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# Newsletter

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

NOVEMBER, 1983

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#### NEWSLETTER STAFF

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(201) 981-0060

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

#### SECTION OFFICERS

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Jr. Past Chairman . . . . . Frank Relotto

## Engineers Legal Rights & Duties

Mr. Martin Fleit will speak on the legal rights and obligations of engineers to their technological developments at the November 15, 1983 meeting of the North Jersey Section of the Control Systems Society.

#### About The Talk

Technical developments can be guarded through patent protection, copyright protection, trademark or by keeping the development a secret. Dr. Fleit will share his expertise on who owns developments that are the result of an engineer's intellect, and the relative merits of the basic mechanisms for protecting property rights in technology. His talk promises to be of wide interest to all members of the engineering profession.

#### About The Speaker

Martin Fleit is Senior Partner in the law firm of Fleit, Jacobson, Cohn & Price, Washington, D.C., whose members specialize in Patent, Trademark, Unfair Competition, Copyright and Antitrust law. Mr. Fleit received his B.S. in Chemical Engineering from Tufts University and the University of New Hampshire in 1948, and his J.D. from Georgetown University in 1952. He is a member of the District of Columbia Bar, the Florida Bar, the American Bar Association, and several national and international law associations. His firm writes the patents column for the IEEE-EMB Magazine.

Time: 8:00 PM, Tuesday, November 15, 1983.

Place: Jersey Central Power & Light Co., Madison Avenue (Rte. 24), Morristown, N.J.

Further Information: Dr. Daniel Tuey (201) 567-9004 (days), (201) 784-0513 (evenings); Kushal Jain (201) 265-2000

## Update On Fuses

On November 9, 1983, the meeting of the North Jersey Chapter of the Industry Applications Society will hear a talk on "Fuses." The guest speaker will be Mr. Edward T. Gimbut, a partner of Tri-Tech Sales Associates, Inc.

Mr. Gimbut has spent the last 12 years in the application and sale of low voltage current limiting fuses. He has conducted seminars and taught courses on "over-current protection" for Industrial, Contractor and Engineering groups. His prior experience includes working as an electrical engineer for Amman & Whitney, Inc., Parsons-Jurdens Corp., Allied Chemical Corp. and the N.Y. Naval Shipyard.

Mr. Gimbut is a graduate of Pratt Institute and has done graduate work at New York University, The City College of New York and Hofstra University.

Attendance is free. Members and non-members are invited.

Time: 7:30 PM, Wednesday, November 9, 1983.

Place: Jersey Central Power & Light Co., Madison Avenue (Route 24), at Punch Bowl Rd., Morristown, N.J.

Directions: Via Interstate Route 287, take Exit 31 in Morristown and proceed East on Route 24 (Madison Ave.). JCP&L is on the left shortly after the third traffic light.

Further Information: Irwin West (201) 288-4485.

# ENGINEERING OPPORTUNITIES

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 . Tech Writers 35K  
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## COMMUNICATIONS

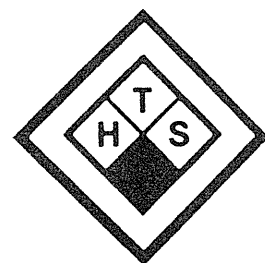
Lydia Thomas

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 . Data Comm. Sys. 55K  
 . SW Engr. Comm. Sys. 55K  
 . Comm. Switching 55K  
 . Sat. Comm. Sys. 55K  
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the Bureau of Labor Statistics' "Occupational Outlook Handbook." Although we have made some progress there are still issues that must be addressed.

The article still blames the victim in citing the engineer as being responsible for his or her obsolescence. I don't believe this is entirely true. The fastest way to engineering obsolescence is by not practicing or not having the opportunity to practice in this profession. By this, I mean, doing creative engineering work utilizing the basic engineering disciplines studied in college and the engineering skills acquired through years of practical experience. Of course, no practice means no experience. Supply and demand will influence this.

The reference to the American Electronics Association's projected engineer shortages is due to requests by congressmen alerted to this issue by their engineering constituency. I, through our Occupational Outlook Task Force, also asked the Occupational Outlook Department to review the AEA survey more than a year ago. I know that engineers from other Sections also asked their congressmen to check on AEA. So, we can get results when and only if we try.

We still need more help from Section Members in Professional and Technical areas. Consider it an opportunity to put something back into the profession.

