment to their staff.

Subjects being considered by the technical program committee are:

Skills Assessment. Self-evaluation programs that help the engineer/scientist learn which skills can be applied to other jobs in the marketplace combined with occupational outlooks in the labor market.

Matching Skills to Needs. Advanced data base processing tools that users of engineering/scientific manpower can apply to match personnel skills to job needs.

Job Security and Continuing Education. Proper selection of continuing education programs will help the engineer/scientist retain his position in the labor market.

Productivity and Continuing Education. Recent studies show that in-house continuing education programs result in significant increases in a company's productivity.

Translating Skills Between Industries. Very often an engineer/scientist can apply his skills in more than one industry. Development of a sales approach and an expanded vocabulary is helpful in breaking down barriers.

Maintaining Competitive Position Through Retraining. An example of a classic case arose on GE Utica, faced with the obsolescence of large numbers of engineers with analog training, found that a retraining program to bring the engineers into the world of digital design was less costly than layoffs and bringing in new hires.

Engineering/Scientific Opportunities in the World Market. The engineer/scientist need not limit the selling of his skills to clients within commuting distance.

Job Hunting. Your position has been or is about to be eliminated, you have been laid-off, your company has downsized or has become a victim of a leveraged buyout. You need some surefire methods for job hunting.

Starting Your Own Firm. How to get started. Things you have to do for your firm that you had done for you when you worked for that big company.

Exchanging Ideas With Providers of Continuing Education. Professional Societies, Corporations, Educational Institutions and Lecture Vendors are all competing in the continuing education marketplace. Wouldn't you like to tell them what you need.

The Death of VEST. Several years ago, the State of New Jersey supported a volunteer run employment service for the professions something like Forty Plus in New York. In a cost reduction program, it was eliminated. Should it be revived? Do we have full employment across the board?

PEER and SEER. Professional Engineering Employment Registry and Self-Employed Engineers Registry run for IEEE members and similar programs offered by other societies.

NEWS ROUNDUP

March 2 - At the ASME Engineers Week dinner, Congressman Robert Roe will be the guest speaker. Congressman Roe is Chairman of the Science, Space & Technology Committee.

IEEE members are invited to attend. For those who receive their copy of the newsletter in time, last minute reservations may be made by calling Iggy D'Agati at 386-2684 or Carl Kipp at 386-4704. The dinner will be held at the Sheraton Fairfield on the Eastbound side of Route 46, West of Passaic Avenue.

At the January 25th meeting of the National Society of Professional Engineers, Robert Pietrowsky of the New York District Corps of Engineers talked on the proposed Passaic River Flood Control Tunnel.

NEXT MONTH

Next month we will enclose a questionnaire to learn which subjects you would like to see included in the seminar.

IEEE North Jersey Section Calendar

March 8, 1989--"An Overview Of Ultrasonic Imaging And Tissue Characterization"--Metropolitan Chapter of the Engineering in Medicine and Biology Society, 7:30 PM, Rockefeller University, York Ave. at 66th St., Room 305, NYC. Ben Caref (718) 270-1568.

March 9--"PACE Meeting: Professional Activities Planning Meeting"--North Jersey Section PACE Committee, 7:30 PM, ITT Auditorium, 500 Washington Ave., Nutley, N.J. Richard Tax (201) 664-0803.

March 13--"Thought Modeling"--IEEE North Jersey Section, Systems, Man & Cybernetics Society, 6:00 PM, Bellcore, 6 Corporate Place, Piscataway, N.J. Dr. M. Liechenstein (201) 471-0721.

March 15--"Optoelectronic Seminar Series: Session II--Flat Panel Displays"--North Jersey Section IEEE & Graduate Student Association, NJIT, 3-6 PM, NJIT Theatre, Newark, N.J. Dr. Gerald Whitman (201) 596-3232/3512.

March 15--"Managing Innovation Through Internal Corporate Entrepreneurship"--NY/NJ Chapter of the Engineering Management Society, 7:00 PM, Stevens Institute of Technology, Stevens Center, Hoboken, N.J. **Reservations required for buffet.** Jay Gilbert (201) 420-5369.

March 15--"A Simple Neuron As A Method Of Principle Cluster"--North Jersey Joint Computers and Communications Society, 7:30 PM, ITT Aud., 500 Washington Ave., Nutley, N.J. Sven Sternung (201) 284-2111.

March 21--"Electric And Magnetic Field (EMF) Effects Of Electric Transmission Lines"--North Jersey Section, IEEE Power Engineering Society, 7:00 PM, Jersey Central Power & Light Co., Madison Ave. at Punch Bowl Rd., Morristown, N.J. Dennis Sobieski (201) 430-6698.

March 21--"Impact Of Non-Operating Periods On Part Failure Rates"--North Jersey Chapter, Reliability Society, 7:00 PM, ITT Aud., 500 Washington Ave., Nutley, N.J. S. Bogaenko (201) 386-5358.

March 21--"Engineering As A Profession: Expectations And Reality"--IEEE North Jersey Section, Young Engineers Committee, 7:30 PM, ITT Aud., 500 Washington Ave., N.J. Sam Benzacar (201) 881-1200.

March 23--"Computer Security"--IEEE North Jersey Section, Joint Computers and Communications Society, 8:00 PM, ITT Club House, 417 River Rd., Nutley, N.J. Elliot L. Gruenberg (201) 662-0751.

March 25--"Student Paper Contest"--METSAC, 10:00 AM, Port Authority Administration Bldg., La Guardia Airport, N.Y. Edward B. Farkas (718) 476-5018.

March 29--"Tutorial No. 5: 802.X Standards"--North Jersey Section Joint Computers and Communications Society, 8:00 PM, AT&T Bell Labs Auditorium, 600 Mountain Ave., Murray Hill, N.J. Sven Sternum (201) 284-2111.

April 11-13--"ELECTRO/89"--IEEE METSAC, See details in this newsletter for show, conference, tutorials and reservation information.

April 21--"Symposium:Neural Networks And Applications To Intelligent Robots"--LI IEEE Artificial Intelligence and Intelligent Robotics Technical Committee, 6:00-8:30 PM, Harry J. Schure Hall, NY Institute of Technology, Old Westbury, LI. Prof. Robert Hong (516) 575-3634.

April 26--"North Jersey Section Annual Banquet"--Chanticleer, Millburn, N.J. See Banquet reservation form in this Newsletter.

