



The IEEE

Newsletter

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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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Vice-Chairman-2 George Gaul
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492-1207
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An Engineer's Approach To Diabetes

On February 8, 1989, the Metropolitan Chapter of the Engineering in Medicine and Biology Society will present a talk on "An Engineer's Approach To Blood Sugar Normalization Around-The-Clock." The speaker will be Dr. Richard Bernstein of the Albert Einstein College of Medicine.

About The Talk

Dr. Bernstein's talk will disclose the methods that he uses for treating various types of diabetes as well as new technological developments in his field. He will detail the device that he developed nearly twenty years ago for self-monitoring the blood glucose. A simple regimen that he has developed based on simple engineering principles for normalization of blood sugars around the clock will also be discussed.

About The Speaker

Dr. Bernstein serves in the Peripheral Vascular Disease Clinic of the Albert Einstein College of Medicine. He is the author of "Diabetes: The GLUCOGRAF Method for Normalizing Blood Sugar" (St. Martin's Press). He has been a member of IEEE since 1954.

Optional Pre-Lecture Get Together

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

Time: 7:30 PM, Wednesday, February 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.

Professional Awareness Conferences

Three schools in the North Jersey Section will once again hold a Student Professional Awareness Conference (S-PAC):

January 31, 1989 - Fairleigh Dickinson University

February 1 - Stevens Institute of Technology

February 2 - New Jersey Institute of Technology

The Conference will present topics such as: P.E. Licensing; making the move from engineering to management; whether or not you should get an advanced degree; and what to expect in an engineering environment.

For information: Tom De Nigris (201) 569-8282.



Operating Principles Of Semiconductor Lasers

The February 16, 1989 meeting of the North Jersey IEEE MTT-AP Chapter will feature a talk on "Operating Principles Of Semiconductor Lasers." The speaker will be Dr. Rodney Tucker, AT&T Bell Labs.

About The Talk

The emergence of wide-band semiconductor lasers has opened up new possibilities for the transmission of microwave signals by optical fiber. Semiconductor lasers with modulation bandwidths in excess of 15 GHz have recently been reported by a number of laboratories and devices with this level of performance should soon be commercially available.

This talk will provide an introduction to the operating principles of semiconductor lasers, and will review recent progress in laser modulation at microwave and millimeter wave frequencies. The intrinsic capabilities and limitations on device performance will be explored using optoelectronic models of the semiconductor laser. Microwave wide-band impedance matching considerations will also be considered.

About The Speaker

Rodney S. Tucker (S'72-M'75-SM-'85) received the BE and PhD degrees from the University of Melbourne, Australia, in 1969 and 1975, respectively. From 1973 to 1975 he was a Lecturer in Electrical Engineering at the University of Melbourne. He was a Harkness post-doctoral research fellow with the Department of Electrical Engineering and Computer Sciences, University of

California, Berkeley from 1975 to 1976, and during 1976-1977 he was with the School of Electrical Engineering, Cornell University, Ithaca, N.Y. From 1977 to 1978 he was with Plessey Research (Caswell), Ltd., Allen Clark Research Center, England. In 1978 he joined the Department of Electrical Engineering at the University of Queensland, Brisbane, Australia, where he was a Lecturer and later a Senior Lecturer. Since 1984 he has been with AT&T Bell Laboratories, Crawford Hill Laboratory, Holmdel, N.J. His current research interests are in semiconductor optoelectronic devices for lightwave communications systems.

Members and guests interested in this subject are invited.

Free Buffet Dinner

There will be a free buffet dinner for attendees in the lobby at 6 PM. **Reservations for the complimentary dinner are requested.**

Time: 7:30 PM, Thursday, February 16, 1989.

Place: ITT Auditorium, 500 Washington Avenue, Nutley, N.J. (Pre-meeting dinner at 6:00 PM. **Reservations required.**)

Information/Reservations: Dick Snyder (201) 492-1207; Willie Schmidt (201) 284-2255.

Ensuring Accuracy In LQG Control Systems

On February 23, 1989 the North Jersey Section IEEE Control System Society will present a lecture entitled "On The Accuracy Of The Stochastic Simulation Of Infinite-Horizon LQG Control Systems." The speaker will be Dr. B. Tarik Oranc, faculty member in the Electrical Engineering Department at the New Jersey Institute of Technology.

About The Lecture

A problem frequently encountered in applying Linear Quadratic Gaussian (LQG) control techniques to practical control systems containing analog plants with random variations is ensuring digital simulations that faithfully depict the behavior of the system under consideration. The importance of accurate simulations of stochastic systems will be discussed. Specifically, the simulation of the infinite-horizon LQG control system will be covered. The effect of the proper selection of the noise statistics, their dependence on integration routines, and their effects on robustness recovery are addressed.