## Employment Agreement Study

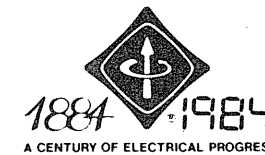
The USAB has provided funding to the North Jersey Section for a Contract/Employment Agreement project. As reported earlier this year in THE NEWSLETTER your PACE committee is collecting employment/inventor agreement contracts from members. Purpose of this project is to provide feedback to members on the legal ramifications of these employment agreements.

Hopefully, a legal review of relevant prototype contracts will aid members in knowing the limits of their contracts and establishing limits of intellectual property provisions of these contracts. Copies of members contracts are needed to make the project successful.

As part of a later phase of the project, the PACE committee plans to have a practicing attorney specializing in contract law make a presentation to the membership. Results of the project and a final project report will be made at that time.

Now, copies of employment agreements/contracts are required for this study. You can help by sending in a copy of your employment agreement/contract. If you like, you may black out names or titles and these will still be of great value to the project.

Please send your copies to our PACE Chairman: Mr. M. McIarin, 17 Briarcliff Rd., Mountain Lakes, N.J. 07046.



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\*Applications must be received at IEEE by December 31, 1983 to be eligible to receive prize.

Additional recruiter forms are available from  
 IEEE MD, 445 Hoes Lane, Piscataway, NJ 08854.

## Dues By Credit Card

All higher grade members in Region one (above Student grade) will have the option to pay their 1984 dues renewal by credit card with the dues bill mailed to them in late September. A form will be enclosed with the mailing that allows for payment by Visa, Master Card, or American Express. The credit card number and credit card expiration date should be clearly printed on the form or this may delay processing of the Member's renewal and increase administrative costs to process these renewals.

If the Member wishes to delete or add Society memberships, subscriptions or needs to alter the fees being remitted, these alternatives should be clearly printed on the portion of the renewal invoice being returned. The correct amount being remitted should be indicated both on the renewal invoice and credit card payment form.

# PACE NEWS

Professional  
Activities  
Committee for  
Engineers

By R. Tax

## Engineer Outlook: Not Rosy

*Dick:*

*Perhaps your Section's newsletter might like to quote from this article.*

*Your efforts seem to be paying off.*

**IRWIN FEERST**

The following report by the Knight Ridder newspapers appeared in the "Chicago Tribune," September 11, 1983.

### ENGINEER OUTLOOK NOT ALL ROSY

Reports that a shortage of engineers in the 1980s will help guarantee high pay and job security for engineering graduates are highly exaggerated, according to recent studies by experts at the Bureau of Labor Statistics.

While it's true there's a favorable job market for engineers (57 percent of on-campus job offers went to engineering majors, who accounted for 8 percent of all graduates) no significant shortage of engineers is expected in the 1980s.

Moreover, experienced engineers may face problems of "salary compression" and obsolescence as they move into middle age, the studies say.

The outlook for engineers isn't all rosy, in other words, even though newly-graduated electronics, computer design and petroleum engineers are in high demand.

Much of the alarm over shortages of engineers was based on studies by the American Electronic Association. That group's survey asked employers to project the number of engineers they would require in 1981, 1983 and 1985. While high demand was forecast, the Bureau of Labor Statistics studies suggest that the projections overstated demand by basing them on overly optimistic sales growth estimates by the employers.

"In contrast to many predictions of shortages," the bureau

studies say, "requirements for engineers will be in rough balance with the rest of the 1980s."

However, the projected rate of growth in demand for engineers will continue to exceed that for the average of all occupations.

But it's the mature engineer--the one with 15 or 20 years of experience--who will face the most serious job problems, the bureau studies say. Many electrical engineers in their late 30s and 40s are dissatisfied with their careers, for instance, and report being assigned to less challenging and satisfying projects than their young peers.

Older engineers also complain that their salaries often aren't much higher than those of new graduates; that they are sometimes laid off during slack periods, while younger engineers are retained; and that they have difficulty switching to jobs with comparable salaries and opportunities.

Engineering obsolescence is the cause of many of these problems, Unless he or she studies hard while at work, the engineer soon finds that new graduates actually have the edge with new technology. As this occurs, the older engineer's value may peak and even decline.

Some engineers are more susceptible to obsolescence than others. Engineers in fields where technology is changing rapidly, such as electronics, probably are most vulnerable. So are engineers who allow themselves to become too narrowly specialized, and those who don't continue their education throughout their careers.

In short, anyone who thinks he's "got it made" because he's becoming an engineer had better look beyond the short-run job prospects and consider the long-term pros and cons of this dynamic profession.