May 10--"First Annual Bioengineering Conference"--IEEE Engineering in Medicine and Biology New York/North New Jersey/Long Island Chapter, Rockefeller University, Tower Bldg., Room 305, NYC. Benjamin Caref (718) 270-1712.

PLEASE POST
Members and Non-Members Welcome



Perspectives On
The Engineering
Profession

The IEEE North Jersey Section Young Engineers Committee will meet on March 21, 1989 to hear a talk on "Engineering As A Profession: Expectations And Reality."The speaker will be Ms. Cecelia Jankowski of Grumman Corporation, Bethpage, N.Y.

About The Talk

Engineering is one of the most dynamic and challenging professions one can enter today. Young engineers are thrust into a fast paced industry with many questions and expectations about their jobs such as assignments, responsibilities and rewards, with very few answers and little guidance. The unexpected reality of the situation is often a shock. In addition to the technical aspects of the job, other factors may be introduced early in one's career, e.g., office politics, co-worker personalities, and timing. These can have a significant impact, both positive and negative.

This presentation provides the young engineer with insight into a number of these professional concerns. More important, it attempts to put such concerns into the proper perspective with respect to the technical challenges and robust nature of the electrical engineering environment.

About The Speaker

Cecelia Jankowski earned a BS in Electrical Engineering with Honors from the State University of New York at Stony Brook in 1981 and an MSEE from Polytechnical University in January 1985. She holds Engineer-in-Training certification in New York State. She has two patents and a patent pending for signal processing hardware and has written and presented a number of technical papers at national conferences of the IEEE, American Institute of Aeronautics and Astronautics (AIAA), and the Society of Women Engineers (SWE).

Ms. Jankowski is Technology Manager, Digital Processing and Applications at Grumman Corporation, Aircraft Systems Division, Bethpage, N.Y. Since starting with Grumman in 1981, she has focused on the application and integration of CAE/CAD into aerospace and avionics/systems design and analysis, and the development of digital signal processing hardware for future weapons systems applications.

Ms. Jankowski is a member of SWE and is active in IEEE and AIAA. In AIAA she currently is Treasurer of the Long Island Section and has been appointed to the national Computer Systems Technical Committee. Previously, she was on the Long Island Section Council and Chairman of the Young Members committee. In IEEE she is a member of

the Student Professional Awareness Committee and Chairman of Student Activities for the Long Island Section. In 1985, Cecelia received Honorable Mention as Outstanding Young Electrical Engineer from Eta Kappa Nu and the Grumman Engineering Award for Technical Excellence. In 1988 she was presented with the first AIAA National Computer-Aided Engineering and Manufacturing Award.

All Welcome

Members and guests are invited. A free buffet will be provided an hour prior to the scheduled talk.

Time: 7:30 PM, Tuesday, March 21, 1989. (Buffet starts at 6:30 PM.)
Place: ITT Auditorium, 500 Washington Avenue, Nutley, N.J.
Further Information/Reservation: Sam Benzacar (201) 881-1200; Tom DeNigris (201) 575-1300; Maitland McLarin (201) 335-6847.

Part Failure Rates
In Dormant Periods

The North Jersey Chapter of the Reliability Society will meet on March 21, 1989 to hear a talk on "Impact Of Non-Operating Periods On Part Failure Rates." The speaker will be H.A. Lauffenburger, Director of Research with IITRI, New Jersey Technology Center, Mt. Arlington, N.J.

Mr. Lauffenburger will discuss the effects of electronics in a dormant state for extended time periods.

Free Buffet

A free buffet will be provided starting at 6:00 PM, on a first-come-first-served basis.

Time: 7:00 PM, Tuesday, March 21, 1989. (Buffet starting at 6:00 PM.)
Place: ITT Auditorium, 500 Washington Avenue, Nutley, N.J.
Further Information: Sergei Bogaenko (201) 386-5358.

Neuron As A Cluster
Analysis Model

On March 15, 1989 the North Jersey Joint Computers and Communications Society will meet to hear a talk on "A Simple Neuron As A Method Of Principle Cluster." The speaker will be Dr. Mohamed L. Hambaba, from Stevens Institute of Technology.

About The Talk

A new approach will be discussed to unsupervised learning in a single-layer linear neural network. An optimality is proposed which is based upon preserving maximal information in the outputs. The learning algorithm is based on Hebbian

learning rule and a cluster analysis model is proposed based on the unsupervised learning rule. The relationships of this model are similar to the relationships of the principal components model. An architecture of neural network is developed for the construction of principal clusters and compactness of the simple neuron feature detector is proved. Associating with each cluster the part of the variance of the initial data explained by this cluster, there is no need to set the number of clusters in advance.

About The Speaker

Dr. Mohamed L. Hambaba is presently assistant professor at Stevens Institute of Technology, Hoboken, N.J. He is currently working on Neural Networks, Robust Statistical Signal Processing and Image Processing. Dr. Hambaba received his BE degree (1983), from INELEC, Boumerdes, Algeria, and received his MSEE (1985), MS Mathematics and PhD.EE (1988), from Stevens Institute of Technology. He is a member of IEEE and National Academy of Sciences.

Time: 7:30 PM, Wednesday, March 15, 1989.
Place: ITT Auditorium, 500 Washington Ave., Nutley, N.J.
Further Information: Sven Sternung (201) 284-2111; Dr. M.L. Hambaba (201) 420-5614.

EMF Effects Of
Power Lines

The March 21, 1989 meeting of the North Jersey Section, IEEE Power Engineering Society will feature a presentation on the "Electric And Magnetic Field (EMF) Effects Of Electric Transmission Lines." The speaker will be Mr. Rick Loughery of the Edison Electric Institute.

Concern for the biological effects of EMF exposure in the vicinity of power transmission lines has become an emerging issue for those who design or operate these facilities. The absence of a conclusive scientific basis for such concern has not slowed the growth of regulations and lawsuits related to EMF exposure.

Mr. Loughery, Issues Manager for the Edison Electric Institute, will update the audience on the present status of research, state regulations and lawsuits related to EMF exposure and transmission line design.

All Welcome

Admission is free, and all are welcome.

Time: 7:00 PM, Tuesday, March 21, 1989.
Place: Jersey Central Power & Light Co., Madison Avenue at Punchbowl Road, Morristown, N.J.
Further Information: Dennis Sobieski (201) 430-6698.

— how to make it work for them.