About The Speaker

Born in Ankara, Turkey, Dr. Oranc received his BSc and MSc degrees, both in electrical engineering, from the Middle East Technical University, Ankara,

Turkey in 1981 and 1983 respectively. He worked with Prof. Charles L. Phillips at Auburn University, Alabama on digital control systems where he received his Ph.D. degree in 1987. His dissertation was on classical methods for stability robustness recovery in infinite-horizon LQG controllers. His experience includes research on centroid estimation for the U.S. Navy MATCALS systems and development of optimal guidance algorithms, state estimators and filters for the SDI program.

Pre-Meeting Dinner

There will be a pre-meeting dinner at RODS, Madison Avenue, Morristown at 5:15 PM.

Time: 7:30 PM, Thursday, February 23, 1989.

Place: JCP&L Company, Route 24 and Punch Bowl Rd., Morristown, N.J.

Pre-Meeting Dinner: 5:15 PM, RODS, Madison Ave., Morristown, N.J.

Information/Reservations: Dr. Bill Bigley (201) 757-1600; Kushal R. Jain (201) 949-1151; Fred Schupen (201) 757-1600.

Digital Darkroom Techniques

The February 8, 1989 meeting of the North Jersey IEEE Acoustics, Speech and Signal Processing Chapter will feature a talk on "The Digital Darkroom." The speaker will be Dr. Gerard Holzmann, AT&T Bell Laboratories.

About The Talk

The talk will illustrate that photographs can be processed on a computer just as easily as in a conventional darkroom. If the resolution is chosen close to that of commonly used films, any manipulation can be done invisibly. Dr. Holzmann will give an overview of digital darkroom techniques and illustrate the effects that can be achieved.

About The Speaker

Gerard J. Holzmann received the MSc in Electrical Engineering from the University of Delft in Netherlands in 1976 and the PhD in Computer Science also from Delft in 1979. Since 1983, Dr. Holzmann has been with AT&T Bell Laboratories in Murray Hill, N.J. His main work is in protocol validation techniques. He is the author of the book: *Beyond Photography - the Digital Darkroom*.

Free Buffet

A free buffet will be provided on a first-come-first-served basis an hour prior to the scheduled talk.

Time: 7:30 PM, Wednesday, February 8, 1989. (Free buffet at 6:30 PM.)

Place: AT&T Auditorium, 600 Mountain Avenue, Murray Hill, N.J.

Further Information: John Burgess (201) 386-2736; Steve Laico (201) 386-2031; Sunil Patel (201) 582-4923; Joe Rothweiler (201) 284-2722.



North Jersey Section Calendar

January 31-February 1-2, 1989--"Student Professional Awareness Conferences"--Fairleigh Dickinson University; Stevens Institute of Technology; New Jersey Institute of Technology. Tom De Nigris (201) 569-8282.

February 8--"The Digital Darkroom"--North Jersey IEEE Acoustics, Speech and Signal Processing Chapter, 7:30 PM, AT&T Auditorium, 600 Mountain Ave., Murray Hill, N.J. Steve Laico (201) 386-2031.

February 8--"An Engineer's Approach To Blood Sugar Normalization Around-The-Clock"--Metropolitan Chapter EMBS, 7:30 PM, Rockefeller University, York Ave. at 66th St., Room 305, NYC. Ben Caref (718) 270-1568.

February 9--"PACE Meeting: Merrill W. Buckley - Petition Candidate For President-Elect Of IEEE"--North Jersey Section's Professional Activities Committee, 7:30 PM, ITT Auditorium, 500 Washington Ave., Nutley, N.J. Ray Sears (201) 386-2259.

February 15-April 12--"Optoelectronic Seminar Series-first of three Seminars"--North Jersey Section IEEE & Graduate Student Assoc., NJIT, 323 Martin Luther King Jr. Blvd., Newark, N.J. Dr. Gerald Whitman (201) 596-3232/3512.

February 16--"Operating Principles Of Semiconductor Lasers"--North Jersey IEEE MTT-AP Chapter, 7:30 PM, ITT Auditorium, 500 Washington Ave., Nutley, N.J. Dick Snyder (201) 492-1207.

February 21--"RF To Digital Interfacing By TTL"--IEEE North Jersey Section Young Engineers Committee, 7:30 PM, ITT Auditorium, 500 Washington Ave., Nutley, N.J. Sam Benzacar (201) 881-1200.