### More On Rosy Outlook

Mr. Feerst's note, I believe, is in reference to my efforts since 1977 and the efforts of the members of the later formed USAB Occupational Outlook Task Force (OTF) to critique and revise

## EMS Meet On Program Management

The NY/NJ Chapter of the Engineering Management Society will hear Mr. Arthur J. Scrivani, Vice-President and Director of Program Operations at ITT Defense Communications Division discuss "Engineering Program Management and Marketing--Kalaidoscopy Relationship" at its November 22, 1983 meeting.

### About The Speaker

Prior to assuming his current position, Mr. Scrivani was Vice-President and Director for Program Management at Gorn Corp. There he was responsible for all operations dealing with pressure, vacuum, velocity and float switches. Mr. Scrivani is a graduate of Stevens Institute of Technology, ME, Cum Laude. He has held membership in the ASME, AIAA, AMA, AFCEA and AUFA.

**Time:** 7:30 PM, Tuesday, November 22, 1983.

**Place:** ITT Auditorium, 500 Washington Avenue, Nutley, N.J.

**Pre-Meeting Dinner:** 6 PM, Jade Fountain, 321 River Rd., Clifton, N.J.

**Further Information and Dinner Reservations:** Al Bottani (212) 393-3797; Barry Gourari (201) 783-5570, and Harry Stokes (914) 696-6775.

## Energy Efficient Motors

The New York & Long Island Section of the Joint Power Engineering Society & Industry Application Society will sponsor a meeting November 30, 1983 on "Application of Energy Efficient Motors."

The speaker will be: Michael Poliacof, Senior Electrical Engineer, Port Authority of N.Y. and N.J.

**Time:** 5:30 PM, Wednesday, November 30, 1983.

**Place:** Port Authority of New York & New Jersey, One World Trade Center, Room A61 North.

**Information:** Burt Kidoff, Port Authority of N.Y. & N.J..(212) 466-7184.

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## New Control Officers

The New Jersey Control Systems Society Section has elected these officers for the 1983-84 year:

Chairman: Frank P. Kuhl, Jr., Ph.D., U.S. Army, (201) 724-6488.

Vice-Chairman: Kushal Jain, Burns and Roe, (201) 265-2000.

Secretary/Treasurer: Daniel B. Tuey, Ph.D., PharmaControl Corp., (201) 567-9004.

## Heat-Shrinkable Cable Accessories

The NY & LI Joint PES and IAS Chapter will present a technical discussion and demonstration of "Heat Shrinkable Power Cable Accessories for High Voltage Applications" on November 17, 1983.

Engineers from Raychem, Inc., will cover Terminations: splices switchgear connections, motor connections, transition joints, PILC to PILC (Paper Insulated Lead Covered Cable) "Y" splices.

Also to be covered are: accessories for lower voltage application to 1000 volts: branch circuit kits, cable jacket repair kits, portable cord repair kits, breakouts, end caps.

There will be a question and answer period and sample kits and engineering brochures will be supplied to attendees.

**Time:** 5:30 to 7:30 PM, Thursday, November 17, 1983.

**Place:** Gibbs & Hill, Inc.-Training Room 17th floor, 11 Penn Plaza, NYC. (393 Seventh Ave. between 31 & 32 Streets).

**Further Information:** Anthony Dutko & Uwe Enke - Gibbs & Hill, Inc. (212) 760-4000; John Arceri - Con Edison (212) 834-3318.

## PACE Sets Meeting Dates

The North Jersey Section Professional Activities Committee will sponsor its regular monthly meeting the third Wednesday of every month. Meetings will be held from 7:30 PM to 9:30 PM at Singer-Kearfott, Plant 3, 1250 McBride Avenue, Little Falls, N.J.

These meetings are open to all members and interested public professionals with refreshments free of charge.

**Further Information:** M. McLarin (201) 335-6847; H. Waters, (201) 785-6417.

## Teleconferencing Systems

Richard S. Cramer will survey types of teleconferencing systems at the November 30, 1983 meeting of the joint Computer and Communications Chapter of the North Jersey Section of the IEEE.

### About The Talk

The speaker will define types of systems ranging from conference telephones to boardroom systems having various levels of visual adjuncts. For each type of system, the speaker will present suitable customers, why the system is used, and generic advantages and disadvantages. The speaker will give a description of each type of teleconferencing system.

### About The Speaker

Richard S. Cramer is Vice President of Engineering of Avtec Industries, a firm that provides turnkey teleconferencing systems. He has spent over 10 years in the fields of audio, audiovisual, and teleconferencing systems.