With extensive materials and a nuts-and-bolts orientation, two leading experts in the federal SBIR program will examine in detail: • background and structure of the program • common features and differences between the agencies • factors in program administration • relationship to the larger R&D effort • project design and proposal development • evaluation procedures and criteria • pricing the project • issues in ownership and protection • completing the process • the SBIR leveraging factor. Program objectives and achievements in the Air Force SBIR program (est. \$80M allocation in FY 89) will be given particular emphasis.

The speaker for this tutorial will include:

Ms. Ann Eskesen, President of Innovation Development Institute, Swampscott, MA. She is also Managing Editor of *InKnowVation*, a nationally distributed newsletter which has become for many the leading source of current information on effective use of the federal SBIR program. Ms. Eskesen was extensively involved in the passage and subsequent implementation of the SBIR enabling legislation. She has testified before the U.S. Congress on several occasions and in 1986 orchestrated the successful reauthorization of the SBIR program to 1993.

Mr. James R. Meeker, Director of New Concepts and Initiatives, Deputy Chief of Staff, Technology and Requirements Planning, Headquarters Air Force Systems Command, Andrews AFB, MD. As such, he has overall responsibility for the Air Force SBIR Program, the IRE&D Program and initiation of innovative advanced development programs.

9:00 am to 12:30 pm, Thursday, April 13
HIGH DEFINITION TELEVISION

This tutorial will examine the strategies and tradeoffs of High Definition Television. It will include a detailed analysis of the three dimensional (horizontal, vertical and temporal) television spectrum. The consequences of vertical and temporal sampling and the nature of the artifacts and aliasing they introduce will be examined. Properties of the human visual system which can be exploited for bandwidth reduction will be explained, such as, diagonal resolution limitation, etc.

The presenters for this tutorial will include:

Mr. Jack Fuhrer, Director of Television Research, David Sarnoff Research Center. Mr. Fuhrer has received an award for his development of a CCD comb filter IC for color television. He is the holder of twelve patents for the new Advanced Compatible Television system.

Mr. John G.N. Henderson, Head of Systems Technology Research, David Sarnoff Research Center. Mr. Henderson is the holder of fourteen patents and has received four Achievement Awards.

Dr. Michael A. Isnardi. Dr. Isnardi is presently the Principal Investigator at the David Sarnoff Research Center for the Advanced Compatible Television System.

1:00 pm to 4:30 pm, Thursday, April 13
TRANSFER IMPEDANCE METHOD OF MEASURING THE
QUALITY OF EMI GASKETED JOINTS AND SUBSEQUENT
SHIELDING EFFECTIVENESS OF THE JOINT

The presence of Electromagnetic Interference (EMI) can cause catastrophic results in todays electronics. As an example, EMI can cause the pilot of one of the new fly-by-wire aircraft to lose control of the aircraft. As a result, the threat associated with EMI is becoming severe. Transfer impedance is a new test method being used by segments of the electronic industry to better understand the variables associated with protecting electronic equipment from radiated EMI.

The presentation examines transfer impedance testing from its theory to practice. Anomalies associated with transfer impedance testing as well as shielding effectiveness testing is thoroughly examined and documented. Variables associated with the selection and use of EMI gaskets and the joint surfaces is examined for shielding quality and reliability. The presentation will also correlate transfer impedance test results with shielding effectiveness of a gasketed cover. The difference between the shielding effectiveness of a cover as a function of a lightning strike and a wave striking a cover is documented and explained in detail. This includes examples of currents and voltage waveforms coupled to circuits as a function of the currents induced onto the shielded covers. Since the current and voltage waveforms coupled to the circuits is a function of wire treatment, a number

of variables associated with wire treatment will be investigated and documented.

The speaker for this tutorial will be Mr. George Kunkel.

Mr. Kunkel has worked as an engineer in Electromagnetic Effects (EMI, TEMPEST, EMP, Lightning, and RADAZ) design for 30 years, 15 years has been as an engineering consultant. He is presently President and Chief Executive Officer of Spira Manufacturing Corporation.

He is a Senior member of the IEEE, is past Chairman of the Technical Committee on Interference Control for the EMC Society of the IEEE, and has published numerous papers on grounding, bonding, shielding and filtering.

He holds numerous U.S. patents and is listed in Marquis Publications' *Who's Who in Finance and Industry* and *Who's Who in the World*.

1:00 pm to 4:30 pm, Thursday, April 13
NEURAL NETWORKS — MODELS AND
HARDWARE IMPLEMENTATIONS

Neural network models are receiving widespread attention as new computing architectures for applications such as pattern recognition and machine learning. To obtain the full benefit of these models, special-purpose hardware must be built. Since simulations of the highly interconnected neural networks on standard computers are very time-consuming and are far too slow to be considered useful. The main difference between the various circuits is the complexity of their interconnections. They vary from simple fixed-value resistors to processors that update their value automatically. Complexity has to be traded off against the number of interconnections that can be put on a chip. Micro electronic chips built so far contain between a few dozen and a few thousand interconnections.

This tutorial will cover:

- Introduction — how Neural Networks work
- "Adaptation: and Learning from Examples"
- Applications to real-world problems
- Neural Network custom VLSI chips
- Limitations of Neural Networks

Attendees will receive a copy of the textbook *Neural Information Processing Systems*, edited by Dana Anderson, published by AIP, New York, 1988, worth \$77.50.

The speakers for this session are:

Dr. John S. Denker, a member of the technical staff at AT&T Bell Laboratories. His current work is centered on combining ideas from biology, physics and computer science in order to devise new types of information processing systems. He is the author of over 20 technical papers and the editor of the book *Neural Networks for Computing*.

Dr. Hans Peter Graf, a member of the technical staff at AT&T Bell Laboratories, who is conducting research on collective computing systems. He is the designer of several micro chips which implement neural network models.

Electro/89 Tutorials Registration		
Advance Registration Fees	IEEE/ ERA	Non- Member
Legal Challenges	\$ 75	\$130
Superconductors	\$135	\$190
Intellectual Property	\$ 90	\$145
Fiber Optic Communications	\$165	\$220
Funding Technology Development	\$105	\$160
High Definition Television	\$120	\$175
Transfer Impedance Method of	\$150	\$205
Neural Networks	\$180	\$235
ADD \$50 MORE TO EACH REGISTRATION FOR THOSE NOT RECEIVED BY MARCH 27, 1989.		
PLEASE CIRCLE YOUR TUTORIAL SELECTION.		
One registration per coupon please, xerox copies of coupon acceptable.		
Name_____		
Company_____		
Address_____		

Telephone_____		
Enclosed is a check for \$_____ for the tutorial indicated, payable to Electro/89, 8110 Airport Boulevard, Los Angeles, CA 90045. Registration will not be accepted without payment.		