February 22--"CCITT's Recommendations For X.25--Tutorial No. 4"--North Jersey Joint Computers and Communications Society, 8:00 PM, AT&T Bell Labs Auditorium, 500 Mountain Ave., Murray Hill, N.J. Sven Sternung (201) 284-2111.

February 23--"Problem Solving Methods And Techniques - Part 2"--North Jersey Section Industry Application Society, 7:00 PM, ITT Auditorium, 500 Washington Ave., Nutley, N.J. Joseph Nelson (201) 866-9581.

February 23--"Accuracy Of The Stochastic Simulation Of Infinite-Horizon LQG Control Systems"--North Jersey Section IEEE Control Systems Society, 7:30 PM, JCP&L Co., Route 24 and Punch Bowl Road, Morristown, N.J. Dr. Bill Bigley (201) 757-1600.

March 15--"R&D Management"--NY/NJ Chapter of the Engineering Management Society. See future issue for details. Jay Gilbert (201) 420-5369.

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.

CHAIRMAN'S CORNER

I have the distinct honor of serving as your Section Chairman for 1989. Although it is customary to set ourselves lofty goals for the new year, we should have a very successful year if we maintain last year's activity that was lead by my predecessor, Dr. Robert Sinusas.

I have followed Bob up through the Section's officer positions and have observed and benefited from the outstanding service he has provided at each level. We all owe Bob a debt of gratitude for his service in 1988 and will be looking for his guidance in 1989. Thanks Bob!

At our January Executive meeting we reorganized and still have many experienced committee chairpersons carrying on with their activities into 1989. However, these volunteers could always use some help with the many functions they perform. If you would like to get involved, please contact me or one of the standing committee chairpersons below.

We usually meet the first Wednesday of each month at the ITT Tower Auditorium in Nutley. You are all welcome.

1989 STANDING COMMITTEES

Awards	Prof. Gerry Herskowitz	420-5605
Banquet	Dr. Raymond Sears, Jr.	386-2259
Education	John Baka	455-8534
Group Coordinator	Alan Stolpen	386-3703
History & Procedures	Maitland McLaren	335-6847
Membership	Don Weinstein	461-0900
METSAC	Richard Tax	664-6945
Newsletter	Mike Perugini	398-5524
Nomination	John Van Savage	544-2503
PACE	Richard Tax	664-6945
Program	Sam Benzacar	492-1207
Publicity	Charlie Coulomb	689-3990
Intersociety Relations	Dave Perry	325-8415
Student Activities	Tom DeNigris	569-8282
Student Assistance	Anne Giedlinski & Charlie Coulomb	377-3175 689-3990
Young Engineers	Sam Benzacar	492-1207

HOWARD LEACH

North Jersey Section Chairman

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.

Isn't it time we got together?

Consider the personal and professional benefits that only IEEE can offer you.

Being a member of IEEE—the world's largest technical society—makes it easier for you to meet the established professionals in your field; to have ready access to all the latest state-of-the-art information, technical meetings and conferences.

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The Institute of Electrical and Electronics Engineers, Inc.
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Piscataway, N.J. 08855-1331, USA, (201) 562-5524

RF To Digital Interfacing By TTL

The IEEE North Jersey Section Young Engineers Committee will meet on February 21, 1989 to hear a talk on "RF To Digital Interfacing By TTL." The speaker will be Mr. Robert W. Sproul, one of the founders of Lorch Electronics Corp., Englewood, N.J.

About The Talk

Microwave engineers are increasingly called upon to design RF components which are controlled digitally in complex systems. Engineers find themselves sometimes in a dreaded no-man's land, a fearful slope known to the natives as "the interface," from an Apache Indian word meaning "place of trouble." In the talk Mr. Sproul will try to mark pathways through this dark land, so that we learn from brave engineers who went before us, whose bleached bones litter the landscape. An attempt is made to form a pattern from the lore and legend of traditional interfacing practices, so that we may learn from these early folks ways. The talk is limited to the most commonly used, and traditional, native language of transistor-transistor logic, or TTL, mainly because the speaker is not fluent in other dialects. The early origins of this language, established through carbon-14 dating, are followed through the ages to the practices of today, with some examples of how-to, and many how-not-to, interface. It is the dream of the speaker, that from the ashes of "only an RF engineer" and the "only digital engineer," will arise a new breed, a new hope for humanity, who might be known as "RF engineer who talks to digital engineer."