**Time:** 7:30 PM, Wednesday, November 30, 1983.

**Place:** Jersey Central Power & Light Co., Madison Avenue (Route 24) at Punch Bowl Road, Morristown, N.J.

**Additional Information:** Fred Smith (212) 286-6906.

## EMBS Officers

Due to a vacancy in the Executive Committee, the Metropolitan Chapter of the Engineering in Medicine and Biology Society has recommended a revised slate for 1983-84:

Chairman:	Jeff Kriz
Vice Chairwoman:	Nina Krause
Secretary/Treasurer:	Mark Restivo

Further nominations will be accepted until November 1, and can be forwarded to Dr. Maryon J. Williams, Jr., Hospital Engineering Logistics and Planning, Inc., 746-760 Alexander Rd., CN-1, Princeton, N.J. 08540 (609) 683-1990. Elections will be held on November 2 at the scheduled monthly meeting.



The North Jersey Section is offering an evening course titled "Programming in the Language BASIC."

The course is designed for professional personnel and will deal with BASIC primarily as it is implemented in the Microsoft version; by far the most popular and the "de-facto" standard in the microcomputer industry. Other versions will be considered, however, and some attention will be given to many of their differences and their impact on the user.

The language will be covered through various applications in real, practical examples. Numerous techniques will be discussed; many of which do not appear in textbooks. Implementation of the language on several different computer systems will be considered, with open discussion on advantages and/or disadvantages.

Students will be given assignments to do on their own computer, if one is available; either at home or on the job. Assignments will be designed to emphasize the techniques covered in the lectures. Upon completion of the course, the student will be able to write practical, useful programs and will have an in-depth awareness of the language, on which to build highly sophisticated skills.

The Instructor is Mr. Roy S. Reichert; District Manager in the Technical Systems Training and Education Dept. of the Bell System Central Services Organization.

(1) January 10—What Is BASIC?—Origin of the language: Dialects; Interpreter vs. Compiler versions: Constants, variables, keywords, syntax: ASCII coding: Direct mode vs. Program control mode

(2) January 17—I/O And Control Methods—Input/Output techniques: Program control; branching; making decisions: Built-in data; Data types: The type-ahead buffer

(3) January 24—Executable Structures—Loops; switches: Dimensioned arrays: Sub-routines: Properties of the stack register

(4) January 31—Functions—Library Functions: User-defined functions

(5) February 7—Character Strings—String definition: Built-in String functions:

Data Strings: String manipulation

(6) February 28—File Structure And Usage—Sequential files: Random-access files: Disk formats; structures

(7) March 6—Program Testing And Debugging—Diagnostics: Error handling techniques: Error simulation; Positive use of error conditions

(8) March 13—Computer Graphics—Resolution considerations: Graphics commands; functions: Graphics peripherals: Color techniques

Homework assignments will be given and it is expected that you will have access to a computer or time sharing system that runs BASIC.

Where: Jersey Central Power & Light Co., Madison Avenue & Punch Bowl Road, (Rte. 24), Morristown, N.J.

When: Eight sessions, Tuesday nights, starting January 10, 1984 from 6:45 to 9:15 PM. Snow dates have also been arranged.

Cost: Members \$24.00; Non-Members \$85.00. Members of the NY Section at extra cost. Text book (contains worksheets), and considers syntax for IBM, Apple, TRS-80 and Commodore: optional at cost.

1.5 CEU Credits pending  
Additional Information: Mr. F.J. Koblenz at (201) 344-0202 (Business), or Mr. Arnold Mercer (201) 684-1400 (Business).

REGISTRATION—"PROGRAMMING IN THE LANGUAGE BASIC"

To: Mr. Arnold Mercer, P.O. Box 432, Wycoff, N.J. 07481 (201) 684-1400, (Business).

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ADVANCE REGISTRATION FORM

Individual registration fee (ECOT057): **Before November 24** for IEEE members is \$130, \$180 for non-members. **After November 24**, registration for IEEE members is \$155, \$205 for non-members. Fee is tax-deductible if course is taken to maintain or improve your skills. \$25.00 of non-member fee is applicable to IEEE membership if form is completed by course date.

☐ Enclosed is Registration Fee (Made payable to NJ Section, IEEE) for "Tech-nologies For The Information Age" short course scheduled for Bell Laboratories, Holmdel, N.J.