Eight Half Day Tutorials Scheduled for Electro/89

The IEEE Metropolitan Sections Activities Council (METSAC) and Electro/89 will be co-sponsoring eight special-fee, one half day tutorials during Electro in the Marriott Marquis Ballrooms in New York City.

Registration for these tutorials must be accomplished with the coupon on the facing page. Included in each tutorial fee are course materials and registration to Electro. Since seating is limited, early sign-up is encouraged.

9:00 am to 12:30 pm, Tuesday, April 11 SUPERCONDUCTORS IN INSTRUMENTATION AND STANDARDS

We will start with an introduction to the basic principles of superconductivity and a discussion of the engineering characteristics of superconductors. The existing applications to electronics and instrumentation will be reviewed. Progress with the new high temperature superconductors will also be discussed and set in the context of what we have learned from experience with practical devices working at lower temperature.

This tutorial will be presented by Dr. Robert A. Kamper. Dr. Kamper, a native of Surbiton, England, received the BA, MA, and PhD degrees in Physics from the University of Oxford. He has authored more than forty publications dealing with electron spin resonance, superconductivity, superconducting devices and electromagnetic measurements. He is presently the Chief of the Electromagnetic Technology Division and Director of the National Bureau of Standards Boulder Laboratories.

1:00 to 4:30 pm, Tuesday, April 11 LEGAL CHALLENGES TO MANAGING IN THE WORKPLACE

The tutorial will highlight specific issues which have been faced by engineering managers including: successful intervention strategies for responding to employee complaints about sexual harassment; understanding medical issues which arise in the workplace such as sickness, pregnancy, childbearing and disability leaves; and the important legal considerations regarding performance appraisals, employee disciplinary procedures and separation processes. There will be a brief overview of the federal and state employment laws including race, sex, age and handicap discrimination, labor laws, employee privacy and wrongful discharge.

This is a hands-on workshop featuring individual and group case studies and exercises designed to develop practical methods for anticipating, preventing and dealing with issues which may arise.

Prior to the Electro Convention, participants in this tutorial are welcome to submit specific questions or issues they would like covered. Please submit your questions with your registration application.

This tutorial will be conducted by Susan W. Brecher, Esq., Director of Labor Relations at Cornell University's School of Industrial and Labor Relations in New York City. Ms. Brecher is a specialist in employment law matters, with an emphasis on Equal Opportunity Law. She has also served as in-house employment relations council at the American Broadcasting Company and the National Broadcasting Company.

9:00 am to 12:30 pm, Wednesday, April 12 INTELLECTUAL PROPERTY FOR ENGINEERS AND MANAGERS

The first two segments of this tutorial will focus on what ideas can be patented, how such patents can be obtained and strategies for best identifying and exploiting the technical and financial advantages of patents (Patentability - Breakthrough Sciences vs. Patentable Invention, Patent Strategy, Licensing Strategy).

The third segment of this tutorial will focus on inventors' rights and obligations. Most inventors are employed by organizations conducting research and development. Such inventors have specific rights and obligation in connection with their creative work. The following topics will be discussed: Scope and content of employment agreements, Right to

compete with a former employer, Enforcement, and Recommendations for avoiding litigation.

The organizer for this tutorial is Mr. John P. DeLuca, an associate in the law firm of Robbins & Laramie. Mr. DeLuca, who began his career as an electrical engineer, has had extensive experience in patent, trademark and copyright law as it applies to the areas of control systems, radar, optical fibers and aerospace technology.

Additional speakers include:

Mr. James R. Myers, a partner and head of the litigation group in the law firm of Robbins & Laramie. He represents both plaintiffs and defendants in litigation involving patent, trademark, antitrust, unfair competition and commercial issues.

Mr. Lawrence S. Pope, an associate in the law firm of Robbins & Laramie. Mr. Pope has been involved in the field of intellectual property for seventeen years and has been involved in all phases of obtaining licensing and enforcing patents.

1:00 to 4:30 pm, Wednesday, April 12 FIBER-OPTIC COMMUNICATIONS

Fiber-optic lightwave communication systems have evolved through four generations of direct-detection configurations. As their use expands, both over land and under sea, we must stand ready to consider the potential benefits of a fifth generation. Although it too would make use of single-mode optical fibers, it would rely on coherent (heterodyne) detection rather than on direct detection.

In this tutorial, we will examine the components of a typical lightwave system comprising a semiconductor light source, an optical fiber, and a semiconductor photodetector. The elements of modulation, multiplexing, and photonic switching will be considered and the performance of a simple binary digital optical communication system will be calculated. Incorporating the effects of receiver noise will permit us to determine the sensitivity of the system. Finally, the principles of coherent detection will be discussed and the tradeoffs with direct-detection systems delineated.

Hand-outs for this tutorial will include Chapter 22 of the forthcoming book *Fundamentals of Photonics*, by B.E.A. Saleh of the University of Wisconsin and M.C. Teich of Columbia University.

The speaker for this tutorial will be Prof. Malvin C. Teich of the Center for Telecommunications Research at Columbia University. Prof. Teich is presently pursuing research in the areas of quantum optics, photonics, optical and infrared detection, and sensory perception.

1:00 to 4:30 pm, Wednesday, April 12 FUNDING TECHNOLOGY DEVELOPMENT IN SMALL FIRMS: EFFECTIVE USE OF THE FEDERAL SBIR PROGRAM

Since 1893, over 10,000 new product/new process technology development projects involving more than 3000 small firms have received awards totalling almost \$1 billion under the federal Small Business Innovation Research program (SBIR).

By law, all federal agencies with an extramural R&D budget in excess of \$100M must commit 1.25 percent of that budget to their SBIR program. With the program authorized to continue until 1993, there are currently eleven (11) agencies involved calculating to a total annual SBIR commitment of \$350-\$400M.

To do well, qualified and competent small firms must know both — how the program works and

Tutorial No. 5 On 802.X Standards

The North Jersey Joint Computers and Communications Society Tutorial #5 will be on March 29, 1989 and the topic will be "IEEE 802.X Standards." The speaker will be Stephen G. Scanlon, Hewlett-Packard Company.