About The Speaker

Mr. Robert Sproul retired recently as Vice President of Lorch Electronics Corp., Englewood, N.J., a company founded by him and Mr. Joseph Lorch in 1966. In that capacity he was responsible for guiding the company technically in the field of advanced RF component and equipment development for the communication and radar industry area, where Lorch Electronics has been recognized as one of the leaders in the frequency range of 100 KHZ to 1.0 GHZ. Prior to that, Mr. Sproul was director of advanced development for Adams Russel Company in the Boston area, where he developed one of the earliest Schottky-Barrier broadband double-balanced mixers ever offered as a standard product. Mr. Sproul was Director of Engineering for the Singer Company Singer-Metric division, concerned with the development of receiver-type instrumentation. He was also Director of Engineering for National Company in Boston and supervising engineer with Canadian Marconi in Montreal, Canada. His career started

during World War II, when he worked on basic radar development at the Royal Aircraft Establishment, Farnborough, England, followed by a period with Philips of Eindhoven, in London. Mr. Sproul holds a degree in Electrical Engineering from Strathclyde University in Scotland. He holds several important patents in the fields of RF components and systems, and has authored over twenty-five published technical papers and articles, particularly in the field of digitally-controlled components.

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, February 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) 482-1876 (evenings); Maitland McLarin (201) 335-6847.

Tutorial No. 4 On CCITT X.25

The North Jersey Joint Computers and Communications Society Tutorial #4 will be on February 22, 1989 and the topic will be "CCITT's Recommendations For X.25" The speaker will be Stephen G. Scanlon, Hewlett-Packard Company.

The aim of this seminar is to provide a technical overview of the CCITT's Recommendation for X.25 and shows how it provides a standard connection to a packet switched network. Topology of a packet switched network will be presented along with OSI Model for Networks. Discussion of the OSI model, particularly levels 1-3, identifies the roles of packets, frames and bits and is a keypoint in developing understanding of X.25. The format of the presentation will be a lecture in conjunction with 35mm slides followed by an open discussion session. No previous knowledge of networking is necessary.

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 maintenance of networks and networking equipment to R&D endeavors pushing the state-of-the-art.

Time: 8:00 PM, Wednesday, February 22, 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.

PACE Meeting:

**MERRILL W. BUCKLEY - PETITION
CANDIDATE FOR PRESIDENT-ELECT
OF IEEE**

The North Jersey Section's Professional Activities Committee will meet on Thursday, February 9, 1989 to hear Merrill W. Buckley, Jr. Merrill is making his second consecutive bid as a petition candidate for the position of President-Elect of the IEEE.

He will discuss the function of the President of the IEEE with its potential and limits, why he chooses to run against two Board selected candidates and his opposition of approval voting.

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

Time: 7:30 PM, Thursday, February 9, 1989.

Place: ITT Auditorium (next to the Tower), 500 Washington Ave., Nutley, N.J.

Further Information: Ray Sears (201) 386-2259 or Richard Tax (201) 664-0803.

Seminars On Problem Solving

On February 23, 1989 the North Jersey Section Industry Application Society will present "Problem Solving Methods And Techniques - Part 2." The speaker, Mr. Joseph Nelson will discuss and demonstrate applications of the techniques and guidelines presented in the first session. The audience will be encouraged to participate in the discussions, which will cover problems ranging from research to design to manufacturing, maintenance, marketing and policy making.

The third session, discussions of specific application and results will be held on Wednesday, April 12, 1989.

Time: 7:00 PM, Thursday, February 23, 1989.

Place: ITT Auditorium, 500 Washington Ave., Nutley, N.J.

Additional Information: Joseph Nelson (201) 866-9581

Date: April 26, 1989

**Time: 7 PM—RECEPTION
8 PM—DINNER**

**Place: CHANTICLER, Millburn
376-2222**

SECTION BANQUET - APRIL 26, 1989

**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**

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 Sugar Cured 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).

Following the enthusiastic response of those who attended the Banquet the past eleven years, we are returning to the Chanticle 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:

PACE NEWS

By R. Tax

EDITORIAL

February 19-25, 1989 is National Engineers Week. This is the week we should dedicate to honor our engineers. This is the week we should honor engineers such as Roger Boisjoly, the eighth victim of the Space Shuttle Challenger disaster. No, Roger Boisjoly wasn't on board the Challenger when it disintegrated, taking with it the lives of the seven astronauts. Roger Boisjoly is the mechanical engineer who tried to postpone the launch of the Challenger for more favorable weather conditions; weather conditions and temperatures within which the system was designed to operate.

Roger put his career on the line when he spoke out against a management decision to launch the Challenger. Instead of being listened to and honored he has been branded a "whistle blower." Roger says, "...in the true sense of the word, I didn't blow the whistle, I merely told the truth." It is now three years since January 28, 1986 when seven of our astronauts needlessly lost their lives and Roger Boisjoly is still without a job—truly the eighth victim. Roger is now a Senior Member of the IEEE. We think of him and wish him our best.