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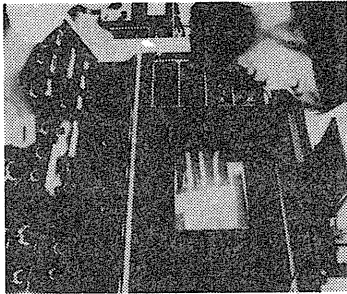
TECHNOLOGIES FOR THE INFORMATION AGE

DIGITAL TECHNIQUES



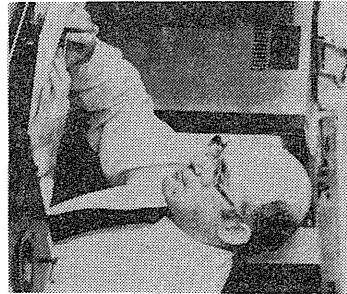
Mr. Robert Aaron has worked at Bell Labs for more than thirty years and is currently the Head of the Digital Techniques Department responsible for exploratory efforts in digital signal processing. He is a Fellow of the IEEE and received the IEEE Alexander Graham Bell Medal in 1978. He received the MS degree in electrical engineering from the University of Pennsylvania in Philadelphia.

MICROELECTRONICS



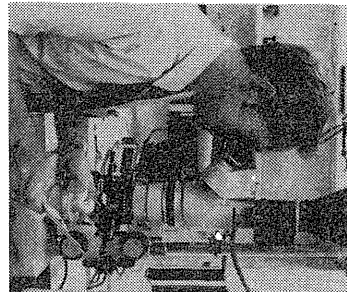
Evelyn L. Hu is supervisor of the VLSI Patterning Processes Group at Bell Labs in Murray Hill. She is responsible for selecting and implementing high resolution lithographies and pattern transfer techniques for making microcircuits. She has a Ph.D. in Physics from Columbia University in New York, holds four patents and has shared authorship in 30 technical papers.

SOFTWARE



Michael E. Lask is Head of a Computer Science Research Department at Bell Labs. His major interests include access to data bases, including a program to do computerized route finding and give driving directions, and an experiment with human interfaces to a library catalog system. He holds a Ph.D. in Chemical Physics from Harvard University.

PHOTONICS



Paul W. Shumate, Jr. is the Supervisor of the Lightwave Device Technical Group at Bell Labs. His current work includes the design of new transmitters, receivers, and packages for single-mode systems. He is a past Editor of the IEEE Transactions on Magnetics and has a Ph.D. in physics from the University of Virginia.

COURSE PARTICULARS

**Date:** December 6, 1983  
**Doors open:** 10:00 A.M. Eastern Standard Time  
**Class begins:** 11:00 A.M. E.S.T.  
**Food break/selected films:** 1:30-2:00 P.M.  
**Class ends:** 4:00 P.M. after roundtable discussion.  
**Question & Answer Periods:** Interactive phone hook-up with originating studio  
**IEEE Certificate of Merit:** Inscribed and mailed to each attendee.  
**Fees:** See Registration Form. Fee includes course notes. A meal is not provided.  
**Cancellation Policy:** Individual cancellations not postmarked or called in one week prior to course date will be subject to the full registration fee. Substitutions may be made at any time.  
**Further Information:** For answers to any questions, contact **Fred Koblenz 344-0202 (B) or 665-1525 (H).**

COURSE DESCRIPTION:

Communications research at Bell Labs will be featured in a one-day short course. Unique, integrated approaches to modern communications research including a discussion of original contributions in software, hardware, systems design and engineering will be presented. The presentations will be supported by printed articles, bibliography and numerous pre-taped segments.

FOR WHOM INTENDED:

Electrical, computing (hardware or software), mechanical, manufacturing, and systems engineers, managers and educators in the field of digital communications and digital networks.

COURSE OUTLINE:

**Software Algorithms**—Dr. Michael E. Lask  
■ Diagonalizing Matrices  
■ Sorting (Bubble, Shell)  
■ Search (Hashing, D-trees)  
■ Graph processing (map routing, network minimalization, compiler design)  
**Fabrication Processing of Microelectronics**—Dr. Evelyn Hu  
■ Size and memory directions  
■ Optical lithography (X-ray and beam—being explored—resolution, advantages, limitations)  
■ Multilevel resists  
■ Issues in processing (wet to dry etching, ion implantation)  
**Photonics: Lightwaves**—Dr. Paul Shumate  
■ Glass fibers and cables  
■ Light sources and detectors  
■ Applications and recent advances

Evolving Integrated Digital Networks—

Mr. Robert Aaron  
■ Historical and future role  
■ Impact of technology on digital transmission and switching  
■ Integrated services digital network