About The Seminar

The concepts of a Local Area Network will provide a basis for the discussion of the IEEE 802 Standards. Discussion will then focus on comparison of the different 802 standards in terms of bus topologies, media access, data rates, geographic distribution and various transmission media. The format of rates, geographic distribution and various transmission media. The format of the presentation will be lecture in conjunction with 35mm slides followed by an open discussion session. Previous knowledge of the OSI model for networking would be helpful but is not necessary for understanding the material presented.

About The Speaker

Stephen G. Scanlon is Systems Engineer, Electronic Instruments, with Hewlett-Packard Company. Mr. Scanlon graduated with a BS from Trenton State College in 1978. He has worked in various

areas within the telecommunications industry ranging from microwave communications equipment through Metropolitan Area Networks. Currently working as a systems engineer for Hewlett Packard, Mr. Scanlon is responsible for supporting customer datacommunications and telecommunications applications from end user maintainance of networks and networking equipment to R&D endeavors pushing the state-of-the-art.

Time: 8:00 PM, Wednesday, March 29, 1989.

Place: AT&T Bell Labs Auditorium, 600 Mountain Ave., Murray Hill, N.J.

Further Information:

Sven Sternung (201) 284-2111;
Stephen G. Scanlon (201) 562-6165.

The North Jersey Section Executive Committee meets the first Wednesday (except holidays and December) of each month at 7 PM. These meetings (held at ITT, 500 Washington Ave., Nutley, N.J.) are open to all members. Information on each meeting agenda is available from Richard Snyder, Section Secretary at (201) 492-1207.

Elected Section Officers are listed on Page 1.

Student Paper Contest

**Deadline to enter - March 17, 1989
Papers due no later than March 25, 1989**

If you are an IEEE Student Member in New York, Long Island, Westchester, North Jersey or Princeton, an area contest is scheduled for 10:00 AM, March 25, 1989 in the Port Authority Administration Building at La Guardia Airport.

Each college can send two papers for each category. Papers may be prepared by one or more student members. One category is for lower classmen such as Associate Programs and an upper class category for Juniors or Seniors.

There will be four upper class papers and two lower class paper winners. The winners will receive official IEEE certificates and an all expense paid weekend at West Point for the Region 1 Contest and Student Conference on April 7th and 8th, 1989.

For more detailed information, and to ensure your entrance call Edward B. Farkas of the Port Authority of New York & New Jersey at (718) 476-5018 no later than March 17, 1989. Papers are due no later than March 25, 1989. This year's Paper Contest will be co-sponsored by the New York Society on the Social Implications of Technology Chapter.

Student Assistance Scholarships

The IEEE North Jersey Section will award engineering scholarships to successful candidates for the fourth consecutive year. The \$1,000 grants will be announced by early May.

The Scholarships are granted to students attending FDU, NJIT and Stevens Institute who are entering their Junior or Senior years, and are active in their IEEE student chapter. These institutions have available two scholarships each. In addition, the Junior Colleges in North Jersey Section: County College of Morris, Union County College and Hudson County Community College, also have one scholarship available for students matriculating at FDU, NJIT or Stevens Institute. Scholarship, level of activity in the Student Chapter and ability to communicate will constitute the major areas of competition for the scholarships. All IEEE student members have been notified by direct mail of the competition. Should you know of someone who meets the requirements, have the student send for an application by writing:

Student Assistance Committee
299 Brooklake Road
Florham Park, N.J. 07932.

Since applications have to be in by the middle of March, it is important for the student to receive an application as soon as possible.

A One-Day Workshop

**PERFORMING EMP TESTS
PER
MIL-STD-461C AND MIL-STD-462**

**Lectures and
Hands-On Operation
of Test Equipment**

Conducted by

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Tuesday, April 4, 1989
Philadelphia Airport Marriott

**Contact:
Maxwell Laboratories, Inc.
(619) 576-7541**

**Ask for the
EMP Testing Workshop
Brochure**

On March 23, 1989 the North Jersey Joint Computers and Communications Society will meet to hear a talk on "Computer Security." The speaker will be Dr. Roy S. Freedman of the Polytechnic University. This meeting replaces one planned on March 22nd entitled "Cryptography" and will broaden the subject to include the whole field of computer security.

Several recent incidents have highlighted the need for increased vigilance in protecting our computers and databases. Is the Arpanet crash an isolated event, or is it an example of a trend in computer and database vandalism? Is it always true that improved computer access, interoperability, and useability make computers more vulnerable to computer abuses?

Dr. Roy S. Freedman will address some of these issues. He will also discuss how some recent work in cryptographis systems may thwart computer virus attacks, and how computer surveillance should be used to assess the "health" of an installation.

Dr. Freedman is an Associate Professor of Computer Science at Polytechnic University, where he obtained his PhD. He has been a consultant to a number of financial service organizations concerned with computer security and is developing a knowledge based surveillance system for the New York Stock Exchange.

Time: 8:00 PM, Thursday, March 23, 1989.
Place: ITT Club House, 417 River Road, Nutley, N.J.
Further Information: Elliot L. Gruenberg (201) 662-0751.

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DEADLINE: March 13, 1989

On May 10, 1989, the First Annual Bioengineering Conference sponsored by the IEEE Engineering in Medicine and Biology New York/Northern New Jersey/Long Island Chapter, will take place at the Rockefeller University, Tower Building, Room 305, NYC. Authors are invited to submit abstracts for presentation. The NYC EMBS Conference hopes to promote regional cooperation and communication in biomedical engineering and computing through the exchange of technical information. Student submissions especially welcome.

SUBMISSION:

A 250 word abstract should be submitted to the chairman on a plain 8.5" x 11" sheet of paper. Abstracts should be typed single spaced using 12 pitch type. **Do not exceed 250 words.** The author's name and address must clearly appear at the top of the abstract form.

Additional Information:

Benjamin Caref, Chairman, SUNY Health Science Center, Box 1199, 450 Clarkson Avenue, Brooklyn, N.Y. 11203 (718) 270-1712;
Raphael Henkin, Chairman, Program Comm., Brooklyn VA Medical Center, Dept. Cardiology, 800 Poly Place, Brooklyn, N.Y. 11209 (718) 630-3734;
V.J. Kowtha, Vice Chairman, Rutgers University, Dept. Bioengineering, Box 909, Piscataway, N.J. 08855 (201) 878-1889.