While we honor Roger Boisjoly and other members of our engineering community during National Engineers Week there are others who will turn National Engineers Week into a period of lying and deception. They will use this time to recruit (seduce) our youth into Engineering with statements of Engineer Shortage Propaganda (ESP).

It is interesting to note that when I write or speak out against ESP I am sometimes accused of trying to control the number of engineers being produced. But, controls are like vectors, they have both magnitude and direction. These controls can be either positive, to increase, or negative, to decrease the supply. I believe the people and groups that are fabricating the ESP are the people that wish to control the number of engineers and keep the numbers as high as possible and without regard for the consequences.

What are the consequences? First, we have and are losing our engineering capabilities. When we have a surplus of engineers, engineers are underutilized. When an engineer does engineering work 10 percent of the time, then for a ten year period the engineer has gained only one year of engineering experience. During a supply-demand balance, engineers are fully utilized, increasing their engineering skill level, their experience, their capabilities and their values.

Milton Alpern wrote "Quantity Instead of Quality: A Sabotage of Engineering and Its Education by 'Engineer Shortage' Propaganda?" in 1976. He discusses the engineer's professional impotence and economic insecurity. He blames the engineering surplus and writes "It is the threat of displacement by that 'extra' engineer that is the key to this problem of economic insecurity and resulting professional impotence." The professional impotence Alpern refers to is exemplified by the actions of Roger Boisjoly and others before him that tried fruitlessly to prevent technological disasters only to become victims of their efforts. Milton Alpern wrote his paper in 1976 and fought against ESP as a Director of NSPE and a member of the Engineering Manpower Commission (EMC).

Today, we are still fighting those that deal in ESP. Now, NSPE, the American Consulting Engineers Council (ACEC) and Betty Vetter's Commission on Professionals in Science and Technology (CPST) are responsible for the dissemination and fabrication of ESP. We know who is responsible and Betty Vetter tells who is financing the operation. CPST is funded by science societies and corporate members. In the November 1988 article in "Electronic Engineering Times" about Ms. Vetter's Commission they say

"Among the participants are IBM, Honeywell, Bell Labs and the American Medical Association." Since this effort is detrimental to the engineering and technical staff at these corporations it is safe to assume that the non-engineering staff is responsible and the issue is splitting our major corporations and industries.

Obviously, this has been going on for years. Shall we seduce this generation of children into engineering just as we seduced the last generation with ESP? Is our nation's engineering capability any better today than it was in 1966, before ESP and a higher production of engineers? Is National Engineers Week better utilized to honor our engineers or to recruit our youth?

— If you always do what you always did
you will always get what you always got.—

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

Feb. 15	Flood Control	THIS SESSION POSTPONED	
Feb. 22	Protocol Tutorial #4 CCITT X.25 et.al	AT&T-BTL Murray Hill	Sven Sternung (201) 284-2111
Mar. 22	Cryptography	ITT Nutley	George Pick (201) 884-6040
Mar. 29	Protocol Tutorial #5 IEEE 802.x (Tent.)	AT&T-BTL Murray Hill	Sven Sternung (201) 284-2111
April 19	Point/Point Microwave	ITT Nutley	George Parowski (212) 884-6040
April 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

Call For Abstracts In Bioengineering

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.

IDENTIFY YOURSELF as an IEEE member

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

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Engineering Management Society Announces Meeting Dates

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

March 15 - Dr. Richard Donnelly - "R&D Management: Innovation Management."

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.

Student Paper Contests

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.

Consultants' Network Sets Meeting Dates

The IEEE NY Section Consultants' Network announces the following schedule of meetings:

Wednesday, March 22 - Topic and speaker to be announced.

Thursday, April 13 - Nominations;
Networking.

Monday, May 15 - Elections; Review of advertising campaign.

Tuesday, June 13 - Plans for next year; Networking.

The meetings will take place at 6:30 PM, Consolidated Edison Building, Room 1405, 4 Irving Place, NYC.

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& Graduate Student Association, NJIT
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Allied-Signal.*

I. APPLICATIONS OF HIGH SPEED LASERS
February 15, 1989, Wednesday 3-6 PM, Theater

Fabrication and Characteristics of High Speed Lasers	Uziel Koren AT&T Bell Laboratories
Gigabit Per Second Digital Fiber Optic Systems	Nim K. Cheung, Bellcore
High Speed Modulation and Short Pulse Generation in Semiconductor Lasers	Gadi Eisenstein AT&T Bell Laboratories

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 Research 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: 2/15/89, 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**

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

— 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 *InKnowVaIon*, 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 IR&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 today's 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 _____

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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.

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