The North Jersey Section of the IEEE is making desk nameplates available to all our members. These attractive engraved nameplates have an IEEE logo and your name (up to 15 characters) on a 2 inch by 8 inch blue background and are mounted in a gold colored base. The cost of each nameplate is \$10.60 including N.J. sales tax.

Nameplates for names to 21 characters are available. These are 10 inches long and cost \$12.72 including tax.

Fill out the form below or a copy of it and send it with a check payable to: **"North Jersey Section, IEEE."** Mail to the address below.

You can pick up your nameplate at the Executive Committee meeting or at one of the Society meetings.

Remember, the nameplate may have up to 15 to 21 characters including punctuations and spaces. Please type or print your name as you would like it to appear on the nameplate.

If you have any questions, call (201) 461-0900 during working hours or (201) 797-4366 in the evening.

To: Don Weinstein, 30-18 Grunstra Place, Fair Lawn, N.J. 07410

Text for Nameplate

Name _____

Address _____

Phone _____ Membership Number _____

☐ Enclosed is \$10.60 ☐ Enclosed is \$12.72

Date: April 26, 1989

Time: 7 PM—RECEPTION
8 PM—DINNER

Place: CHANTICLER, Millburn
376-2222

Banquet Menu

Reception - 7:00 PM

Tart Shells Portuguese
Stuffed Mushrooms Graham
Broiled Chicken Livers Monticello
Aubergine Supreme
Pastries Hors d'Oeuvres Assorte
Contonese Egg Rolls - Sauce Anglaise
Frankfurter Puffs
Veal Souffles a la Oscar
Danish Liver and Potato Souffles
Quiche Lorraine
Shrimps Soto Mayer - Sauce Romanoff
Miniature Pizzas
Baked Clams Crosettie
Clams on Half Shell
Oysters on Half Shell
Veal Scallopini a la Tiberius
Chicken Hawaiian
Petite Stuffed Cabbage - Hungarian Style
Baked Stuffed Shells - Sauce Marinara
Rice Pilaf
Fresh Chinese Vegetables
Chinese Style Rice
Baked Cured Sugar Ham
Petite Party Breads
Unlimited Cocktails
Wine and Beer

Dinner - 8:00 PM

Salad Valencia
Shredded Gorgonzola Cheese Passed
Imported Flat Breads
Chateaubriand
Broccoli Italienne
Glazed Belgian Carrots
Old Fashioned Potatoes
Petite Dinner Rolls/Butter
Coffee/Cream
Chocolate Mousse
(Liquor during and after dinner - individual responsibility).

**A time to relax, unwind and enjoy —
A time to pay tribute to our New Fellows —
A time to honor our new Senior Members —
YES it's time for the Annual Section Banquet**

Following the enthusiastic response of those who attended the Banquet the past eleven years, we are returning to the Chanticleer in Millburn. The affair is scheduled for Wednesday evening, April 26, 1989. Each ticket is \$35.00 and includes a complete prepaid Cocktail Hour preceding dinner. Spouses and guests are welcome.

Reservations required by April 15, 1989. Complete the reservation form below and return it with your payment. If any additional information is required concerning the Banquet, contact Ray Sears at 386-2259.

Inquire about corporate tables.

Use this form for Banquet reservations enclosing a stamped self-addressed envelope. Reservations required by April 15, 1989. Mail reservation request to:

Ray Sears
13 Garabrant Street
Mendham, NJ 07945

Enclosed is _____ Please forward _____ tickets at \$35.00 each (make checks payable to **North Jersey Section IEEE**) to:

Name: _____

Address: _____

Zip _____

I would like to share a table (seating _____) with the following:

the majority of the million-plus engineers in the U.S. who work as technical contributors, as well as those on paths to management or sales. (UHO176-8) Members \$20. Non-members: \$25. "Careers" offer: Records of all four previous IEEE Careers Conferences. (UHO165-1) Members: \$30. Non-members \$40.

Professional Guideline Series—

These informative booklets, each on a single topic, focus on issues of concern to the professional practice of engineering. Each discusses issues and problems, explains current laws, regulations or practices, where applicable, and tells what members may do to help solve problems in the local, state or national levels.

Professional Guidelines—(UHO169-3) All six booklets, Members: \$13.50. Non-members: \$18. (May be purchased separately, Members: \$3 each. Non-members: \$4 each.) Includes the following:

How to Evaluate Your Pension Plan—Describes the most popular kinds of corporate pension plans and how they work. Tells how to make a general evaluation of your plan and its benefits. (UHO161-0) Members \$3. Non-members \$4.

Foreign Engineers in the United States: Immigration or Importation?—Discusses current immigrant law, labor certification requirements and the potential for their misuse. Tells what members may do locally to help correct abuses. (UHO164-4) Members: \$3. Non-members \$4.

Employed Engineers: Who Owns Their Inventions?—Explains a number of pre-employment patent agreements and what they mean to the employed inventor. Detailed guidance on assignment of rights, forms of reward, confidentiality of employer information, disclosure of prior inventions, and a sample agreement. (UHO147-9) Members: \$3. Non-members \$4.

Age Discrimination in Employment: Crucial Decisions Affecting Careers—Explains key provisions of the Age Discrimination in Employment Act, recent amendments and judicial interpretations. Tells what steps can be taken by employed professionals to protect their right to be free of age discrimination in the workplace, including how to recognize discriminatory practice, how to file charges, and what the courts require. (UHO153-7) Members: \$3. Non-members \$4.

The IEEE Role in Engineering Ethics—The IEEE Code of Ethics and procedures for enforcement, including IEEE support for members placed in jeopardy for adhering to the Code, and discipline of members for Code violations. Includes two case studies of IEEE involvement. (UHO149-5) Members: \$3. Non-members \$4.

Your Rights as a Service Contract Employee—Describes wage busting and wage erosion, and tells what action may be taken under current laws and regulations (UHO-146-1) Members \$3. Non-members \$4.

IEEE Code of Ethics

Two-color print on parchment paper, suitable for framing (12" x 16"), of the IEEE Code of Ethics for members. (UHO123-0) Members: \$2. Non-members: \$2.75. Order one or several for use as gifts or service awards.

Reproduction of the IEEE Washington Office Mural

Two-color print suitable for framing (11" x 14") of the twelve portraits included in the Washington Office mural: Faraday, Morse, Babbage, Kelvin, Maxwell, Edison, Bell, Tesla, Steinmetz, DeForest, Marcono, von Neumann. Commemorating engineering discovery and invention, a tribute to the technical excellence of leading figures in the development of electro-science and technology. (UHO141-2) Members: \$2.50, Non-members: \$3.50. Order one or several for use as gifts or service awards.

Professional Practices for Engineers, Scientists, and Their Employers

The IEEE United States Activities Board position statement covers critical employment practices not included in the earlier *Guidelines to Professional Employment for Engineers and*

Scientists. Complimentary copies (single or quantity) are available from the IEEE Washington Office, 1111 19th St., N.W., Washington, DC 20036.

Members' Professional Needs

An IEEE Position Paper developed by the United States Activities Board and approved by the IEEE Board of Directors, the statement outlines six individual professional needs in maintaining engineers' careers. This Position serves to guide IEEE programs that implement the Institute's professional purpose. Complimentary copies in booklet form (single or quantity) are available from the IEEE Washington Office, 1111 19th St., N.W., Washington, DC 20036.

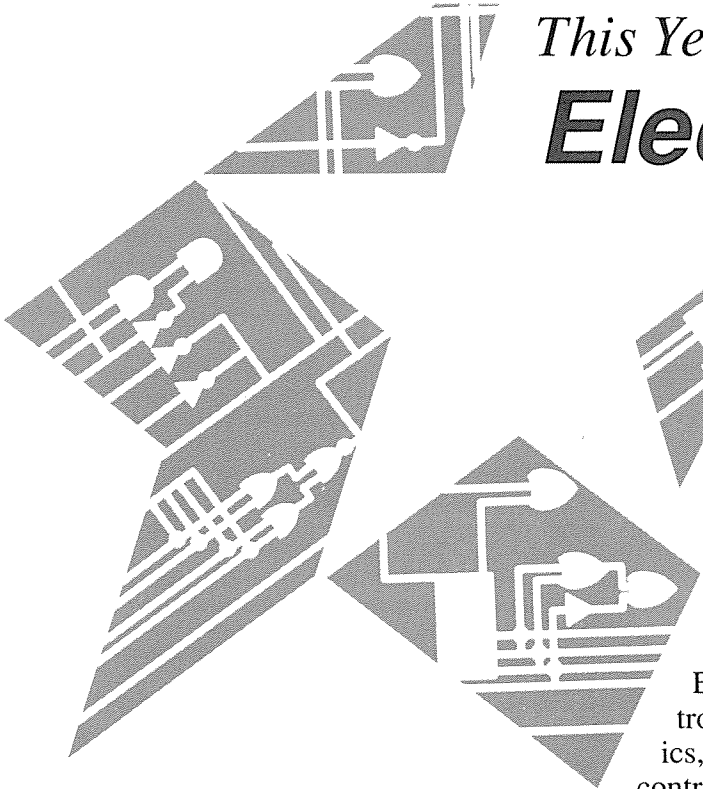
CALL (201) 981-1393 TO ORDER.

PACE Committee Meets Monthly

The PACE Committee meets on the second Thursday of every month at the ITT Auditorium, 500 Washington Avenue, Nutley, N.J. (near the the ITT Tower) at 7:30 PM. Our Section Executive Committee meets there on the first Wednesday of every month (except in December) at 7:00 PM. Any questions or comments will be well received. Contact Richard Tax at (201) 664-0803 (after 7:00 PM) or write to R. Tax, 630 Montview Place, River Vale, N.J. 07675.

Joint Computer/Communications Society Chapter Session Dates SPRING 1989

Mar. 22	Cryptography	THIS SESSION CANCELLED	
Mar. 23	Computer Security and Viruses	ITT Nutley	Elliot Gruenberg (201) 662-0751
Mar. 29	Protocol Tutorial #5	AT&T-BTL	Sven Sternung
	IEEE 802.x (Tent.)	Murray Hill	(201) 284-2111
Apr. 19	Point/Point Microwave	ITT Nutley	George Parowski (212) 884-6040
Apr. 26	Operating System Standards (UNIX)	AT&T-BTL Murray Hill	George Pick (201) 884-6040
May 24	MUMPS - A popular language used by hospitals and some businesses	TBD	Dave Perry (201) 325-8415
May 24	Wiring	ITT Nutley	Jim Morgan (201) 766-0969
May 31	Operating System Standards for PC's	AT&T-BTL Murray Hill	Har Dyal (201) 785-7561
June 21	Newark Airport Communications	Airport	Dave Perry (201) 325-8415



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Entrepreneurial Management

The New York/North Jersey Chapter of the Engineering Management Society will hold a March 15, 1989 meeting on "Managing Innovation Through Internal Corporate Entrepreneurship." The speaker will be Richard G. Donnelly, PhD of the George Washington University.

About The Talk

The talk will show how large, formally-managed corporations typically must struggle to encourage an entrepreneurial approach to development of new business--how natural tendencies of established organizations run counter in many respects to the strategies and practices employed by highly successful small businesses. The talk will also address the question of whether large corporations can do better, in the context of new technology-based business.

About The Speaker

Dr. Donnelly is director of the Program on the Management of Science, Technology and Innovation in the School of Government and Business Administration, the George Washington University, Washington, D.C. He consults and leads training in both the private and Federal sectors, specializing in effectiveness in technology development, organization for innovation, and the commercialization of technology.

Buffet Reservations

A buffet priced at \$5.00 will precede the meeting starting at 6 PM. Reservations for the buffet are requested by Friday, March 10, 1989.

All Welcome

All Engineering Management Society members and non-members are welcome.

Time: 7:00 PM, Wednesday, March 15, 1989. (Buffet starts at 6:00 PM.) Place: Stevens Institute of Technology, 4th Floor, Stevens Center, Hoboken, N.J. Information/Reservations: Jay Gilbert (201) 420-5369.

Engineering Management Society Announces Meeting Dates

The NY/NJ Chapter of the Engineering Management Society announces the following schedule of meetings for 1989:

May 10 - Dr. William Wells - "Technology Management." September 18 - Dr. Jerry Siegel - "Motivating The Engineer." November 15 - Dr. Michael Frisch - "Leadership in Management."

For information call: Jay Gilbert (201) 420-5369.

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The New Jersey Institute of Technology OPTOELECTRONIC SEMINAR SERIES

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II. FLAT PANEL DISPLAYS

March 15, 1989, Wednesday 3-6 PM, Theater

Gas Discharge Displays	George Dick AT&T Bell Laboratories
Electroluminescent Displays	Elliot Schlam, Sigmatron Nova
Liquid Crystal Displays	Arthur Firester David Sarnoff Res. Ctr.

III. COMPONENTS FOR OPTICAL SYSTEMS

April 12, 1989, Wednesday 3-6 PM, Ballroom in Hazell Center

New Semiconductor Laser Structures	Eli Kapon Bellcore
Noise, Distortions and Other Bad Things That Impair Performance of Lightwave Systems	Thomas Darcie AT&T Bell Laboratories
Photonic Switching Systems	H. Scott Hinton AT&T Bell Laboratories

Location:

Seminars will be held at NJIT, 323 M.L. King Jr. Blvd., Newark, NJ. Theatre: 3/15/89; Ballroom, Hazell Center: 4/12/89.

Registration Information:

There is no charge for this Seminar Series. Refreshments Served. Reserve Parking in Lot #7. Directions Available.

For Further Information Call:
Dr. Gerald Whitman, E.E. Dept., NJIT
(201) 596-3232/3512

PACE NEWS

By R. Tax

MAINTAINING U.S. ENGINEERING CAPABILITIES AND ENRICHMENT OF ENGINEERING SKILLS

This month's column is dedicated to our engineering members, and to an Entity Position Statement entitled "Enhancing U.S. Productivity Through Improved Utilization of Engineers." This paper is the product of a three year effort by myself and members of USAB's Manpower Committee with the occasional guidance and suggestions by members of USAB's Op Com. Any paper buried in the records of IEEE has very little value. Only the dissemination and use of this paper by each and every IEEE member can give it meaning, life and value. This approved Entity Position Statement is published for your information and use. Official copies may be obtained, at no cost, by contacting Vin O'Neill, IEEE-USA, 1111 19th St., N.W. Washington, DC 20036-3690, (202) 785-0017. Get a copy and send it to your Senator and Congressman and local newspaper.

"ENHANCING U.S. PRODUCTIVITY THROUGH IMPROVED UTILIZATION OF ENGINEERS"

The effective utilization of America's engineering workforce is essential if the United States is to enhance its technological position in the world today.

The nation's competitiveness and productivity can be substantially increased through proper utilization of the time and skills of its engineering professionals.

Engineering is a lifelong profession in which the engineer's ability and skills are enhanced and cultured by years of practice and depth of experience. Those years should not be cluttered with trivia or sub-engineering tasks that may be more appropriately performed by support personnel.

The organizations in which engineers are employed are characterized by a wide spectrum of engineering and management practices. Some organizations effectively utilize the time, knowledge, skills and judgment of their engineers with positive results that increase productivity and result in products of professional quality. The under-utilization of engineers or use of engineers in sub-engineering tasks, on the other hand, has a detrimental influence on the engineers' performance and skill level and should be avoided.

Effective utilization results in:

- Enrichment of engineering skills.
- Increased engineering depth, experience, ability and vision.
- Incentives to further individual skill development.
- Technical growth, improved performance, increase value and self-esteem.
- Self development and the ability to aggressively overcome new problems and challenges in evolving or new technologies.
- Enhanced productivity.
- Improved quality of products and services.

The following recommendations are intended to improve engineering performance and utilization:

- Use engineers in tasks that utilize their highest skills and frequently challenge and expand those skills.
- Provide the engineering environment including adequate space, state-of-the-art equipment, and support personnel such as technicians, draftsmen, technical writers, administrative assistants, secretaries, and programmers so that optimum use is made of engineering expertise.
- Use engineers in the guidance and direction of support personnel to assure that their knowledge and contributions are of a quality that will enhance the engineering effort.

- Use engineers in the formulation of management decisions that influence engineering projects and technological issues.
- Provide financial and other incentives to encourage patent development, methods to increase efficiency or provide product and organizational improvements.
- Provide continuing education opportunities to facilitate the maintenance of technical currency.

Where these recommendations are implemented, engineers will be considerably more productive. Good engineering practice and judgment are derived from in-depth experience and are paramount to the solution of technological challenges.

The United States cannot afford to let its engineers be ineffectively utilized. Rather, it must implement these key recommendations and maintain engineering capabilities in order to continue its leadership in technological competition. Improved utilization will keep engineers proficient and increase their technical excellence. Improved utilization of engineers is essential if the United States is to strengthen its national defense, improve its international balance-of-trade, achieve domestic prosperity and maintain its standard of living.

Use The Calendar

Each issue of this publication contains a monthly Section Activities Calendar. You can help spread the word about our activities by making copies of the Calendar or other meeting notices and posting the copies on company bulletin boards and in other conspicuous places. All of these meetings are open to all members, guests and potential members. You do not have to be a member of a specific society to attend society meetings.

SPECIAL RATE MEMBERSHIP

As of March 1st. you may join IEEE for \$36.50.

COMING

CAREERS CONFERENCE - for unemployed and underemployed engineers on April 29th. Watch for further news.

THE ENGINEER'S PROFESSIONAL LIBRARY

The following may be obtained from the IEEE Service Center at 445 Hoes Lane, Piscataway, N.J. 08855-1331, (201) 981-1393. Note: Some publications are free to unemployed engineers.

Employment Guide for Engineers and Scientists 2nd Edition—

Revised, expanded second edition of the popular guide to finding or changing employment. Practical advice on the job marketplace, preparation and use of resumes, how to use employment and outplacement agencies, salary and benefit expectations, and career planning strategies. Contains a directory of companies and advertising by firms that search for IEEE members. (UHO157-8) Members: \$7.50, Non-members: \$15. Note: Unemployed members may receive a complimentary copy of this publication by writing to the IEEE Washington Office, 1111 19th St., N.W., Washington DC 20036. Include membership number with request.

Student Edition of the Employment Guide for Engineers and Scientists—

Directed to students seeking their first professional employment, now in two volumes, outlines the most effective ways to secure the job that best matches individual goals, education and abilities. Special features include a 50-question pre-interview checklist and an up-to-date listing of employment contacts at more than 1,500 engineering and scientific firms. (UHO174-3) Members: \$8.95. Non-members: \$11.95.

Enhancing Engineering Careers—

The Record of the fifth Careers Conference sponsored by the IEEE United States Activities Board focuses on the careers of